

# Discussion Slides: Alaska Senate Finance Committee

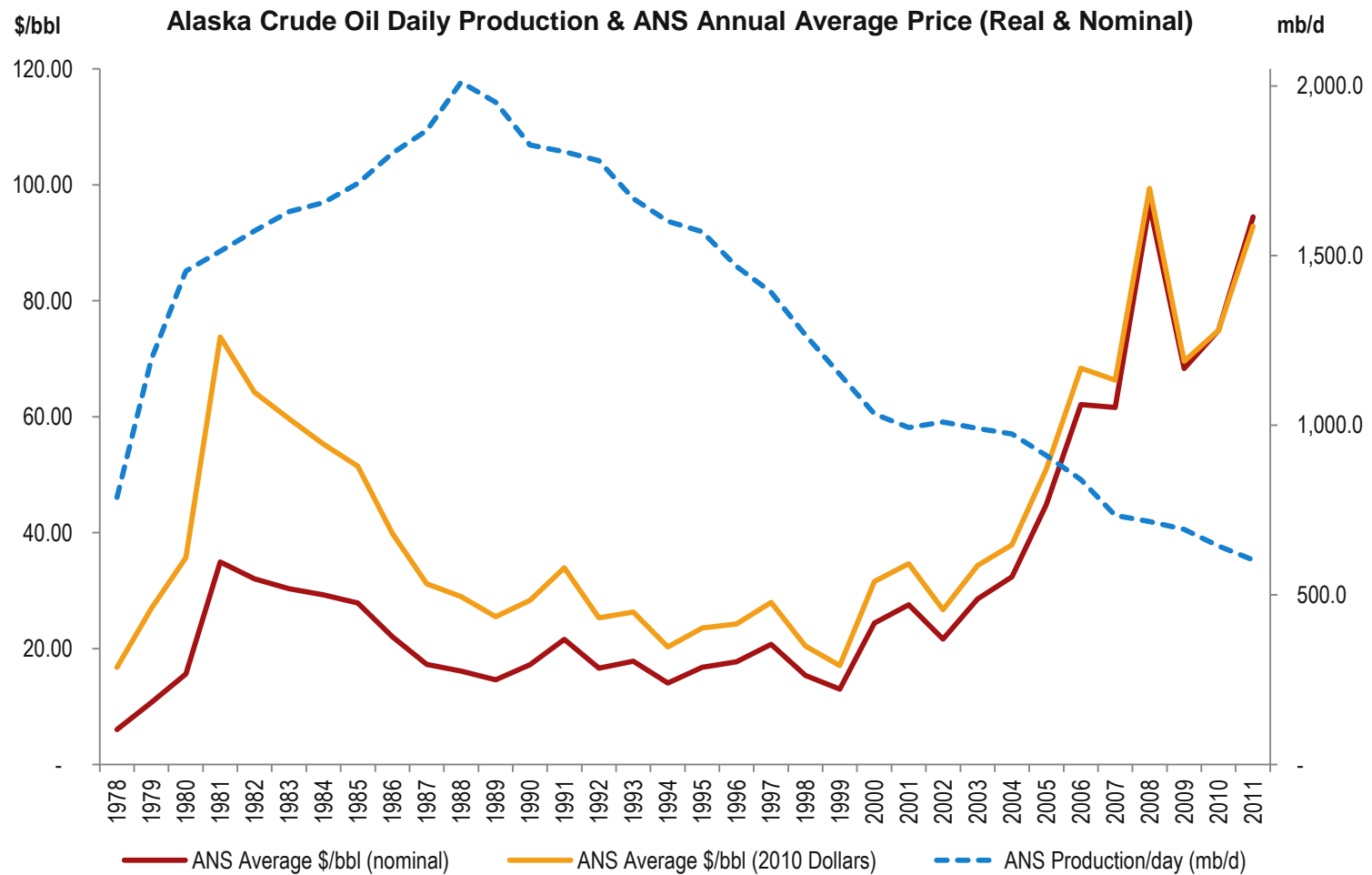
March 22, 2012

Janak Mayer  
Manager, Upstream & Gas  
PFC Energy

1. Historical Data Analysis: Value of Alaskan Production Over Time
2. Re-Examining Previous Analysis of ACES
3. Impact of CSSB 192 Revised Production Tax Floor
4. Options for Incentivizing New Production

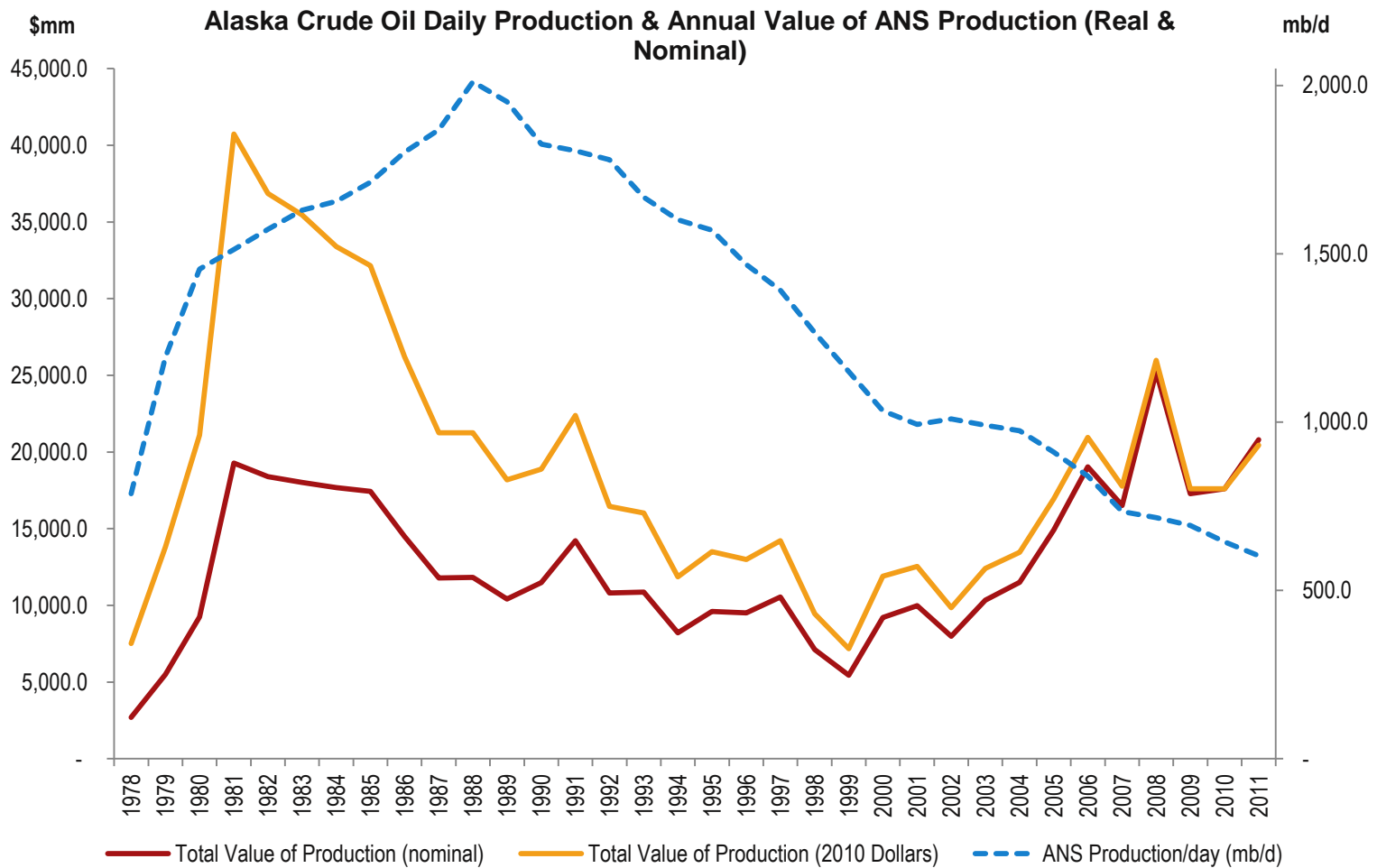
# **Historical Data Analysis: Value of Alaskan Production over Time**

# ANS West Coast Crude Historical Average Price (Real vs Nominal)



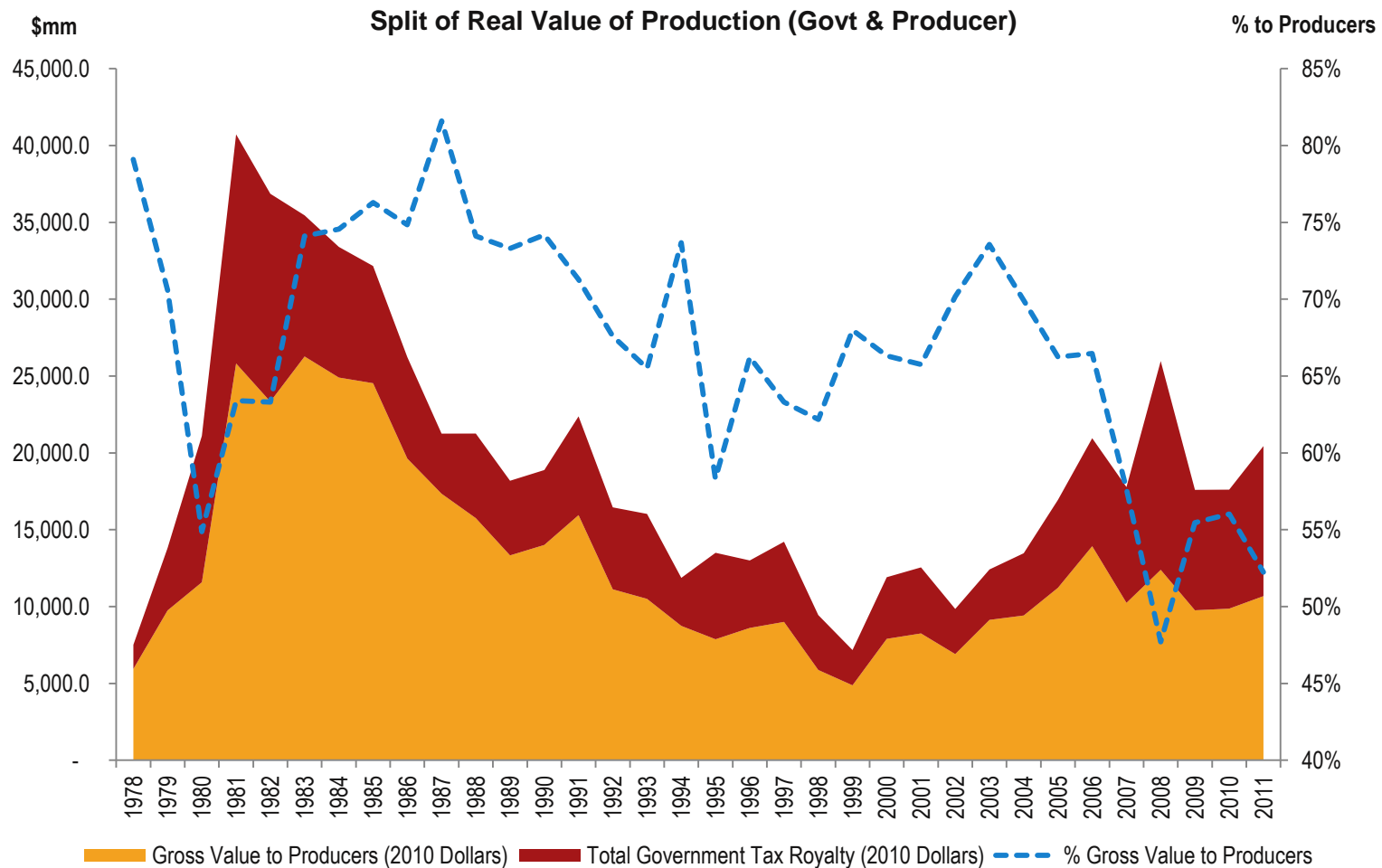
ANS Price of \$35/bbl in 1981 equates to \$75/bbl in 2010 dollars

# ANS West Coast Crude Historical Average Price (Real vs Nominal)



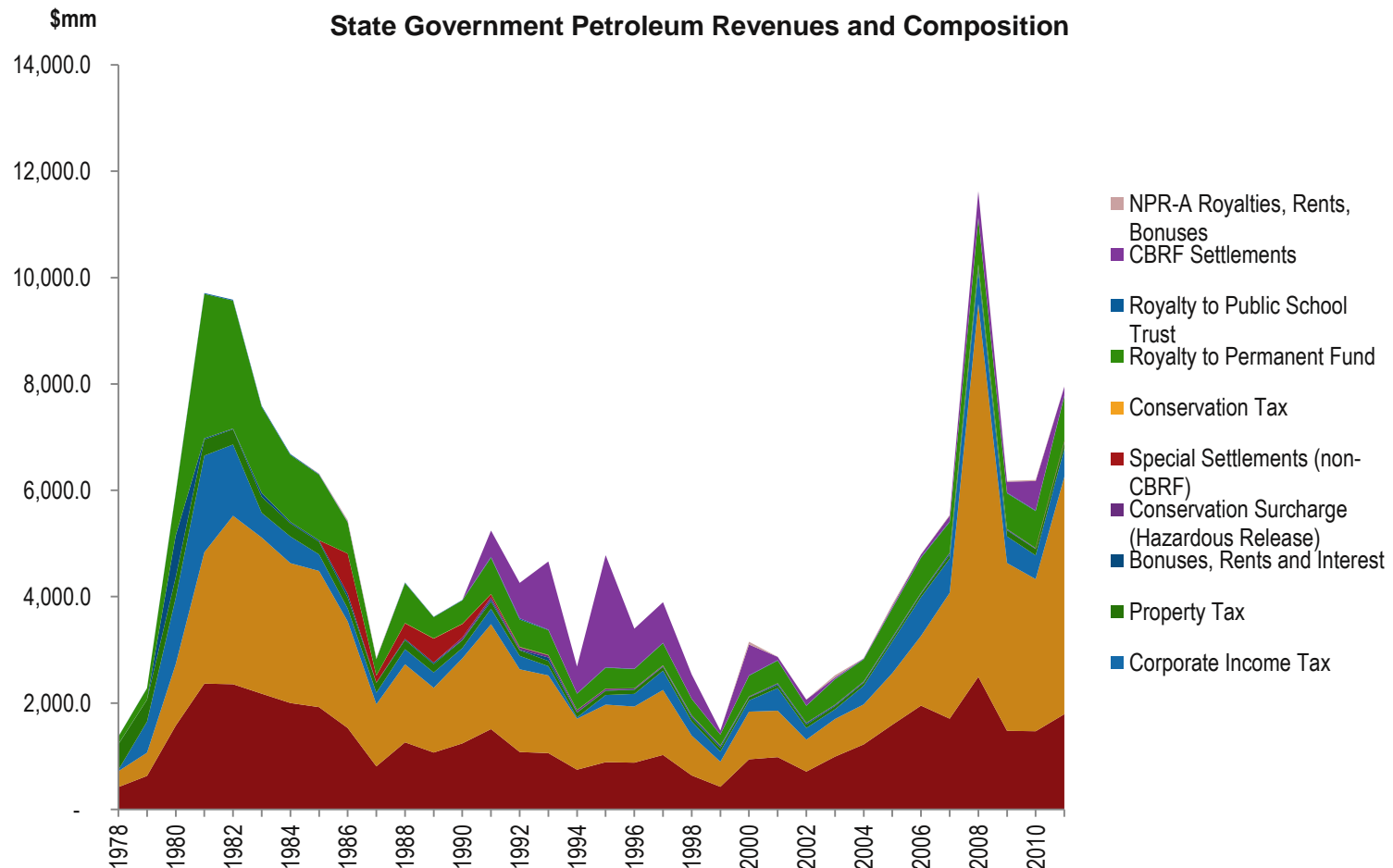
Earliest years of production were high value years – and recent years have marked a new, high-value period

