

The Palin-Parnell Administration presents

# ACES

*Alaska's Clear and Equitable Share*

Senate Resources  
House Oil and Gas  
Joint Hearing  
October 21, 2007

*Last Updated: 10-21-07*

# **ACES Preserves Investment Climate**

**An Economic Evaluation**

**Anthony Finizza, Ph. D.**

**October 21, 2007**

# Framework and Methodology for Analysis

## Financial Metrics

# Producer Economic Metrics

- **NPV – Net Present Value (“Value today of Project Cash Flows”)**

# Metrics Used



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	Legacy Fields	New Fields	
<b><i>Producer Point-of-View</i></b>  Financial Evaluation	<b>"Reinvestment Economics"</b>  Net Cash Flow NPV10	<b>"Investment Economics"</b>  Net Cash Flow NPV10	Does the project have NPV>0 at stress price?
<b><i>Alaska Point-of-View</i></b>  "Fairness"	Marginal Government Take	Life Cycle Discounted (10%) Government Take	Does the SOA receive a fair share of the economic profit?

# Financial Criterion

## Net Present Value (NPV)



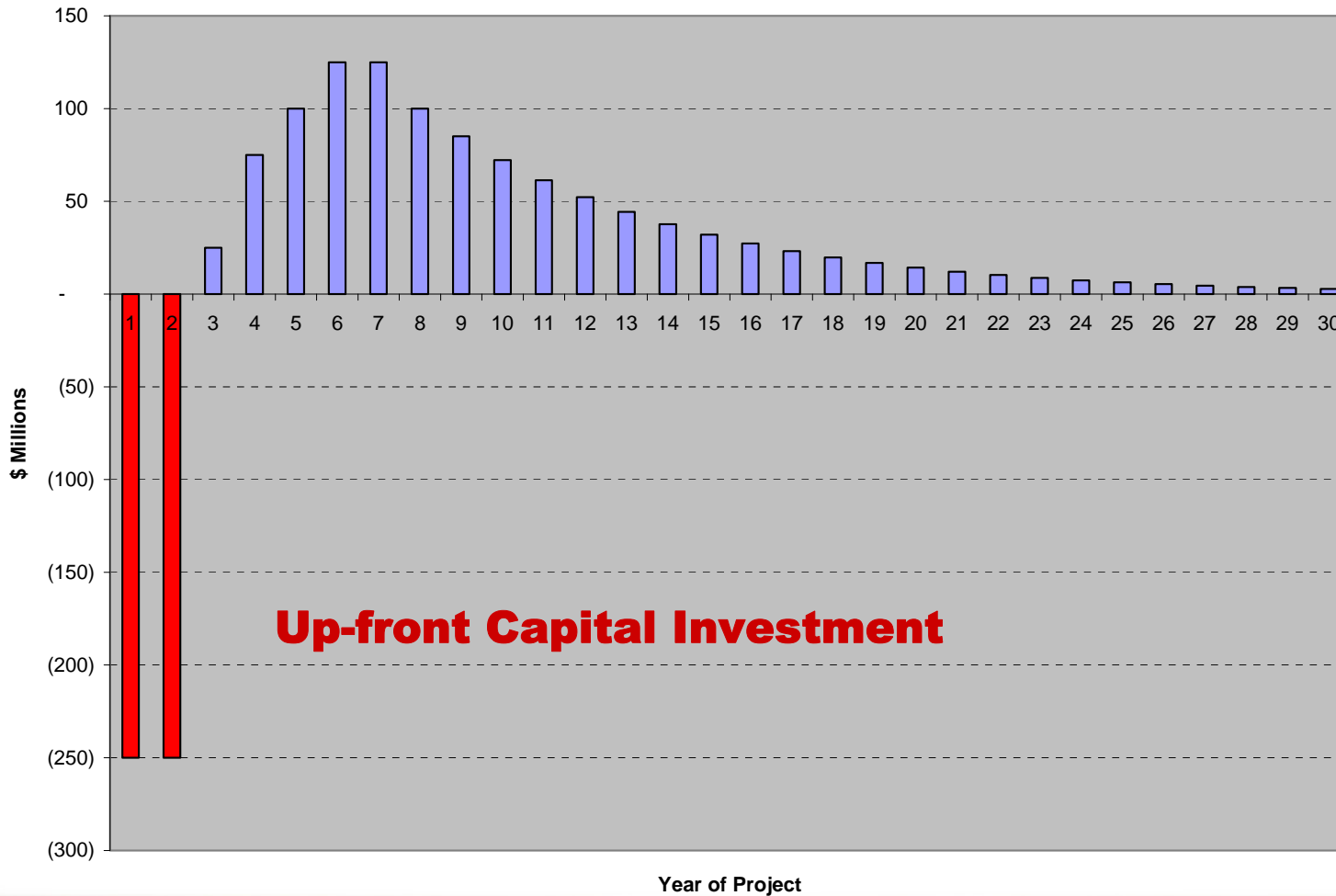
- **Present value of future cash flows including capital investment**
- **This is the “supreme” financial metric since a project with a positive NPV adds value to the firm**
  - **Value of the firm = PV of all future cash flows**
    - = PV of cash flows from assets in place**
    - + PV of cash flows from future investments**
- **Future cash flows discounted at rate that represents uncertainty of cash flows and when they are expected**
- **If a project generates cash in excess of that to compensate for the risk taken, the value of the firm increases**