# ANS West Coast Crude Historical Average Price (Real vs Nominal)



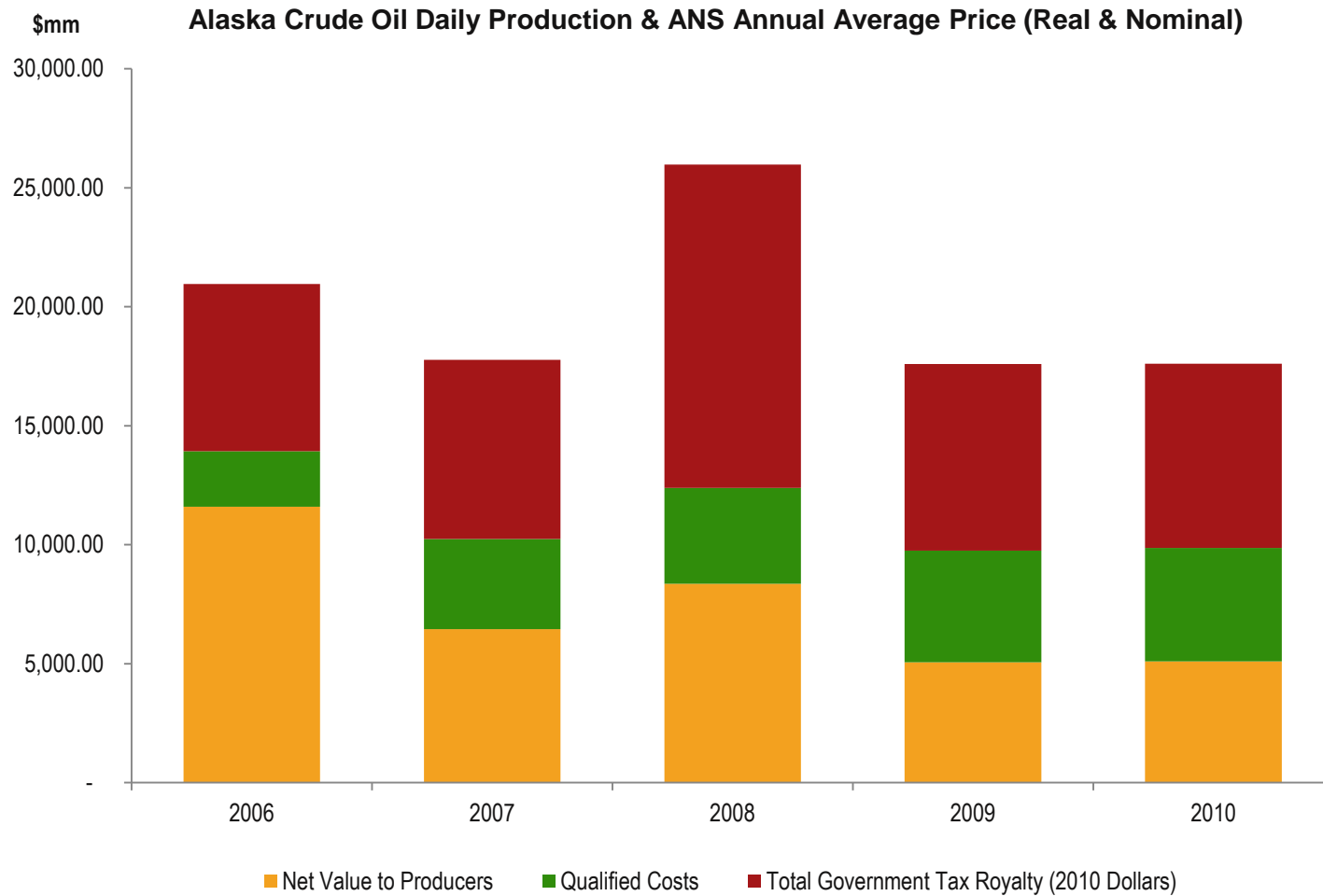
ANS Price of \$35/bbl in 1981 equates to \$75/bbl in 2010 dollars

# ANS West Coast Crude Historical Average Price (Real vs Nominal)



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# ANS West Coast Crude Historical Average Price (Real vs Nominal)

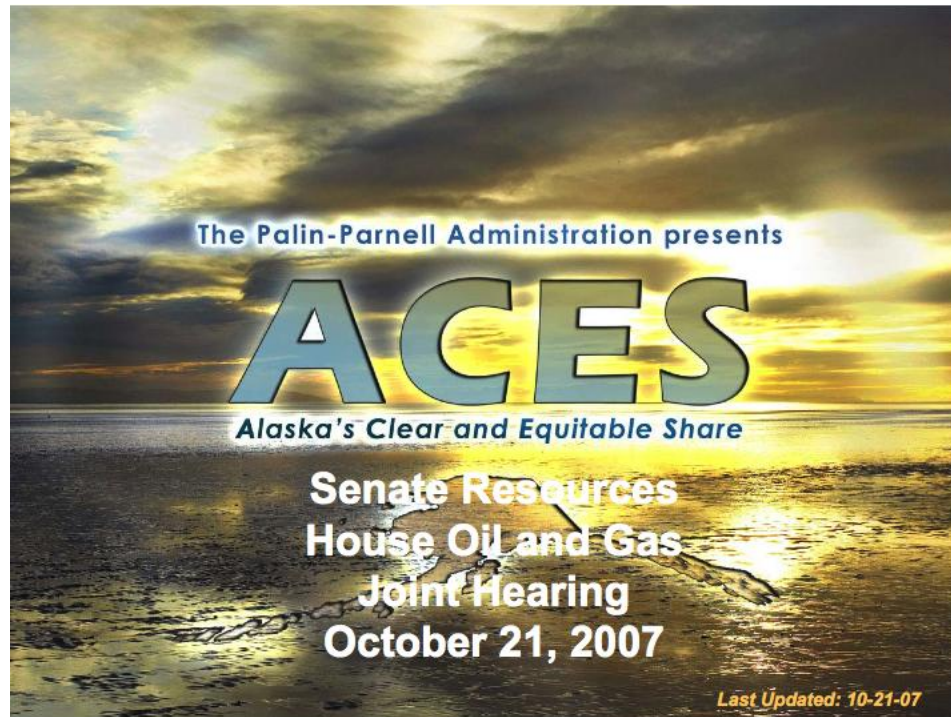


ANS Price of \$35/bbl in 1981 equates to \$75/bbl in 2010 dollars



# **Re-examining Previous Analysis of ACES**

# “ACES Preserves Investment Climate”: What has changed since 2007?



## ACES Preserves Investment Climate

An Economic Evaluation

Anthony Finizza, Ph. D.

October 21, 2007

# Revisiting the Previous Modeling Work

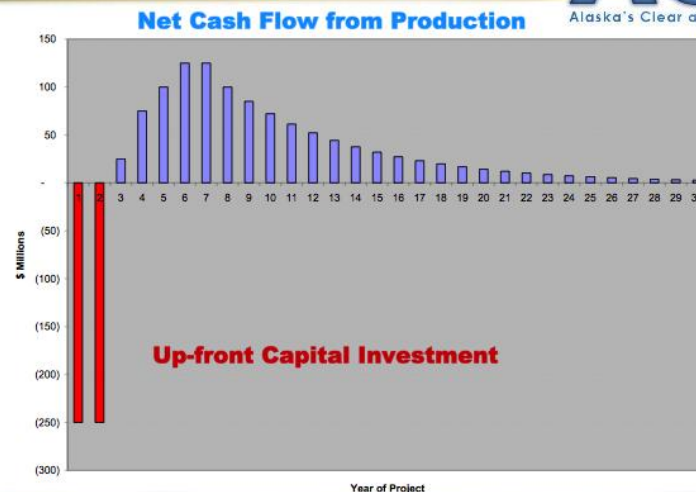


## Characteristics of the Seven Fields

	Field A	Field B	Field C	Field D	Field E	Field F	Field G
Legacy Field	●						
Satellite	●	●	●		●		
Stand Alone				●		●	●
Heavy Oil	●				●		
Reserves (MMB)	80	60	40	200	100	120	320
Ownership	Existing	New	Existing	New	Existing	New	Existing
Capital (\$ / B)	\$11	\$10	\$11	\$13	\$16	\$8	\$5
Expense (\$ / B)	\$7	\$9	\$8	\$12	\$8	\$5	\$6

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## Stylized Project Cash Flow



7

## New Field Tax Analysis - NPV Impact

### NET PRODUCTION TAX SCENARIOS

Scenario	Rate		Progressivity		Capital	Industry NPV @ 10% at \$40/bbl real ANS WC (mm\$)						
	Mature	Other	Trigger	Rate	Investment	Field A	Field B	Field C	Field D	Field E	Field F	Field G
	Fields	Fields			Credit							
ACES - 10% Floor	25.0%	25.0%	\$30	0.0020	20%	10	60	40	40	(500)	210	1,000
ACES - NO Floor	25.0%	25.0%	\$30	0.0020	20%	120	60	40	40	(300)	210	1,000
PPT Status Quo	22.5%	22.5%	\$40	0.0025	20%	180	50	60	10	(200)	220	1,100
High Net Tax	35.0%	22.5%	\$30	0.0030	20%	150	50	50	0	(200)	140	1,100

# Key Assumptions to Consider

- Regime modeled is ACES as proposed, not as enacted:
  - 0.02% progressivity above the \$30 level, not 0.04%
  - 50% maximum production tax rate, not 75%
- Cost assumptions are much lower than recent experience suggests:
  - \$10/bbl capex and \$9/bbl opex, vs
  - \$17/ bbl capex and opex
- Analysis performed from \$20 to \$100 crude oil price, with focus on \$40 “stress-test” price, and \$60 “base case”
- Assumed production profile is one that will maximize economic returns for a given field size
  - High peak production rate with high decline rate means most production value occurs within 10 years

# Benchmarking Government Take – at \$60/bbl

**“Cradle to Grave” Government Share of Pre-Tax Income  
Discounted at 10% @ \$60 (Applicable to New Fields)**

# ACES

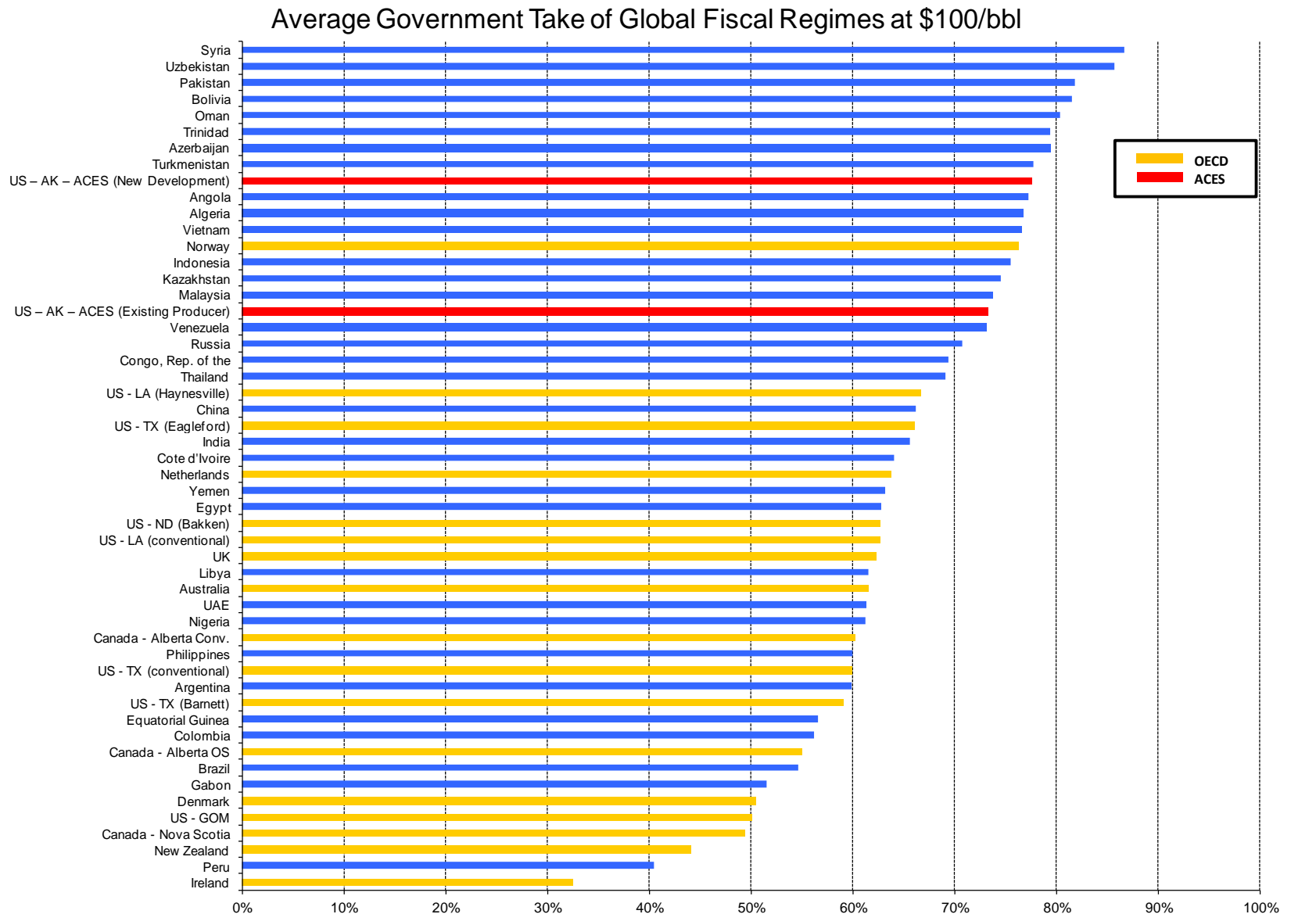
Alaska's Clear and Equitable Share

<b>Median Government Take By Tax Structures</b>	
	<b>Median (Mid-Point)</b>
All Governments	48%
Profit Sharing Governments	76%
Tax Royalty Governments	50%
Norway	81%
<b>Alaska - ACES Six Potential New Fields</b>	<b>68% to 74% (Median 70%)</b>
Alaska - PPT Six Potential New Fields	65% to 72% (Median 68%)
UK	51%
Gulf of Mexico	48%

Source: PFC Study September 2007, Alaska data by DOR

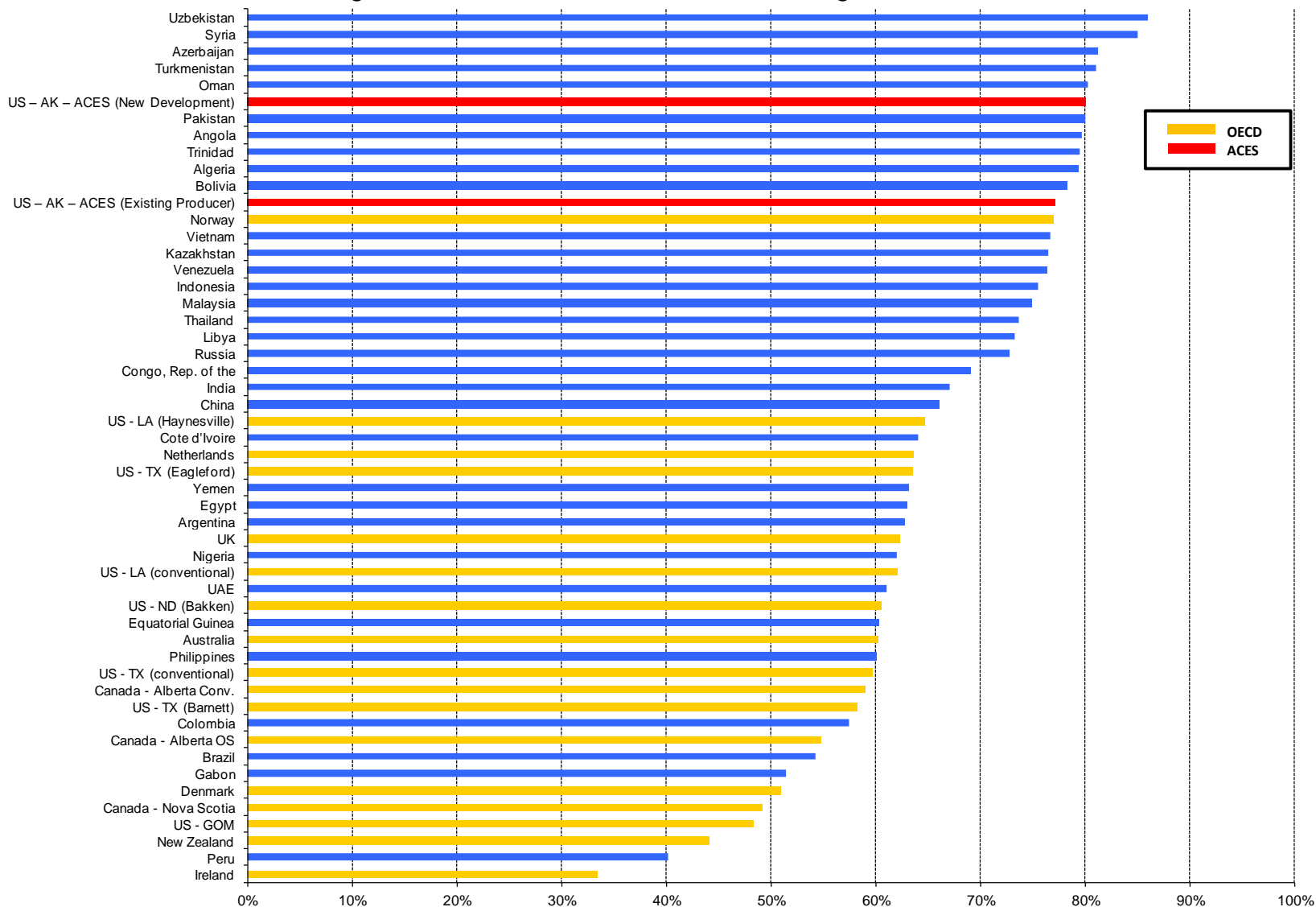
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# Regime Competitiveness: Average Government Take

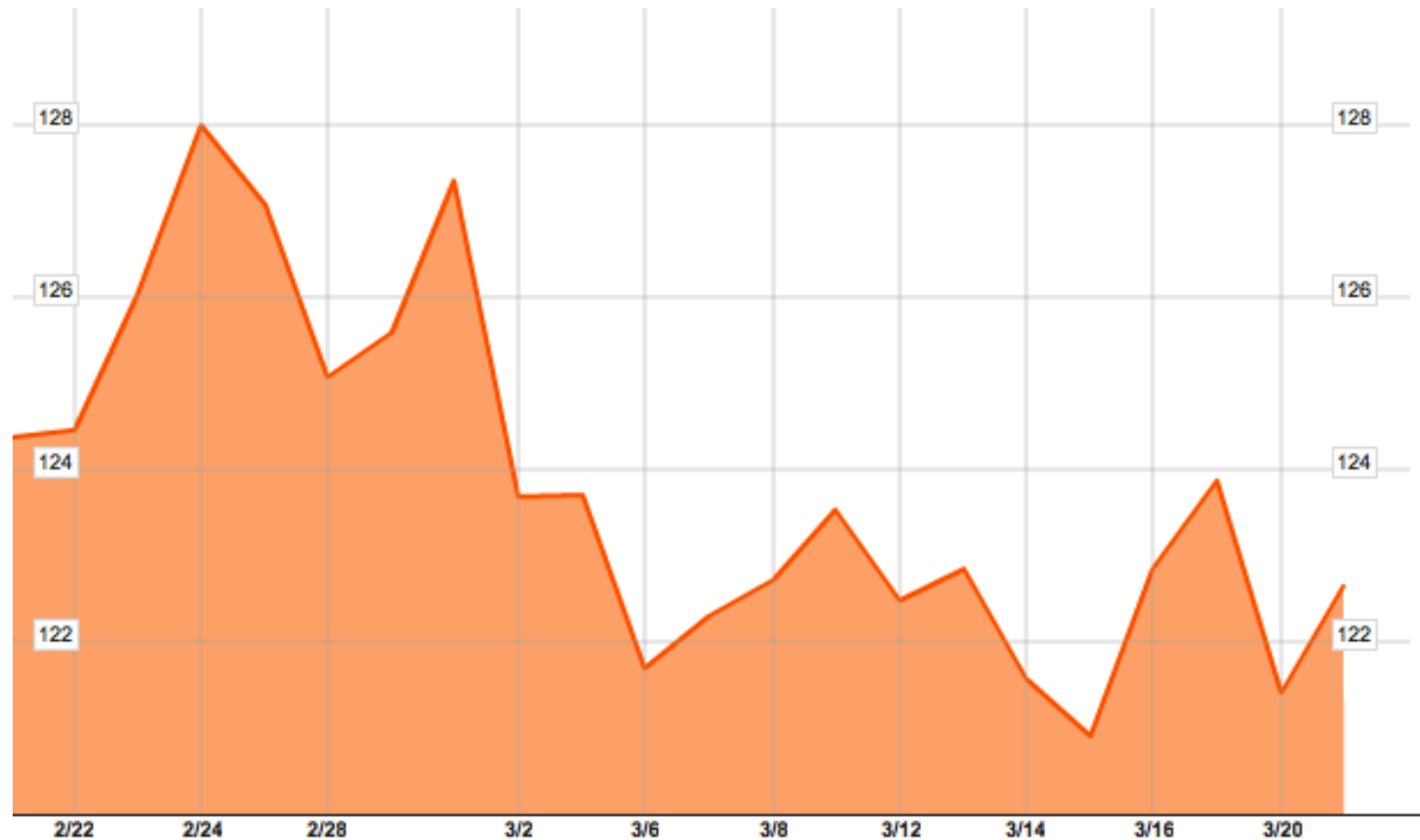


# Regime Competitiveness: Average Government Take

Average Government Take of Global Fiscal Regimes at \$140/bbl

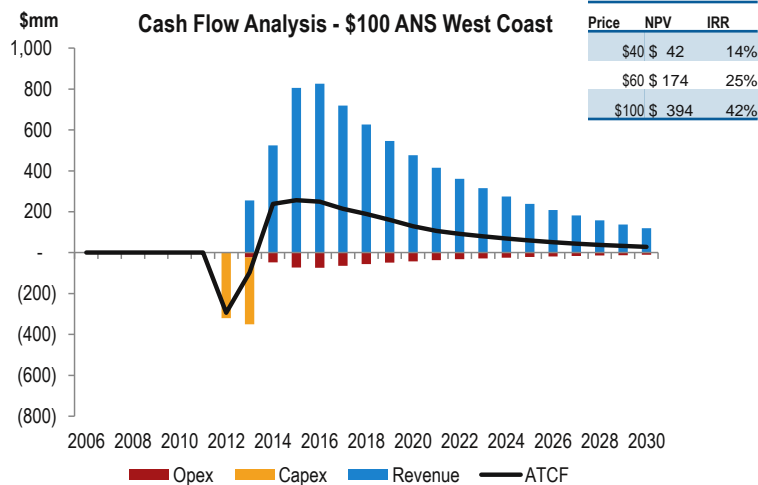


# ANS West Coast Crude Spot Price – Last 30 Days

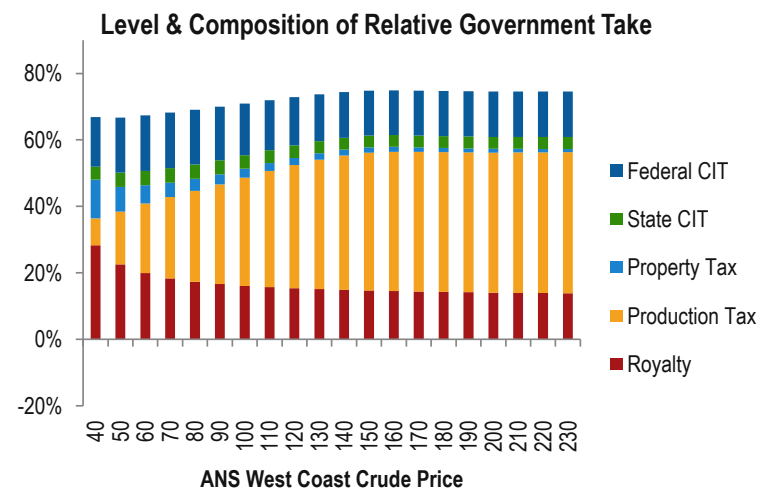
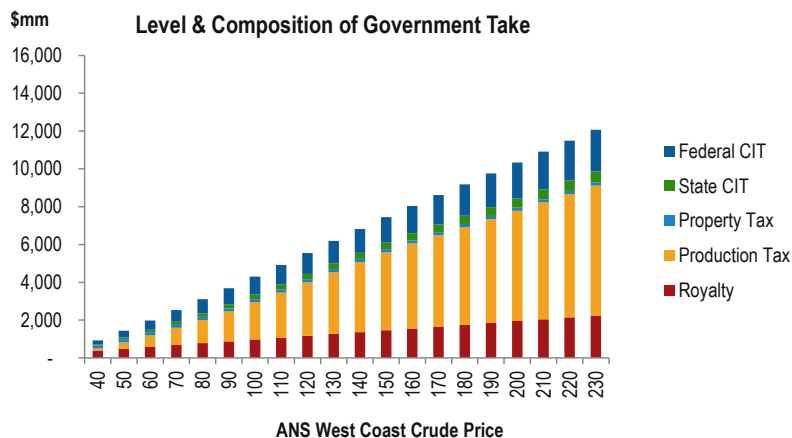




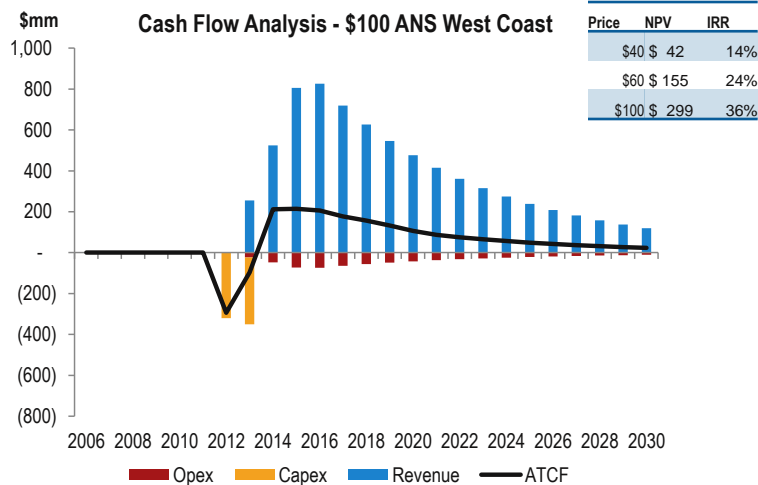
# “Field B” in our model, under ACES as proposed



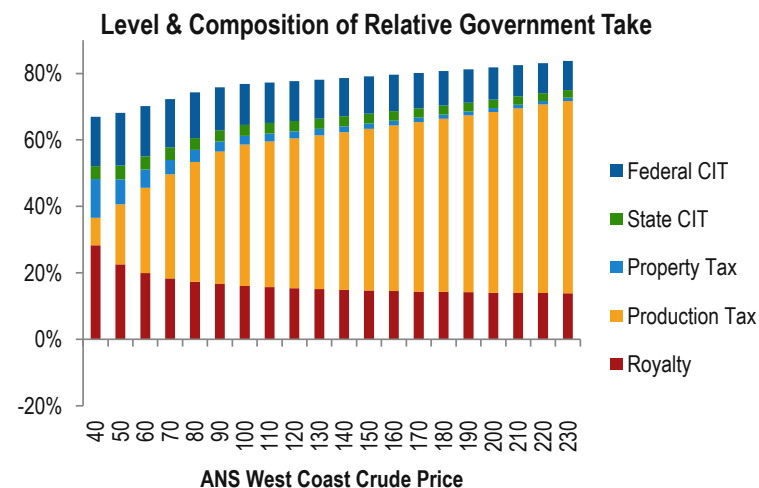
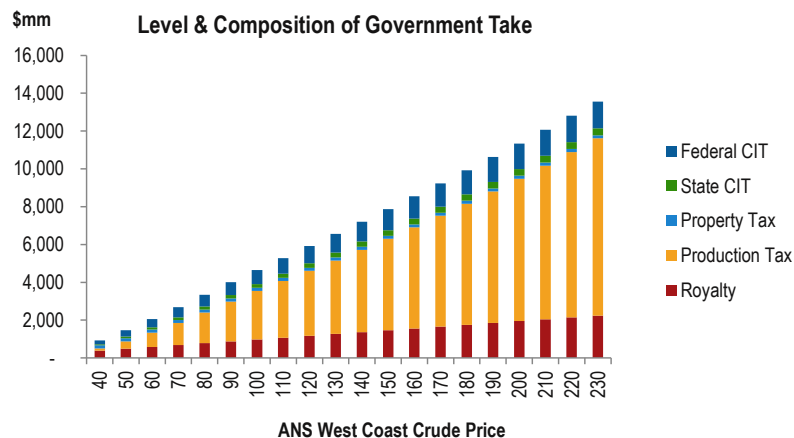
Price	Royalty	Production Tax	Property Tax	State CIT	Total State Take	Federal CIT	Total GT
40	28%	8%	12%	4%	52%	15%	67%
50	23%	16%	7%	4%	50%	17%	67%
60	20%	21%	5%	4%	51%	17%	67%
70	18%	24%	4%	4%	52%	17%	68%
80	17%	27%	4%	4%	53%	17%	69%
90	17%	30%	3%	4%	54%	16%	70%
100	16%	33%	3%	4%	55%	16%	71%
110	16%	35%	2%	4%	57%	15%	72%
120	15%	37%	2%	4%	58%	15%	73%
130	15%	39%	2%	4%	60%	14%	74%
140	15%	40%	2%	4%	61%	14%	74%
150	15%	41%	2%	4%	61%	14%	75%
160	15%	42%	2%	4%	61%	13%	75%
170	14%	42%	1%	4%	61%	14%	75%
180	14%	42%	1%	4%	61%	14%	75%
190	14%	42%	1%	4%	61%	14%	75%
200	14%	42%	1%	4%	61%	14%	75%
210	14%	42%	1%	4%	61%	14%	75%
220	14%	42%	1%	4%	61%	14%	75%
230	14%	42%	1%	4%	61%	14%	75%