# Stylized Project Cash Flow



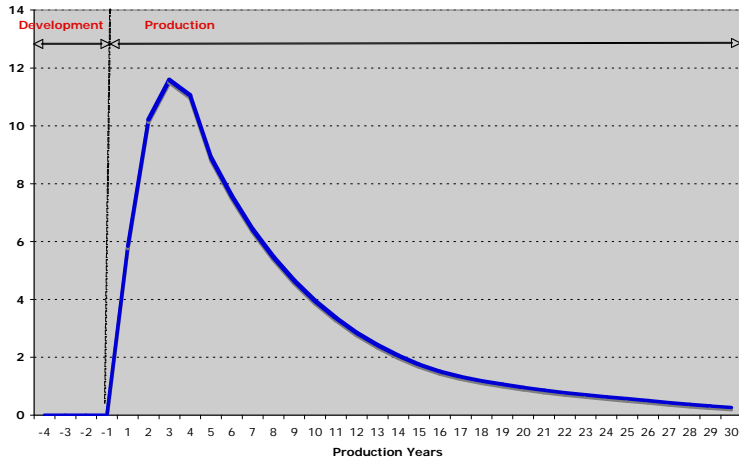
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## Net Cash Flow from Production

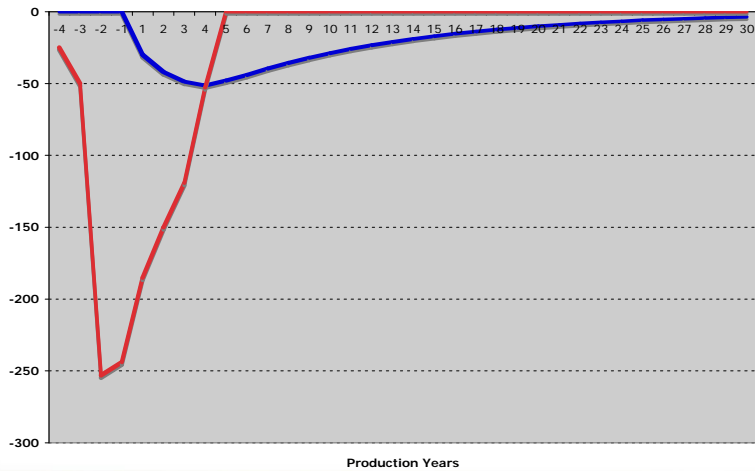


# Cash Flows for New Fields

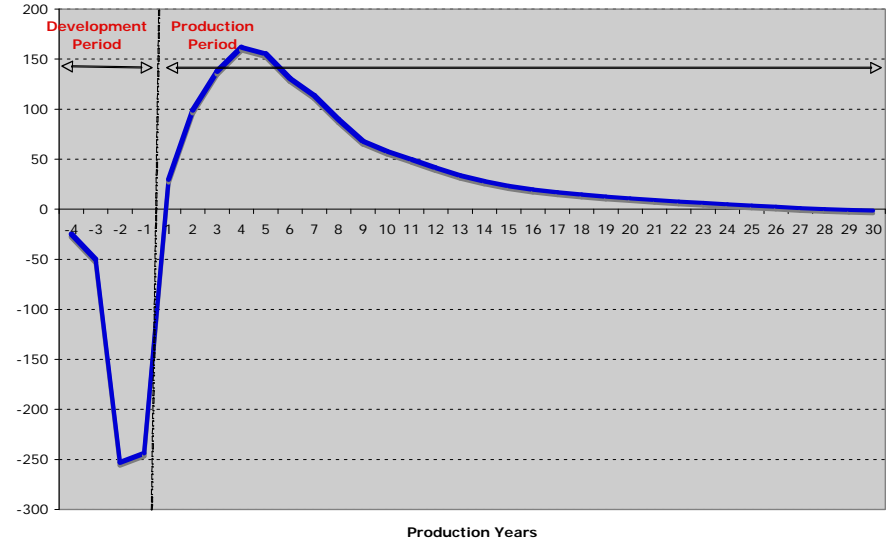
Annual Production



Capital and Operating Costs



Annual Net Cash Flow



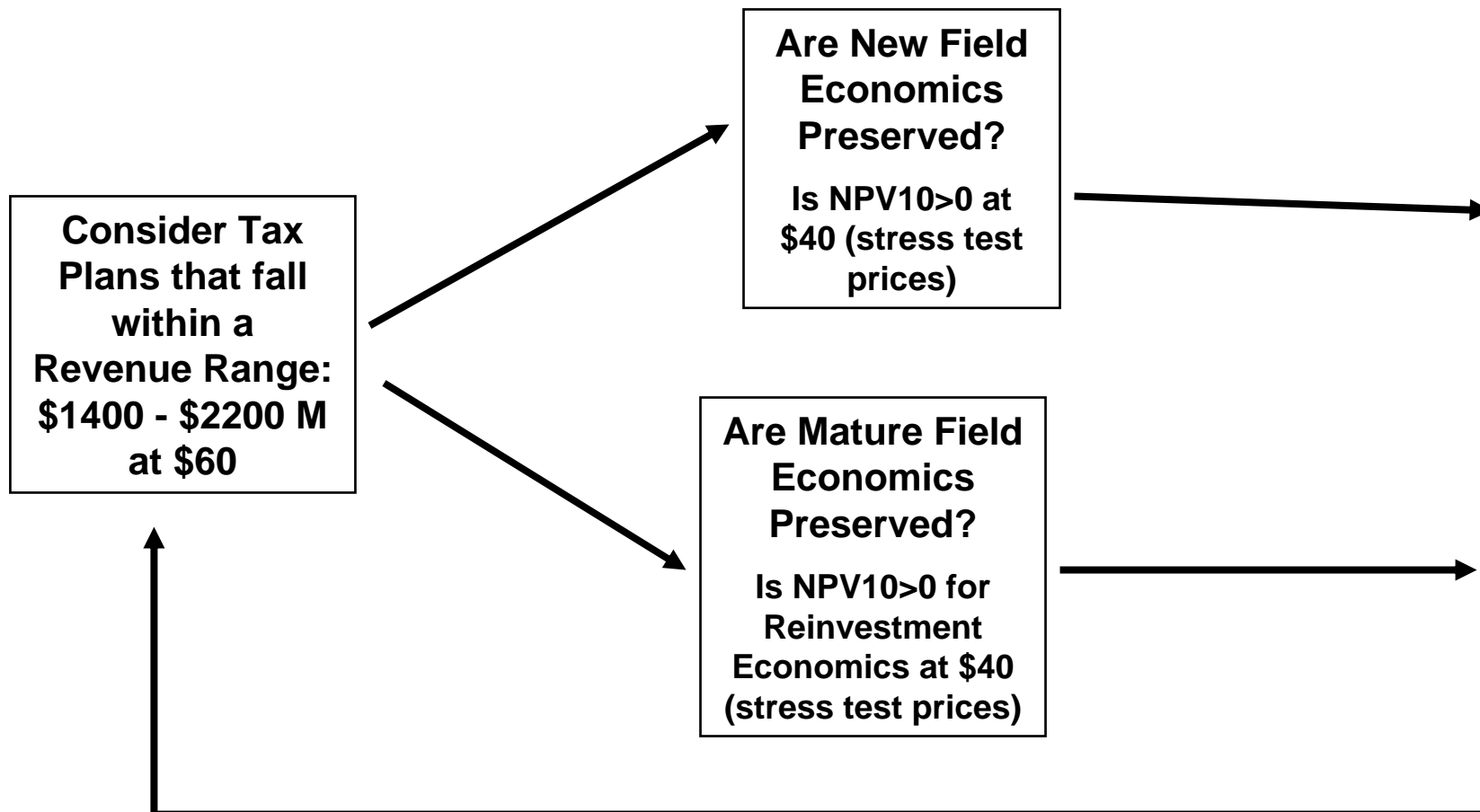


- Producers have been “burned” by forecasts of high oil prices in the past
- The consequences of error are not symmetrical
- Producers will test their projects against a price path that is below their “Most Likely” view
  - They use the “official price view” as a speed limit to signal caution
  - By “high-grading,” they will have a suite of projects resilient to price risk
  - Their price view lags the current market price by as much as 5-7 years as prices rise, and by 2 years as prices fall.
  - Current “best guess” view might be: **\$50/barrel**
  - Producers will also “stress” test their projects at **\$40/barrel**