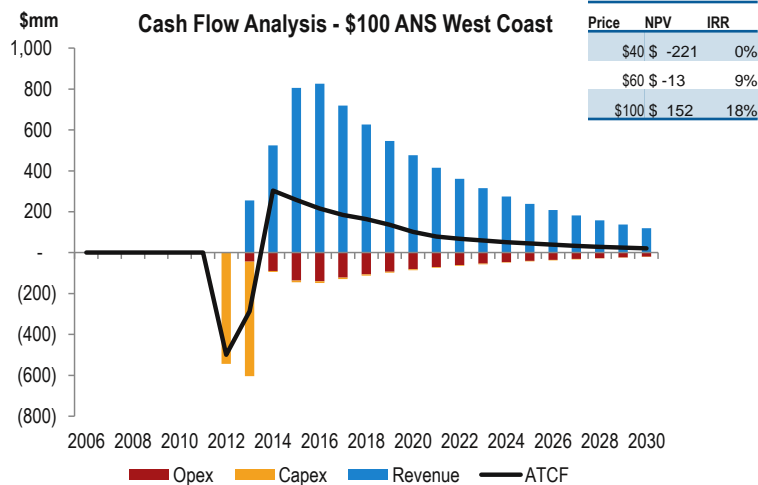
# “Field B”, under ACES as enacted



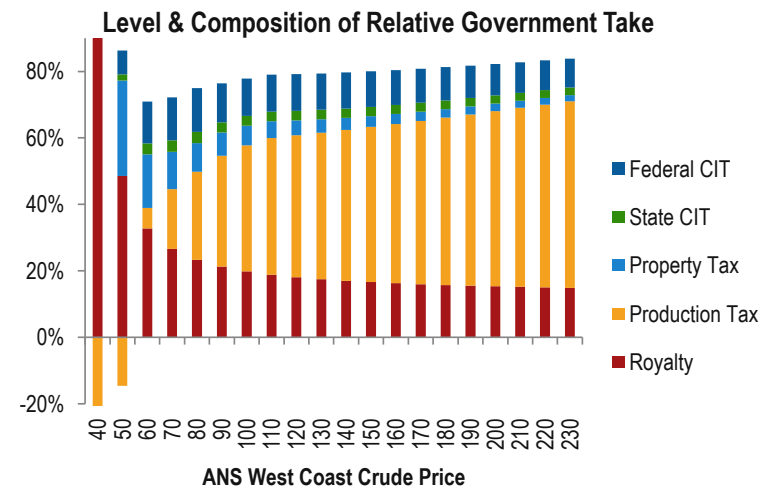
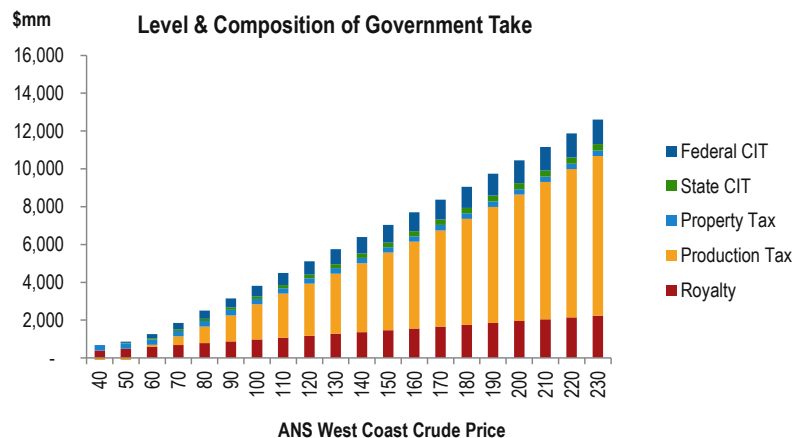
Price	Royalty	Production Tax	Property Tax	State CIT	Total State Take	Federal CIT	Total GT
40	28%	8%	12%	4%	52%	15%	67%
50	23%	18%	7%	4%	52%	16%	68%
60	20%	26%	5%	4%	55%	15%	70%
70	18%	31%	4%	4%	58%	15%	72%
80	17%	36%	4%	4%	61%	14%	74%
90	17%	40%	3%	3%	63%	13%	76%
100	16%	42%	3%	3%	64%	12%	77%
110	16%	44%	2%	3%	65%	12%	77%
120	15%	45%	2%	3%	66%	12%	78%
130	15%	46%	2%	3%	66%	12%	78%
140	15%	47%	2%	3%	67%	11%	79%
150	15%	49%	2%	3%	68%	11%	79%
160	15%	50%	2%	3%	69%	11%	80%
170	14%	51%	1%	3%	70%	11%	80%
180	14%	52%	1%	3%	70%	10%	81%
190	14%	53%	1%	3%	71%	10%	81%
200	14%	54%	1%	3%	72%	10%	82%
210	14%	56%	1%	2%	73%	9%	82%
220	14%	57%	1%	2%	74%	9%	83%
230	14%	58%	1%	2%	75%	9%	84%



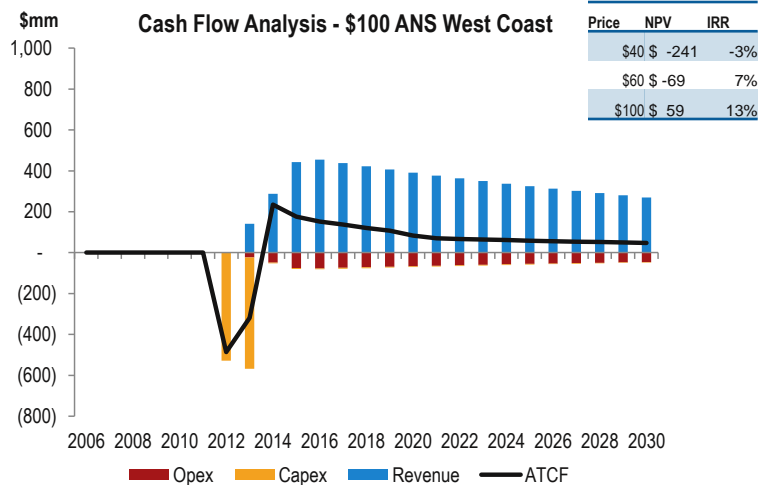
# “Field B”, under ACES as enacted, with \$17/bl costs



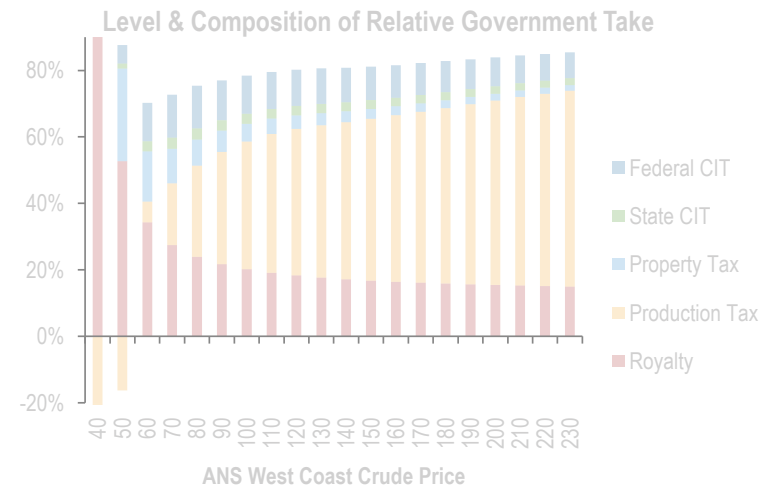
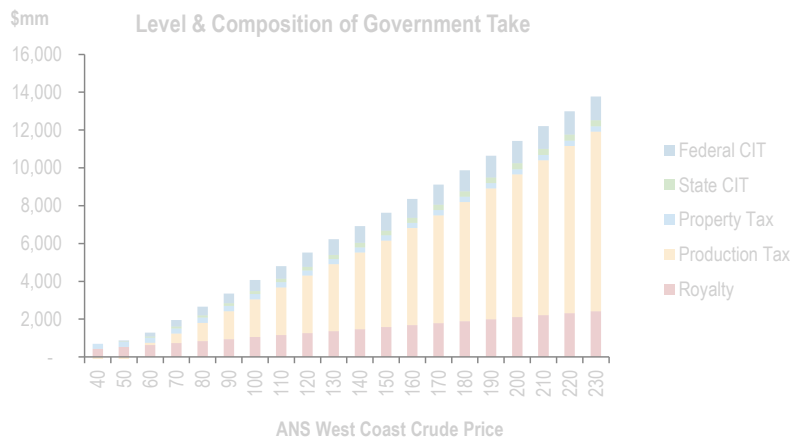
Price	Royalty	Production Tax	Property Tax	State CIT	Total State Take	Federal CIT	Total GT
40	174%	-147%	129%	0%	156%	0%	156%
50	49%	-15%	29%	2%	65%	7%	72%
60	33%	6%	16%	3%	58%	13%	71%
70	27%	18%	11%	3%	59%	13%	72%
80	23%	26%	9%	3%	62%	13%	75%
90	21%	33%	7%	3%	65%	12%	76%
100	20%	38%	6%	3%	67%	11%	78%
110	19%	41%	5%	3%	68%	11%	79%
120	18%	43%	4%	3%	68%	11%	79%
130	17%	44%	4%	3%	68%	11%	79%
140	17%	45%	4%	3%	69%	11%	80%
150	17%	47%	3%	3%	69%	11%	80%
160	16%	48%	3%	3%	70%	10%	80%
170	16%	49%	3%	3%	71%	10%	81%
180	16%	50%	3%	3%	71%	10%	81%
190	16%	52%	2%	3%	72%	10%	82%
200	15%	53%	2%	2%	73%	9%	82%
210	15%	54%	2%	2%	74%	9%	83%
220	15%	55%	2%	2%	74%	9%	83%
230	15%	56%	2%	2%	75%	9%	84%



# “Field B”, under ACES as enacted, with \$17/bl costs and flatter production profile

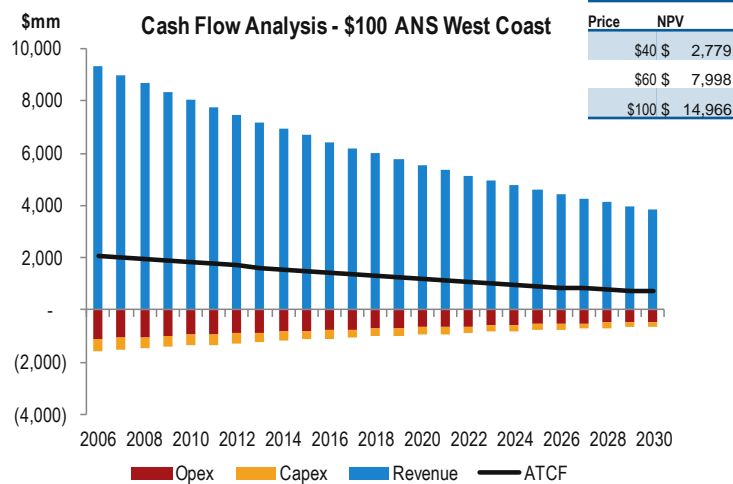


Price	Royalty	Production Tax	Property Tax	State CIT	Total State Take	Federal CIT	Total CIT
40	269%	-229%	178%	0%	218%	0%	218%
50	53%	-16%	28%	1%	66%	6%	71%
60	34%	6%	15%	3%	59%	12%	70%
70	27%	19%	10%	3%	60%	13%	73%
80	24%	27%	8%	3%	63%	13%	75%
90	22%	34%	6%	3%	65%	12%	77%
100	20%	38%	5%	3%	67%	11%	78%
110	19%	42%	5%	3%	68%	11%	80%
120	18%	44%	4%	3%	69%	11%	80%
130	18%	46%	4%	3%	70%	11%	81%
140	17%	47%	3%	3%	70%	10%	81%
150	17%	49%	3%	3%	71%	10%	81%
160	16%	50%	3%	3%	72%	10%	82%
170	16%	51%	3%	3%	73%	10%	82%
180	16%	53%	2%	2%	73%	9%	83%
190	16%	54%	2%	2%	74%	9%	83%
200	15%	55%	2%	2%	75%	9%	84%
210	15%	57%	2%	2%	76%	8%	84%
220	15%	58%	2%	2%	77%	8%	85%
230	15%	59%	2%	2%	78%	8%	85%

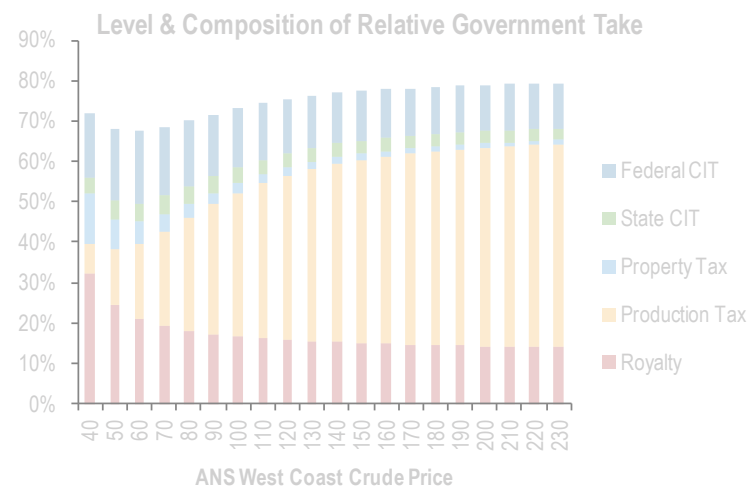
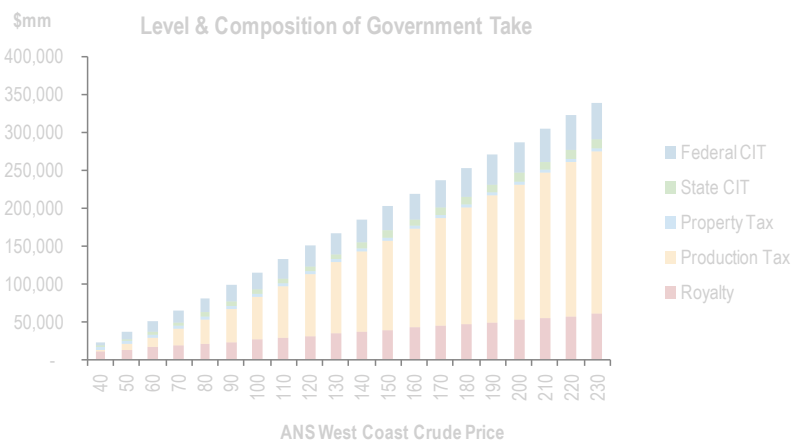


# **Impact of Revised Production Tax Floor**

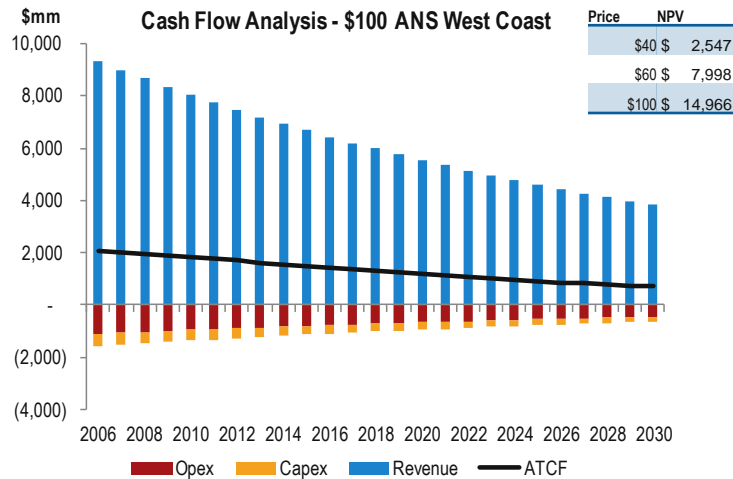
# CSSB 192 Using ACES Minimum PTV (Existing Producer)



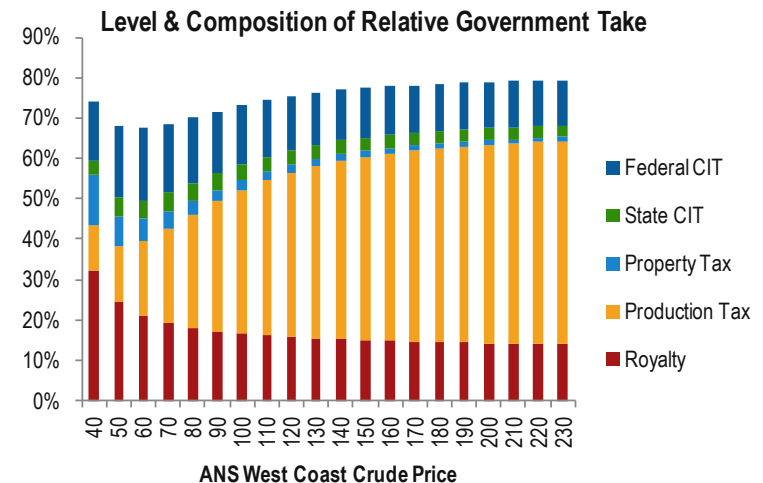
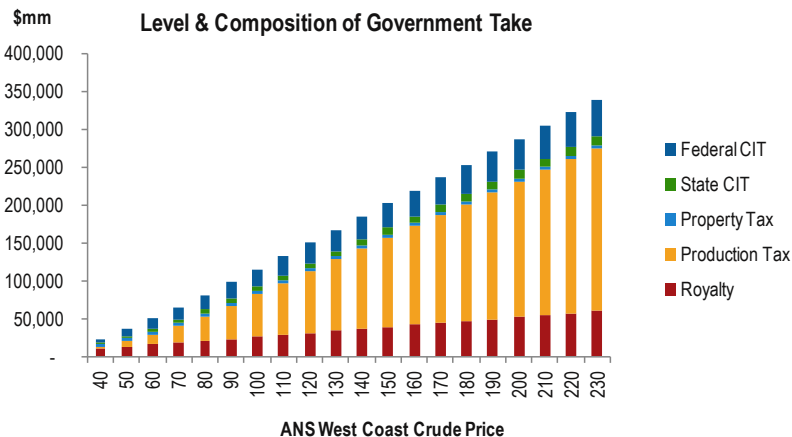
	Royalty	Production Tax	Property Tax	State CIT	Total State Taxes	Federal CIT	Total CIT
40	32%	8%	12%	4%	56%	16%	72%
50	24%	14%	8%	5%	50%	18%	68%
60	21%	18%	5%	5%	50%	18%	67%
70	19%	24%	4%	4%	51%	17%	69%
80	18%	28%	3%	4%	54%	16%	70%
90	17%	32%	3%	4%	56%	15%	72%
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110	16%	38%	2%	4%	60%	14%	74%
120	16%	41%	2%	3%	62%	13%	75%
130	15%	43%	2%	3%	63%	13%	76%
140	15%	44%	2%	3%	64%	13%	77%
150	15%	45%	2%	3%	65%	12%	77%
160	15%	46%	1%	3%	66%	12%	78%
170	15%	47%	1%	3%	66%	12%	78%
180	14%	48%	1%	3%	67%	12%	78%
190	14%	49%	1%	3%	67%	12%	79%
200	14%	49%	1%	3%	67%	11%	79%
210	14%	50%	1%	3%	68%	11%	79%
220	14%	50%	1%	3%	68%	11%	79%
230	14%	50%	1%	3%	68%	11%	79%



# CSSB 192 Using 10% of Revenues for Minimum PTV (Existing Producer)



Price	Royalty	Production Tax	Property Tax	State CIT	Total State Take	Federal CIT	Total GT
40	32%	11%	12%	4%	60%	14%	74%
50	24%	14%	8%	5%	50%	18%	68%
60	21%	18%	5%	5%	50%	18%	67%
70	19%	24%	4%	4%	51%	17%	69%
80	18%	28%	3%	4%	54%	16%	70%
90	17%	32%	3%	4%	56%	15%	72%
100	17%	35%	3%	4%	58%	15%	73%
110	16%	38%	2%	4%	60%	14%	74%
120	16%	41%	2%	3%	62%	13%	75%
130	15%	43%	2%	3%	63%	13%	76%
140	15%	44%	2%	3%	64%	13%	77%
150	15%	45%	2%	3%	65%	12%	77%
160	15%	46%	1%	3%	66%	12%	78%
170	15%	47%	1%	3%	66%	12%	78%
180	14%	48%	1%	3%	67%	12%	78%
190	14%	49%	1%	3%	67%	12%	79%
200	14%	49%	1%	3%	67%	11%	79%
210	14%	50%	1%	3%	68%	11%	79%
220	14%	50%	1%	3%	68%	11%	79%
230	14%	50%	1%	3%	68%	11%	79%

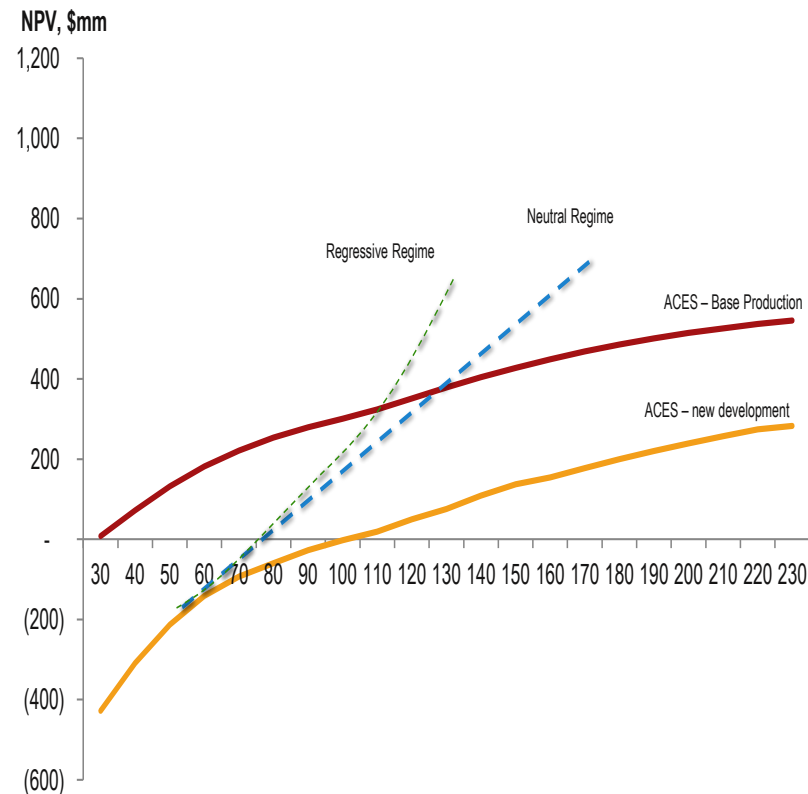


# **Incentivizing New Production**



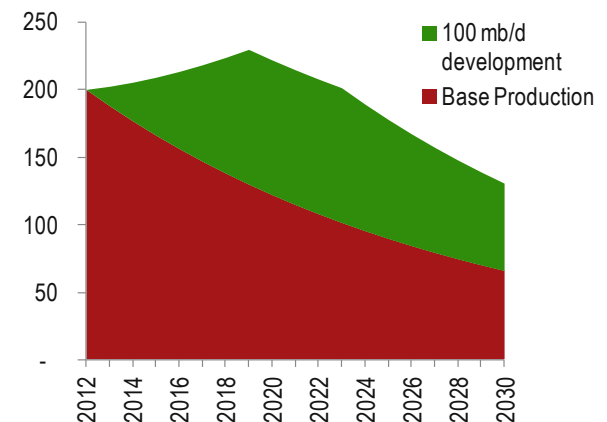
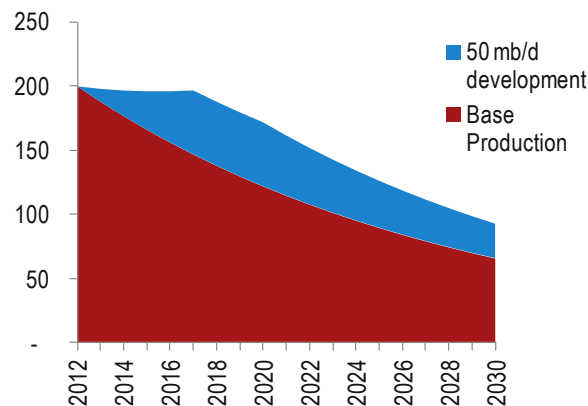
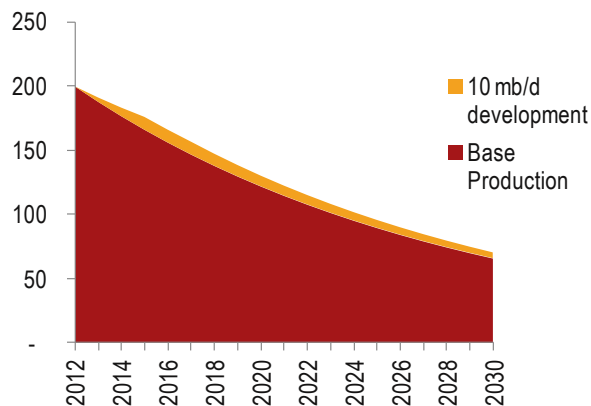
# ACES – A Harvest Area Regime, Not a Growth Regime

- ACES appears to work well as a “harvest” regime
  - Existing **mature fields remain profitable**, including capital work required to achieve ~6% decline (renewal capex)
  - **Maximum ‘rent’** extracted from a declining production base is captured for the state
- ACES inhibits the development of new projects and resources that might help stem or even reverse the decline
  - ACES is **not progressive with regard to costs**, so high government take applies even to very high cost projects
  - Existing system of capital credits etc appears to do more to encourage ‘renewal capex’ than it does new production spending
  - Progressivity can have a major **detrimental impact on breakeven prices** for high-cost projects at current oil prices



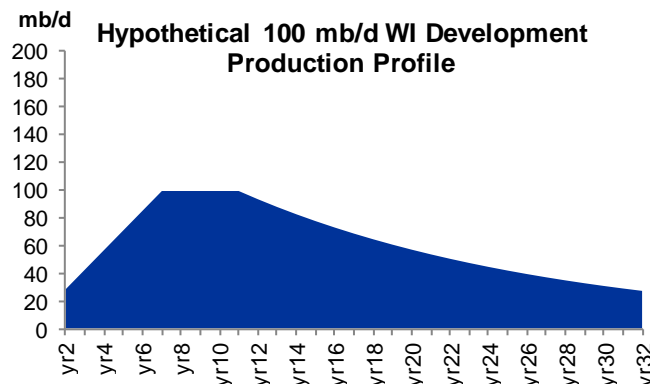
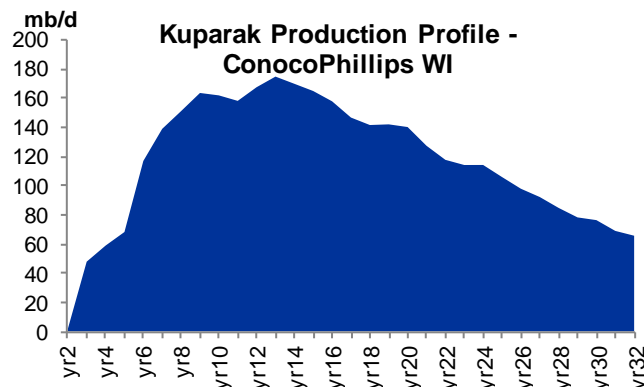
# New Oil Allowance: Incremental Production on a Declining Base

- Central to understanding the impact of the “allowance for ‘new oil’” is an understanding of the impact of new source production on a company’s total production volumes, when that new source production is added to a declining base portfolio
  - The charts below assume a 6% decline rate for an existing North Slope producer currently producing 200 mb/d, and examine hypothetical new source projects that peak at 10mb/d, 50 mb/d and 100 mb/d respectively(on a working interest basis)
  - Given the pace at which such projects typically reach peak production, only the 100 mb/d peak production new source development is actually capable of adding production that is incremental to prior years’ volumes



# A Hypothetical 100 mb/d (Working Interest) development

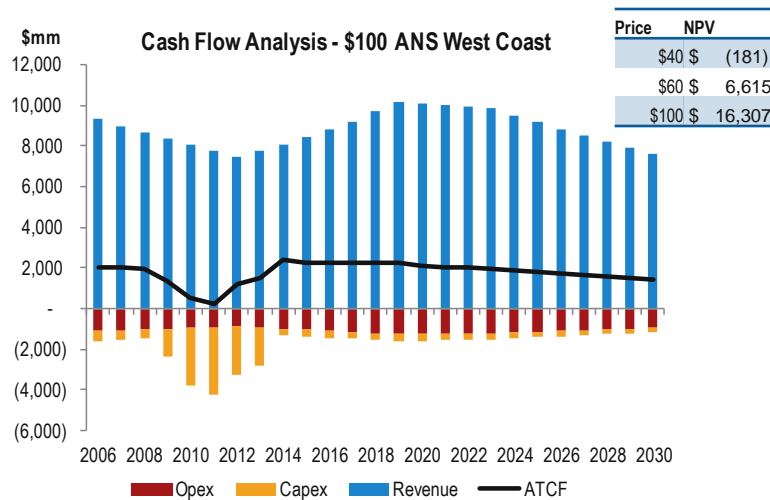
- A new source development that produced 100 mb/d at peak for a working interest partner would be a very significant new development. By way of comparison, Kuparak, the second largest field in North America, peaked at ~320 mb/d gross production
  - This represented **working interest production** to ConocoPhillips (the operator and majority shareholder) of **170 mbo/d**
  - Kuparak took 11 years (from 1981 to 1992) to reach this peak level of production
- Since it would take a development on the scale of 100 mb/d (working interest) to achieve “new oil” for an existing producer under the terms of the amendment, a development of this size has been modeled in the following analysis
  - A 7 year ramp-up to peak production has been assumed
  - Such a development would likely eclipse today’s production from Kuparak (122 mb/d gross, 66mb/d working interest to the majority shareholder)
  - It is important to note that this is a significantly more aggressive new-source production profile than is currently foreseen in recent statements by the major operators on their current development pipelines, even in the most optimistic circumstances



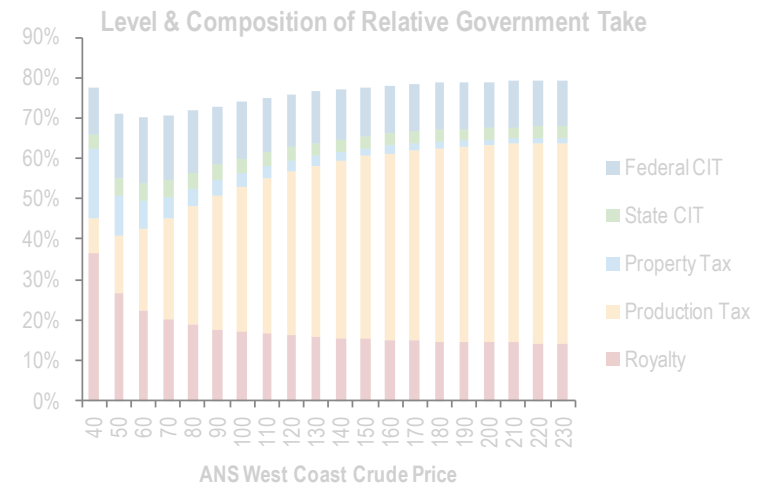
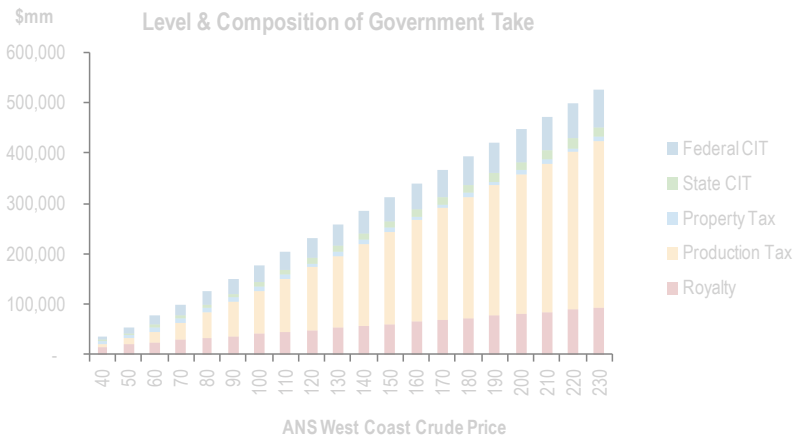
# Assumptions

- The following analysis assumes
  - A 6% base portfolio decline, in the case of a producer currently producing 200 mb/d
  - Costs for the base production portfolio of:
    - \$12/ flowing bbl operating expenditure
    - \$5/ flowing bbl maintenance capital expenditure
  - Costs for the 100 mb/d (working interest) New Development project of:
    - \$13/ flowing bbl operating expenditure
    - \$13/bbl reserves development capital expenditure
    - \$1/ flowing bbl maintenance capital expenditure
  - These costs are deliberately somewhat lower than the previously referenced 10 mb/d new development, since the hypothetical development modeled is significantly larger, and thus likely to have somewhat lower costs on a \$/bbl basis

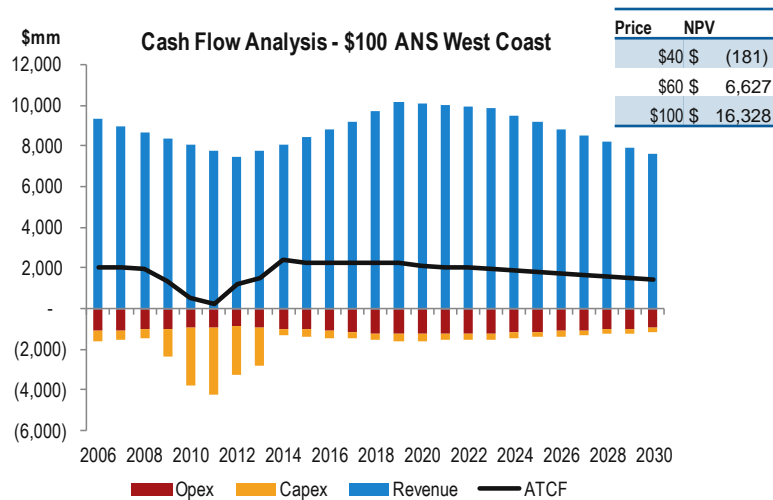
# CSSB 192 Excluding New Oil Allowance (Existing Producer)