**For comparing results, we have used a common set of assumptions:**

- **Oil prices:**
  - **Base case price; \$60**
  - **Stress test price: \$40**
  - **Analysis done at price continuum from \$20 to \$100**
- **Inflation: 3% per year**
- **Producer discount rate: 10% and 15% (results shown at 10%)**
- **State discount rate: 5% and 8% (results shown at 5%)**

# Tax Plan Evaluation Process



# Analysis of New Fields

# Seven New-Fields Analysis



- Hypothetical fields based on operating and capital costs, and production profiles of known field types
- Source of information derived from publicly available data, and industry information supplied in state agency interactions

# Characteristics of Seven Fields



A: Medium heavy oil satellite in existing mature unit

B: Offshore small reserves

C: Satellite in existing unit

D: Remote field

E: New unit with very heavy oil

F: Offshore medium reserves

G: New unit with large reserves

- Reserves range from 40 to 300 MB
- Various combinations of ownerships among incumbents, small producers, new entrants

## Characteristics of the Seven Fields

Field A   Field B   Field C   Field D   Field E   Field F   Field G

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

# Tax Scenarios

(A small sample of scenarios considered)



- Net
  - ACES: 10% Floor
  - ACES: No Floor
  - PPT (Status Quo)
  - 35% Mature Fields / 22.5% Other
- Gross
  - 13% / No credits
  - 16% / With 20% credits
  - 16% / No credits
  - 19% / With 20% credits
  - Back-end loaded progressive tax table / With 20% Credits

**\*\* All Models use a progressivity factor**



## DESCRIPTION OF NEW FIELD MODEL

### CASH FLOW SCHEMATIC FOR SINGLE YEAR

TOTAL REVENUES: (VOLUME X ANS WEST COAST PRICE)

Less:

Shipping  
TAPS Tariff =

□ GROSS VALUE (AT THE POINT OF PRODUCTION)

Less:

Upstream Capital Costs  
Upstream Operating Costs =

DIVISIBLE INCOME

Less:

Royalties =

TAXABLE INCOME FOR PRODUCTION TAX

Less:

Production Tax =

TAXABLE INCOME FOR INCOME TAX

Less:

State Corporate Income Tax  
Federal Corporate Income Tax =

NET CASH FLOW FOR A SINGLE YEAR

### NET PRESENT VALUE

DISCOUNTED NET CASH FLOW YEAR	1
+ DISCOUNTED NET CASH FLOW YEAR	2
+ DISCOUNTED NET CASH FLOW YEAR	3
+ DISCOUNTED NET CASH FLOW YEAR	4
+ DISCOUNTED NET CASH FLOW YEAR	5
+ DISCOUNTED NET CASH FLOW YEAR	6
+ DISCOUNTED NET CASH FLOW YEAR	7
+ DISCOUNTED NET CASH FLOW YEAR	8
+ DISCOUNTED NET CASH FLOW YEAR	9
+ DISCOUNTED NET CASH FLOW YEAR	10
+ DISCOUNTED NET CASH FLOW YEAR	...
+ DISCOUNTED NET CASH FLOW YEAR	...
+ DISCOUNTED NET CASH FLOW YEAR	...
+ DISCOUNTED NET CASH FLOW YEAR	Last Year =

NET PRESENT VALUE

## New Field Tax Analysis - NPV Impact

### NET PRODUCTION TAX SCENARIOS

Scenario	Rate		Progressivity		Capital Investment Credit	Industry NPV @ 10% at \$40/bbl real ANS WC (mm\$)						
	Mature Fields	Other Fields	Trigger	Rate		Field A	Field B	Field C	Field D	Field E	Field F	Field G
	ACES - 10% Floor	25.0%			25.0%	\$30	0.0020	20%	10	60	40	40
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

### GROSS PRODUCTION TAX SCENARIOS

Scenario	Rate (All Fields)	Other Incentives	Progressivity		Capital Investment Credit	Industry NPV @ 10% at \$40/bbl real ANS WC (mm\$)						
			Trigger	Rate		Field A	Field B	Field C	Field D	Field E	Field F	Field G
Low Rate - No Credits	13%		\$40	0.0020	None	(30)	(40)	(30)	(500)	(600)	80	700
Medium rate	16%		\$40	0.0020	20%	30	0	0	(300)	(500)	130	800
Former Tax no ELF	16%		NA	NA	none	(40)	(50)	(30)	(400)	(600)	80	800
High Rate Flat Tax	19%		NA	NA	20%	20	(10)	0	(300)	(500)	130	900
Sliding Scale	Tax Table	5 Yr Holiday	NA	NA	20%	130	40	40	20	(400)	180	1,100

**New Field Tax Analysis - NPV Impact**

NET PROFIT TAX SCENARIOS					
Case	Tax Rate		Progressivity		Capital Investment
	Mature Fields	Other Fields	Trigger	Rate	Credit
	ACES - 10% Floor	25%			
ACES - NO Floor	25%	25%	\$30	0%	20%
PPT Status Quo	23%	23%	\$40	0%	20%
High Net Tax	35%	23%	\$30	0%	20%