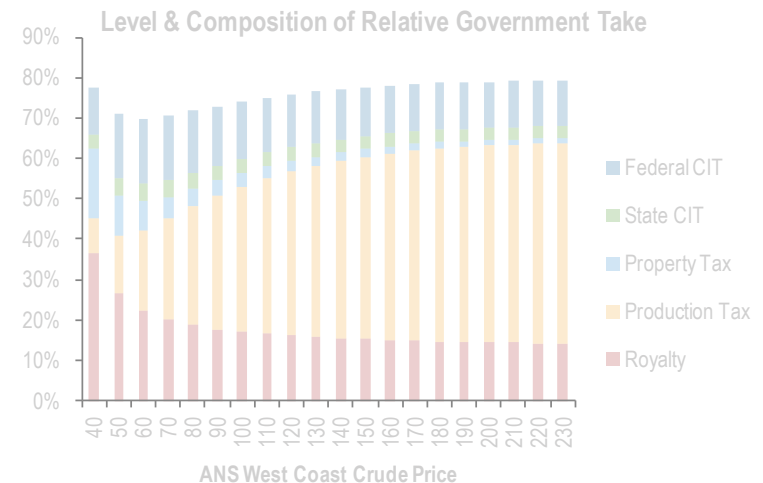
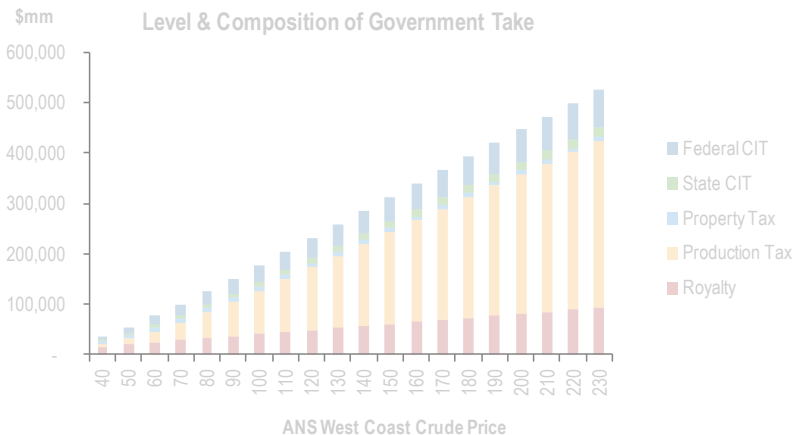
Price	Royalty	Production Tax	Property Tax	State CIT	Total State Take	Federal CIT	Total CIT
40	37%	9%	17%	3%	66%	12%	78%
50	26%	14%	10%	4%	55%	16%	71%
60	22%	20%	7%	4%	54%	16%	70%
70	20%	25%	5%	4%	55%	16%	71%
80	19%	29%	4%	4%	56%	15%	72%
90	18%	33%	4%	4%	58%	15%	73%
100	17%	36%	3%	4%	60%	14%	74%
110	16%	39%	3%	4%	61%	14%	75%
120	16%	41%	3%	3%	63%	13%	76%
130	16%	43%	2%	3%	64%	13%	76%
140	15%	44%	2%	3%	65%	12%	77%
150	15%	45%	2%	3%	66%	12%	78%
160	15%	46%	2%	3%	66%	12%	78%
170	15%	47%	2%	3%	67%	12%	78%
180	15%	48%	2%	3%	67%	12%	79%
190	15%	48%	1%	3%	67%	11%	79%
200	14%	49%	1%	3%	68%	11%	79%
210	14%	49%	1%	3%	68%	11%	79%
220	14%	49%	1%	3%	68%	11%	79%
230	14%	50%	1%	3%	68%	11%	79%



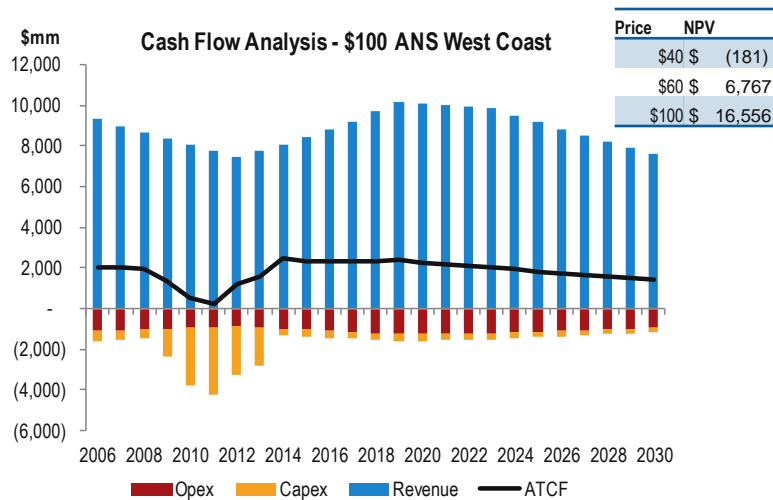
# CSSB 192 Including \$10 New Oil Allowance Over 1 Year (Existing Producer)



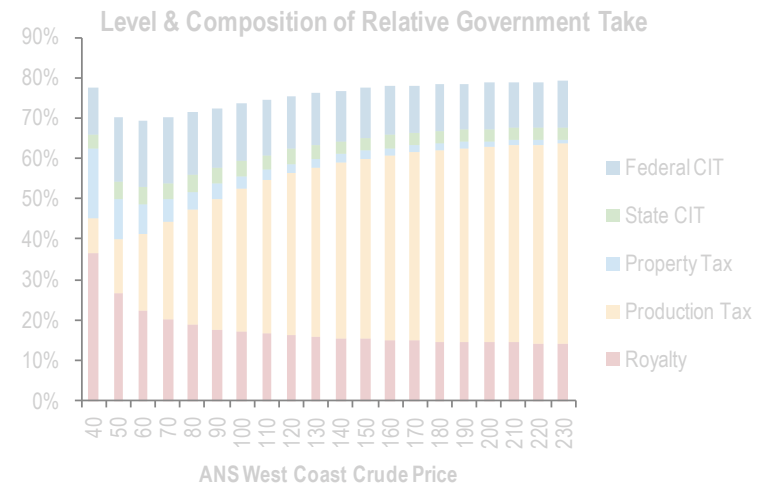
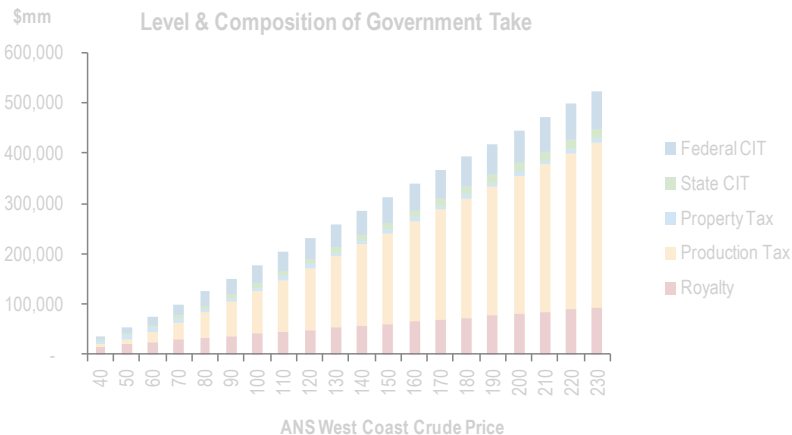
Price	Royalty	Production Tax	Property Tax	State CIT	Total State Taxes	Federal CIT	Total CIT
40	37%	9%	17%	3%	66%	12%	78%
50	26%	14%	10%	4%	55%	16%	71%
60	22%	20%	7%	4%	54%	16%	70%
70	20%	25%	5%	4%	55%	16%	71%
80	19%	29%	4%	4%	56%	15%	72%
90	18%	33%	4%	4%	58%	15%	73%
100	17%	36%	3%	4%	60%	14%	74%
110	16%	39%	3%	4%	61%	14%	75%
120	16%	41%	3%	3%	63%	13%	76%
130	16%	42%	2%	3%	64%	13%	76%
140	15%	44%	2%	3%	65%	12%	77%
150	15%	45%	2%	3%	66%	12%	78%
160	15%	46%	2%	3%	66%	12%	78%
170	15%	47%	2%	3%	67%	12%	78%
180	15%	48%	2%	3%	67%	12%	79%
190	15%	48%	1%	3%	67%	11%	79%
200	14%	49%	1%	3%	68%	11%	79%
210	14%	49%	1%	3%	68%	11%	79%
220	14%	49%	1%	3%	68%	11%	79%
230	14%	50%	1%	3%	68%	11%	79%



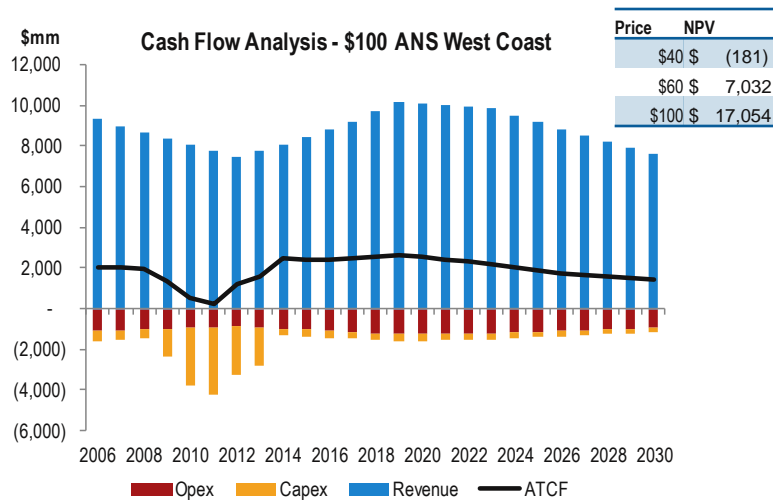
# CSSB 192 Including \$20 New Oil Allowance Over 7 Years (Existing Producer)



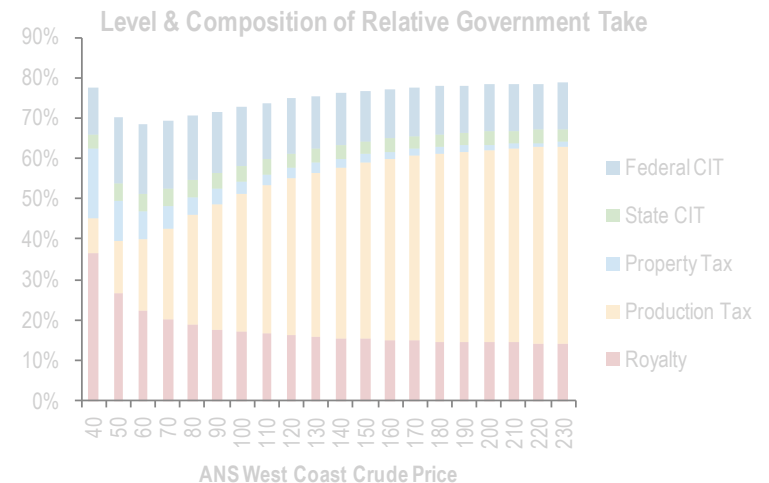
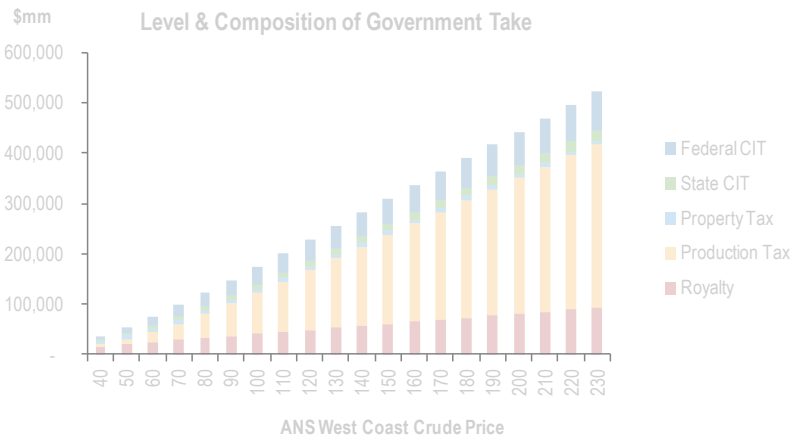
Price	Royalty	Production Tax	Property Tax	State CIT	Total State Take	Federal CIT	Total CIT
40	37%	9%	17%	3%	66%	12%	78%
50	26%	13%	10%	4%	54%	16%	70%
60	22%	19%	7%	4%	53%	17%	69%
70	20%	24%	5%	4%	54%	16%	70%
80	19%	29%	4%	4%	56%	16%	71%
90	18%	32%	4%	4%	58%	15%	73%
100	17%	35%	3%	4%	59%	14%	74%
110	16%	38%	3%	4%	61%	14%	75%
120	16%	40%	3%	3%	62%	13%	75%
130	16%	42%	2%	3%	63%	13%	76%
140	15%	44%	2%	3%	64%	13%	77%
150	15%	45%	2%	3%	65%	12%	77%
160	15%	46%	2%	3%	66%	12%	78%
170	15%	47%	2%	3%	66%	12%	78%
180	15%	47%	2%	3%	67%	12%	78%
190	15%	48%	1%	3%	67%	12%	79%
200	14%	48%	1%	3%	67%	11%	79%
210	14%	49%	1%	3%	67%	11%	79%
220	14%	49%	1%	3%	68%	11%	79%
230	14%	49%	1%	3%	68%	11%	79%



# CSSB 192 Including \$60 New Oil Allowance Over 7 Years (Existing Producer)



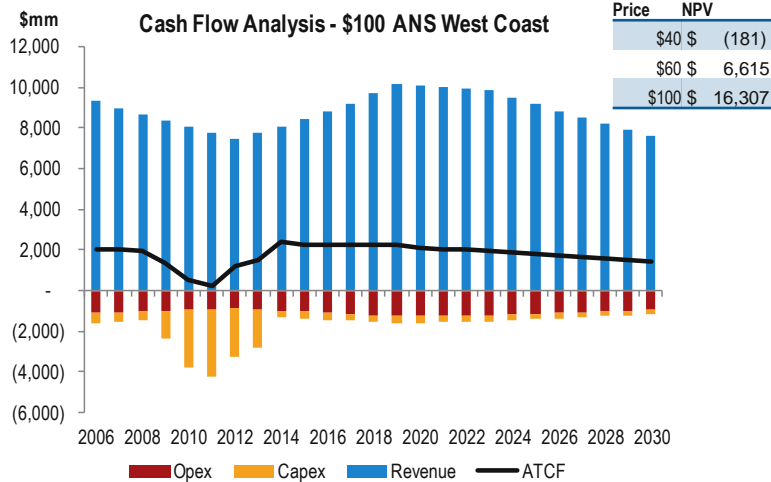
Price	Royalty	Production Tax	Property Tax	State CIT	Total State Take	Federal CIT	Total CIT
40	37%	9%	17%	3%	66%	12%	78%
50	26%	13%	10%	4%	54%	16%	70%
60	22%	17%	7%	4%	51%	17%	68%
70	20%	23%	5%	4%	52%	17%	69%
80	19%	27%	4%	4%	54%	16%	70%
90	18%	31%	4%	4%	56%	15%	72%
100	17%	34%	3%	4%	58%	15%	73%
110	16%	37%	3%	4%	60%	14%	74%
120	16%	39%	3%	4%	61%	14%	75%
130	16%	41%	2%	3%	62%	13%	75%
140	15%	42%	2%	3%	63%	13%	76%
150	15%	44%	2%	3%	64%	13%	77%
160	15%	45%	2%	3%	65%	12%	77%
170	15%	46%	2%	3%	65%	12%	78%
180	15%	47%	2%	3%	66%	12%	78%
190	15%	47%	1%	3%	66%	12%	78%
200	14%	48%	1%	3%	67%	12%	78%
210	14%	48%	1%	3%	67%	12%	78%
220	14%	48%	1%	3%	67%	12%	79%
230	14%	49%	1%	3%	67%	12%	79%





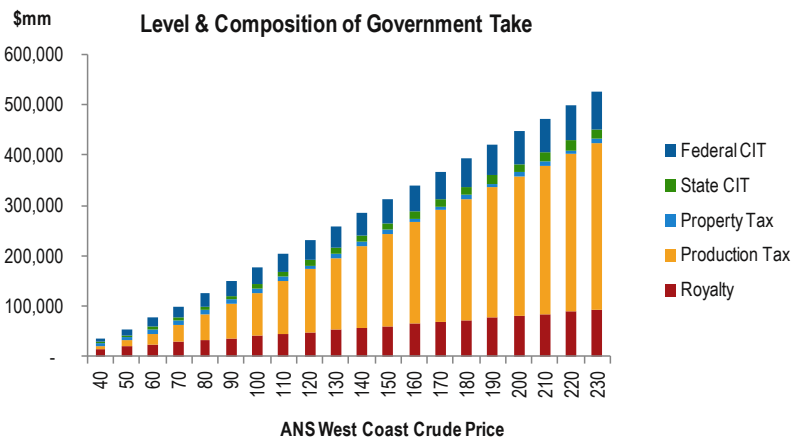
# CSSB 192 Excluding New Oil Allowance (Existing Producer)

Cash Flow Analysis - \$100 ANS West Coast

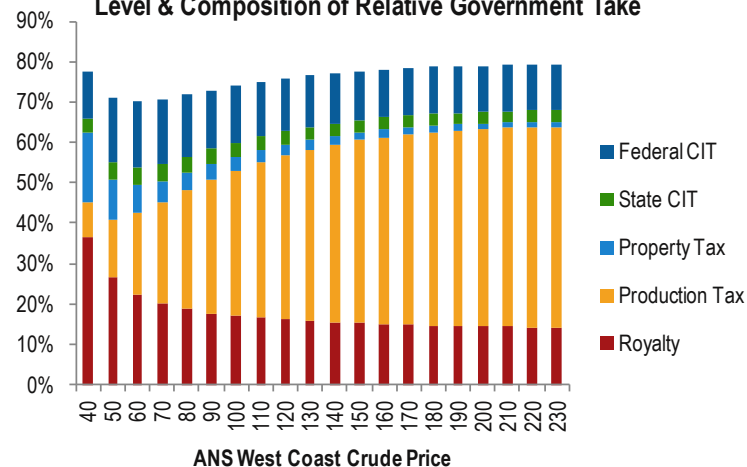


Price	Royalty	Production Tax	Property Tax	State CIT	Total State Take	Federal CIT	Total GT
40	37%	9%	17%	3%	66%	12%	78%
50	26%	14%	10%	4%	55%	16%	71%
60	22%	20%	7%	4%	54%	16%	70%
70	20%	25%	5%	4%	55%	16%	71%
80	19%	29%	4%	4%	56%	15%	72%
90	18%	33%	4%	4%	58%	15%	73%
100	17%	36%	3%	4%	60%	14%	74%
110	16%	39%	3%	4%	61%	14%	75%
120	16%	41%	3%	3%	63%	13%	76%
130	16%	43%	2%	3%	64%	13%	76%
140	15%	44%	2%	3%	65%	12%	77%
150	15%	45%	2%	3%	66%	12%	78%
160	15%	46%	2%	3%	66%	12%	78%
170	15%	47%	2%	3%	67%	12%	78%
180	15%	48%	2%	3%	67%	12%	79%
190	15%	48%	1%	3%	67%	11%	79%
200	14%	49%	1%	3%	68%	11%	79%
210	14%	49%	1%	3%	68%	11%	79%
220	14%	49%	1%	3%	68%	11%	79%
230	14%	50%	1%	3%	68%	11%	79%

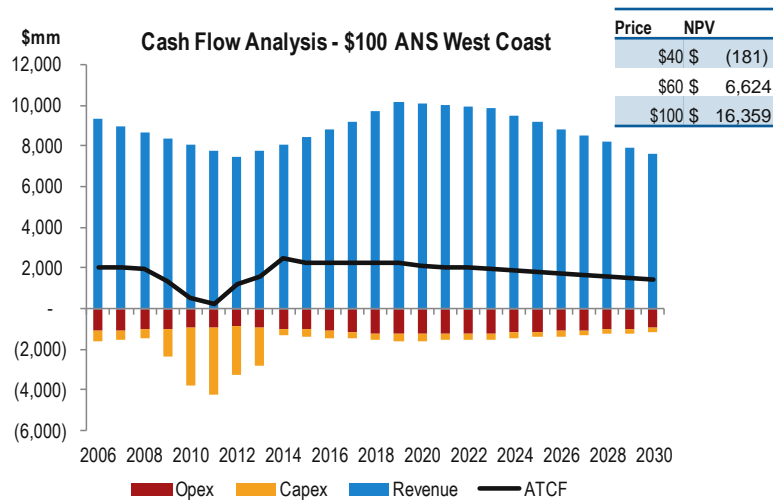
Level & Composition of Government Take



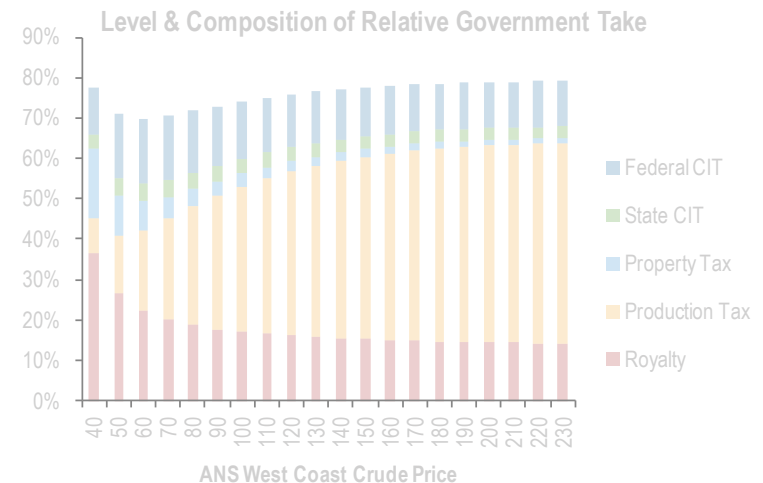
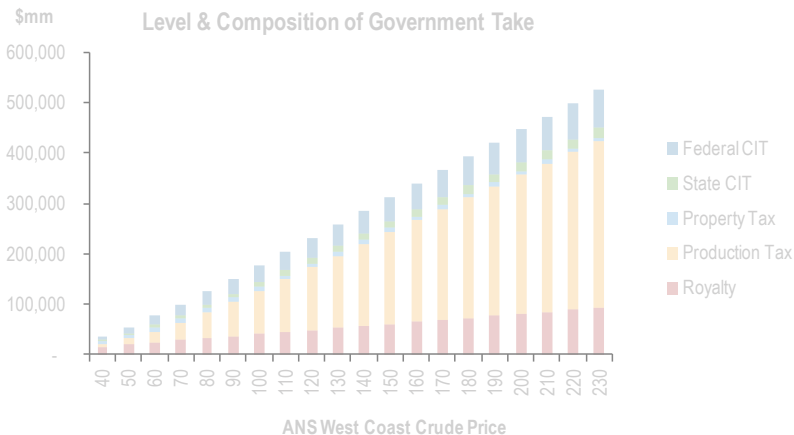
Level & Composition of Relative Government Take



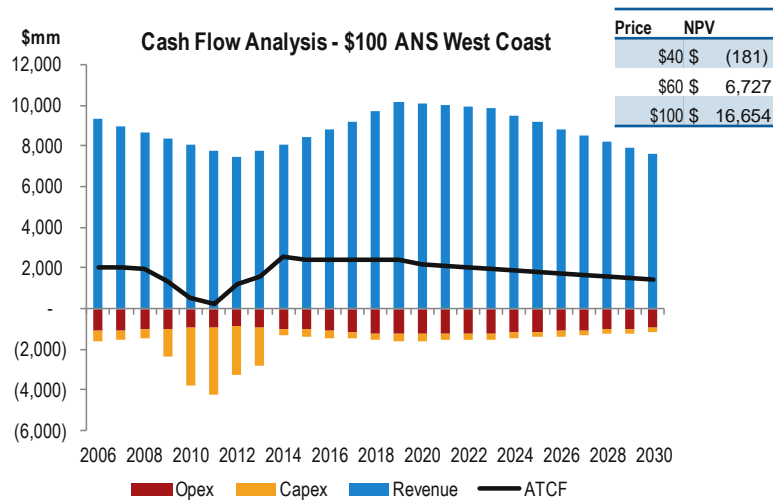
# CSSB 192 Including Tax Holiday Based on 3 Year Rolling Decline (Existing Producer)



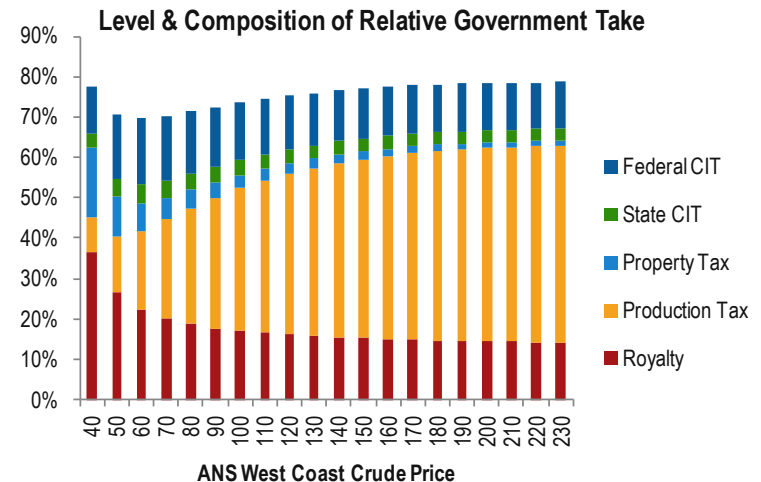
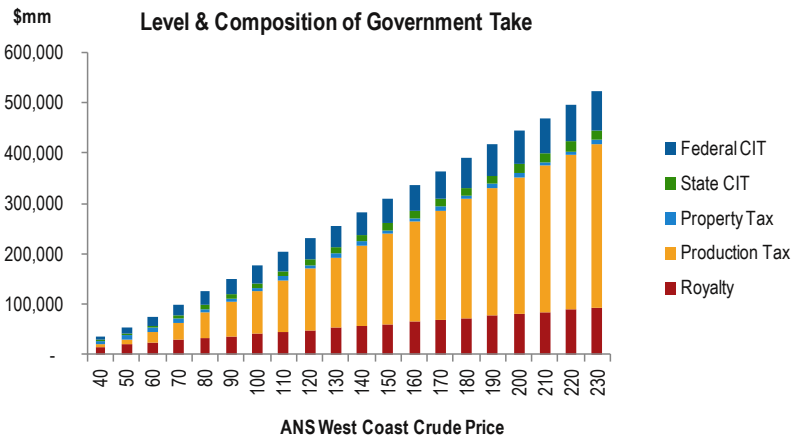
Price	Royalty	Production Tax	Property Tax	State CIT	Total State Taxes	Federal CIT	Total CIT
40	37%	9%	17%	3%	66%	12%	78%
50	26%	14%	10%	4%	55%	16%	71%
60	22%	20%	7%	4%	54%	16%	70%
70	20%	25%	5%	4%	55%	16%	71%
80	19%	29%	4%	4%	56%	15%	72%
90	18%	33%	4%	4%	58%	15%	73%
100	17%	36%	3%	4%	60%	14%	74%
110	16%	39%	3%	4%	61%	14%	75%
120	16%	41%	3%	3%	63%	13%	76%
130	16%	42%	2%	3%	64%	13%	76%
140	15%	44%	2%	3%	65%	12%	77%
150	15%	45%	2%	3%	65%	12%	78%
160	15%	46%	2%	3%	66%	12%	78%
170	15%	47%	2%	3%	67%	12%	78%
180	15%	48%	2%	3%	67%	12%	79%
190	15%	48%	1%	3%	67%	11%	79%
200	14%	49%	1%	3%	67%	11%	79%
210	14%	49%	1%	3%	68%	11%	79%
220	14%	49%	1%	3%	68%	11%	79%
230	14%	50%	1%	3%	68%	11%	79%



# CSSB 192 Including Tax Holiday Based on 3 Year Rolling Decline for 7 Years(Existing Producer)



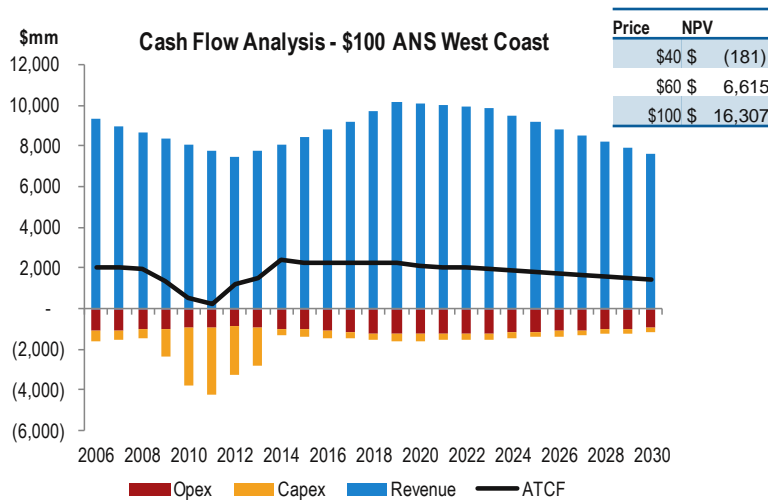
Price	Royalty	Production Tax	Property Tax	State CIT	Total State Take	Federal CIT	Total GT
40	37%	9%	17%	3%	66%	12%	78%
50	26%	14%	10%	4%	55%	16%	71%
60	22%	19%	7%	4%	53%	17%	70%
70	20%	24%	5%	4%	54%	16%	70%
80	19%	29%	4%	4%	56%	15%	71%
90	18%	32%	4%	4%	58%	15%	73%
100	17%	35%	3%	4%	59%	14%	74%
110	16%	38%	3%	4%	61%	14%	74%
120	16%	40%	3%	3%	62%	13%	75%
130	16%	42%	2%	3%	63%	13%	76%
140	15%	43%	2%	3%	64%	13%	77%
150	15%	44%	2%	3%	65%	12%	77%
160	15%	45%	2%	3%	65%	12%	77%
170	15%	46%	2%	3%	66%	12%	78%
180	15%	47%	2%	3%	66%	12%	78%
190	15%	47%	1%	3%	66%	12%	78%
200	14%	48%	1%	3%	67%	12%	78%
210	14%	48%	1%	3%	67%	12%	78%
220	14%	49%	1%	3%	67%	12%	79%
230	14%	49%	1%	3%	67%	12%	79%