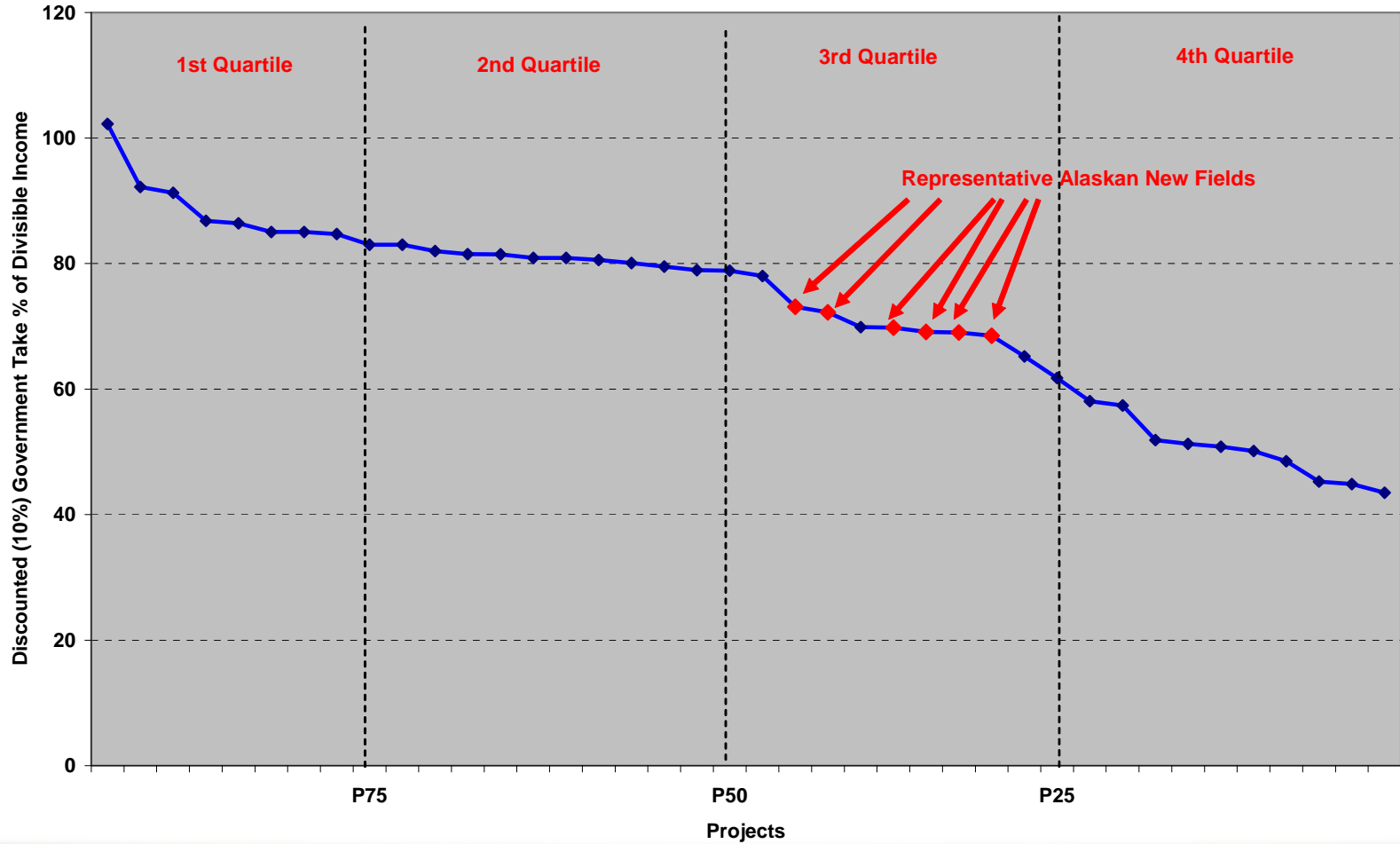
State NPV at 5% at \$60/bbl ANS WC (mm\$)						
Field A	Field B	Field C	Field D	Field E	Field F	Field G
1,000	530	610	2,000	1,000	1,800	5,700
1,000	530	610	2,000	740	1,800	5,700
850	500	550	1,800	480	1,700	5,300
1,100	550	580	2,000	590	1,800	5,700

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



<b>Median Government Take By Tax Structures</b>	
	Median (Mid-Point)
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%

## Discounted Government Take @ \$60 Tax & Royalty Fiscal Regimes (excluding GOM)



# Conclusions



- New Fields would likely not be developed under a gross tax system
- Credits essential
- ACES levels the playing field for small producers and new entrants
  - 100 cents on the dollar for credits
  - Can monetize losses at same rate as large producers