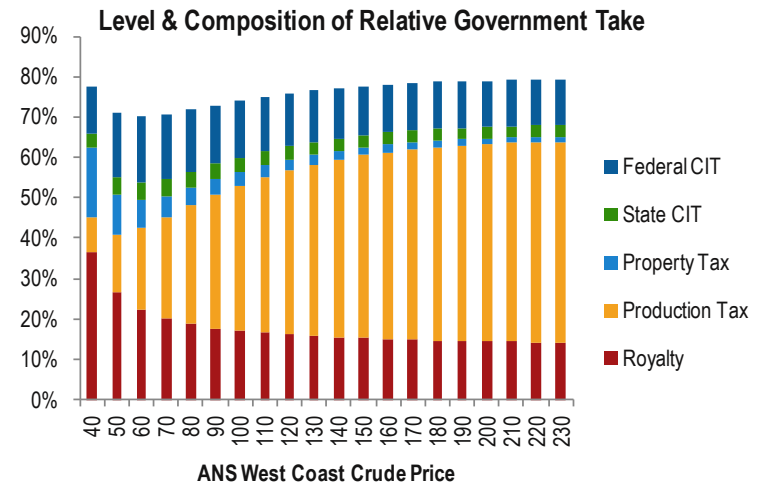
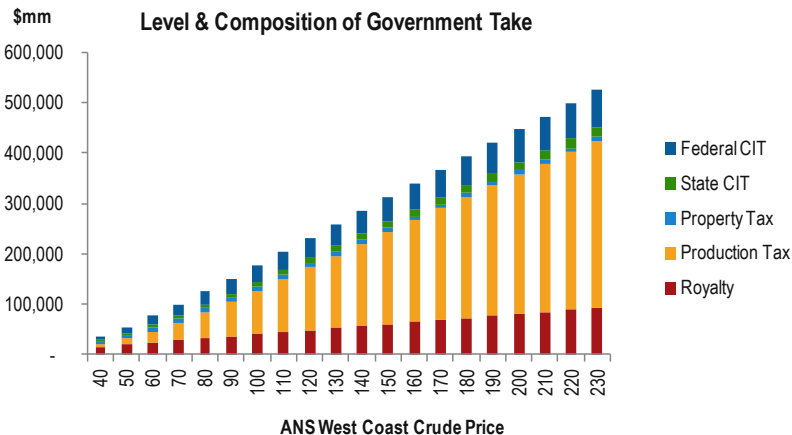
# Differences in Incremental Production

	2012	2013	2014	2015	2016	2017	2018	2019	2020
<u>3 year rolling decline</u>									
3 year rolling decline rate	6%	4%	1%	-1%	-2%	-2%	-2%	-3%	-1%
Target Production	175	169	175	182	186	190	195	201	202
Production Above Target	-	8	5	1	1	0	0	0	-
Percentage Above Target Forecast	0%	5%	3%	0%	0%	0%	0%	0%	0%
<u>Incremental</u>									
Target Production (prior year)	186	175	177	180	183	187	191	196	201
Production Above Target	-	2	3	3	4	4	5	5	-
Percentage Above Target Forecast	0%	1%	1%	2%	2%	2%	3%	3%	0%
<u>Decline above fixed forecast</u>									
Target Production	175	165	155	145	137	128	121	113	107
Production Above Target	-	13	25	38	50	62	75	87	88
Percentage Above Target Forecast	0%	8%	16%	26%	37%	49%	62%	77%	82%

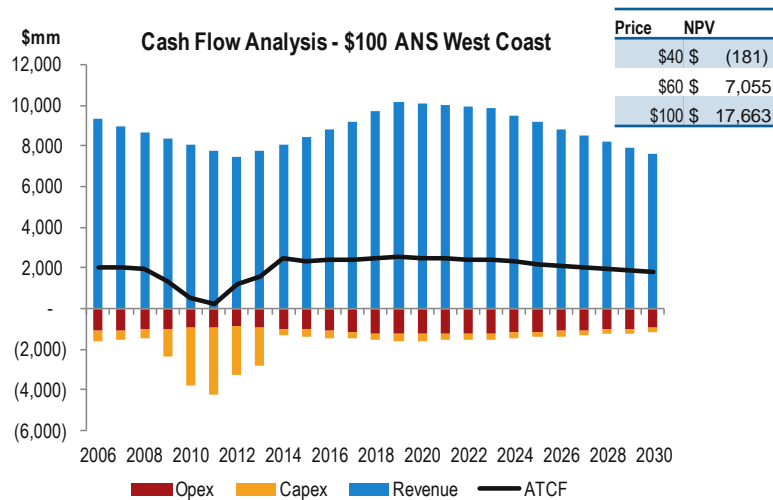
# CSSB 192 Excluding New Oil Allowance (Existing Producer)



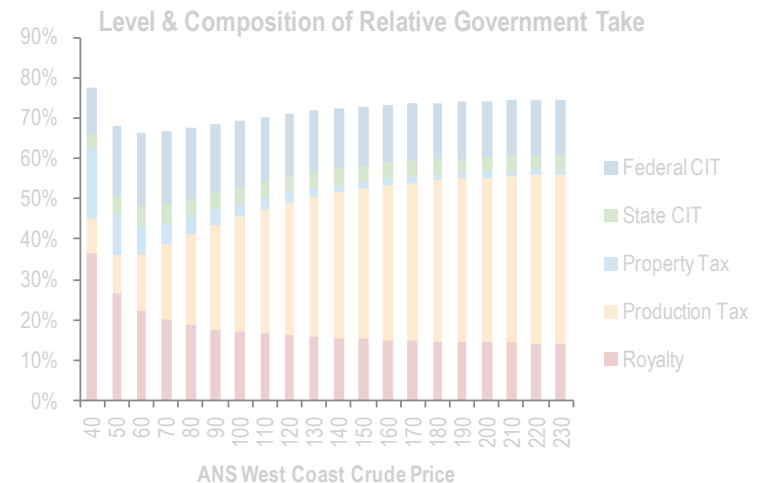
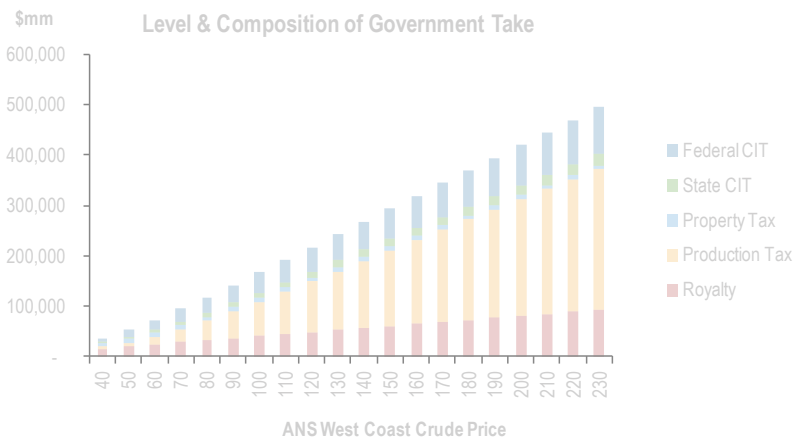
Price	Royalty	Production Tax	Property Tax	State CIT	Total State Take	Federal CIT	Total GT
40	37%	9%	17%	3%	66%	12%	78%
50	26%	14%	10%	4%	55%	16%	71%
60	22%	20%	7%	4%	54%	16%	70%
70	20%	25%	5%	4%	55%	16%	71%
80	19%	29%	4%	4%	56%	15%	72%
90	18%	33%	4%	4%	58%	15%	73%
100	17%	36%	3%	4%	60%	14%	74%
110	16%	39%	3%	4%	61%	14%	75%
120	16%	41%	3%	3%	63%	13%	76%
130	16%	43%	2%	3%	64%	13%	76%
140	15%	44%	2%	3%	65%	12%	77%
150	15%	45%	2%	3%	66%	12%	78%
160	15%	46%	2%	3%	66%	12%	78%
170	15%	47%	2%	3%	67%	12%	78%
180	15%	48%	2%	3%	67%	12%	79%
190	15%	48%	1%	3%	67%	11%	79%
200	14%	49%	1%	3%	68%	11%	79%
210	14%	49%	1%	3%	68%	11%	79%
220	14%	49%	1%	3%	68%	11%	79%
230	14%	50%	1%	3%	68%	11%	79%



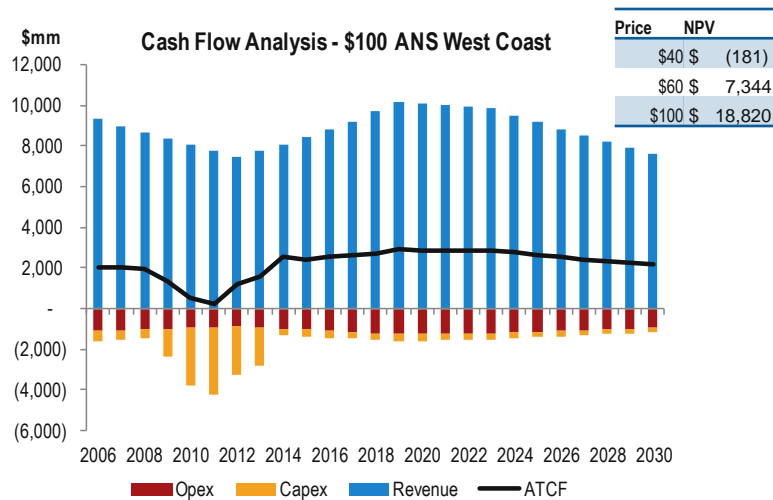
# CSSB 192 Including 20% Gross Revenue Allowance Above Fixed Decline Rate (Existing Producer)



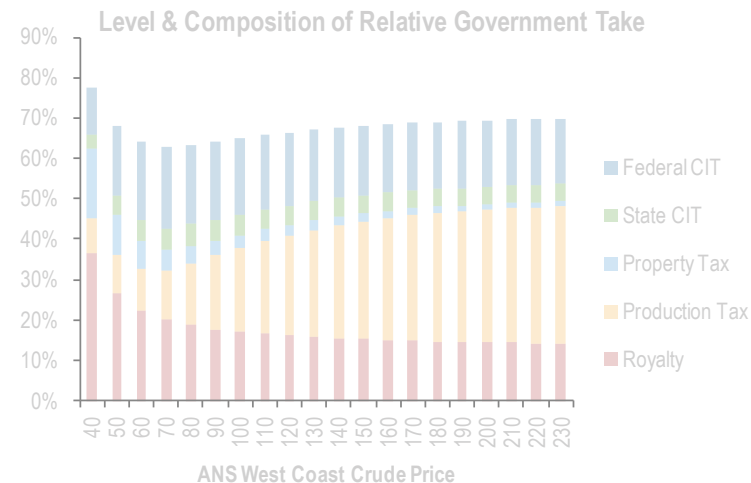
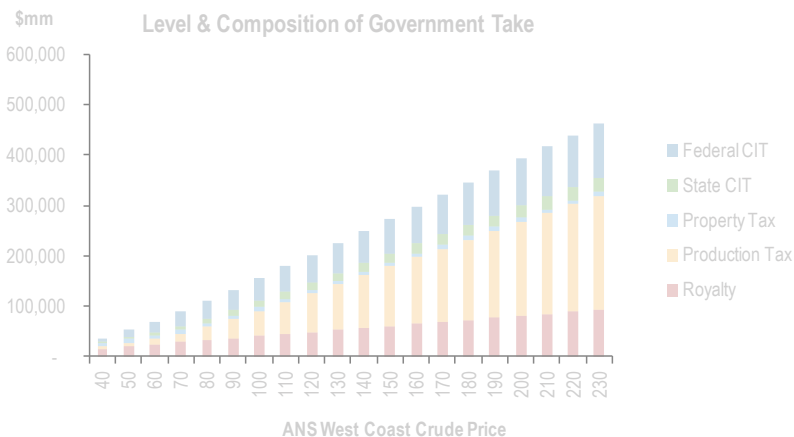
Price	Royalty	Production Tax	Property Tax	State CIT	Total State Take	Federal CIT	Total CIT
40	37%	9%	17%	3%	66%	12%	78%
50	26%	10%	10%	5%	51%	17%	68%
60	22%	14%	7%	5%	48%	18%	66%
70	20%	18%	5%	5%	49%	18%	67%
80	19%	22%	4%	5%	50%	18%	68%
90	18%	26%	4%	4%	52%	17%	69%
100	17%	28%	3%	4%	53%	17%	69%
110	16%	31%	3%	4%	54%	16%	70%
120	16%	33%	3%	4%	56%	16%	71%
130	16%	35%	2%	4%	57%	15%	72%
140	15%	36%	2%	4%	57%	15%	72%
150	15%	37%	2%	4%	58%	15%	73%
160	15%	38%	2%	4%	59%	14%	73%
170	15%	39%	2%	4%	59%	14%	74%
180	15%	40%	2%	4%	60%	14%	74%
190	15%	40%	1%	4%	60%	14%	74%
200	14%	41%	1%	4%	60%	14%	74%
210	14%	41%	1%	4%	60%	14%	74%
220	14%	42%	1%	4%	61%	14%	74%
230	14%	42%	1%	4%	61%	14%	75%



# CSSB 192 Including 40% Gross Revenue Allowance Above Fixed Decline Rate (Existing Producer)



Price	Royalty	Production Tax	Property Tax	State CIT	Total State Taxes	Federal CIT	Total CIT
40	37%	9%	17%	3%	66%	12%	78%
50	26%	10%	10%	5%	51%	17%	68%
60	22%	10%	7%	5%	45%	20%	64%
70	20%	12%	5%	5%	43%	20%	63%
80	19%	15%	4%	5%	44%	20%	63%
90	18%	18%	4%	5%	45%	19%	64%
100	17%	21%	3%	5%	46%	19%	65%
110	16%	23%	3%	5%	47%	19%	66%
120	16%	25%	3%	5%	48%	18%	66%
130	16%	27%	2%	5%	49%	18%	67%
140	15%	28%	2%	5%	50%	17%	68%
150	15%	29%	2%	5%	51%	17%	68%
160	15%	30%	2%	4%	51%	17%	68%
170	15%	31%	2%	4%	52%	17%	69%
180	15%	32%	2%	4%	52%	17%	69%
190	15%	32%	1%	4%	53%	17%	69%
200	14%	33%	1%	4%	53%	16%	69%
210	14%	33%	1%	4%	53%	16%	70%
220	14%	34%	1%	4%	53%	16%	70%
230	14%	34%	1%	4%	54%	16%	70%



# Conclusions – New Oil Allowance

- Even under highly aggressive assumptions regarding the potential for a new-source development for a given company, the impact of CSSB192's \$10 allowance for "new oil" is almost undetectable
  - By increasing the time horizon and value of the allowance, it is possible to increase the impact to the point at which it becomes noticeable in the specific hypothetical case of a 100 mb/d new development for an existing producer
  - This, however, is a highly unlikely scenario. Under any foreseeable scenario, regardless of rate or duration, it is unlikely to have any impact because it does not incentivize new production above the existing decline, only volumes incremental to prior years' production
- Senate Resources Amendment B2 instead proposed a tax holiday based on production above a target rate, set based on the rolling average decline rate for the prior 3 years
  - While the decline-curve approach is a sounder one, the impact of this proposal is also highly limited, for two reasons
    - The allowance applies each year only to production that year which exceeds the target
    - After a few years of production growth, the incentive no longer applies to new production, due to changes in the rolling-average decline curve
- An allowance based on a set decline-curve, based at a particular point in time, has a significantly greater impact than either of the other forms of allowance.
  - Determining the appropriate decline basis to use could pose difficulties
  - The decline curve concept could also be complemented with other incremental production definitions, such as production from new areas, and from approved development plans



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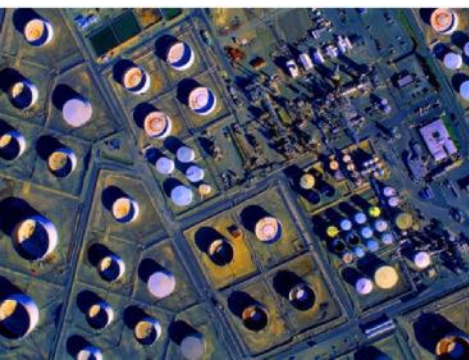
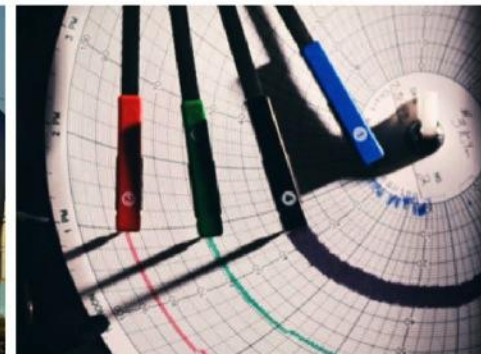
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