# **Analysis of Mature Fields**

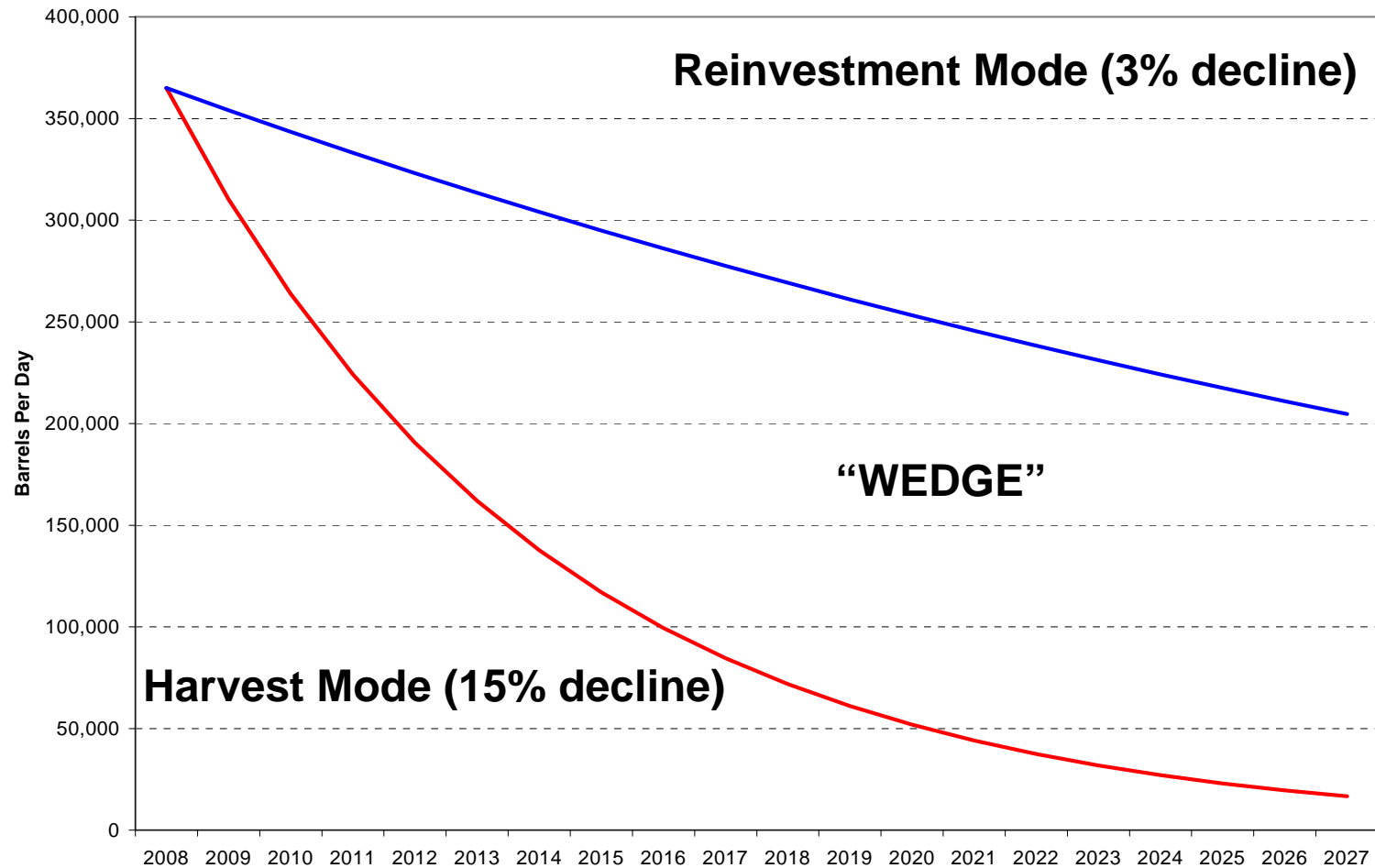
- Hampered by lack of specific knowledge
- Recognize that reinvestment requires substantial capital
- Consider two modes:
  - Harvest: allow field to decline naturally (15% decline)
  - Reinvestment: invest to stem decline (3% decline)
- Treat each mode as a separate (mutually exclusive) project
- Compare the NPV of Reinvestment with the NPV of Harvest



# Legacy Field Scenarios



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## Legacy Field Reinvestment Comparison @ \$40



	<b>Sustain Production Mode</b>	<b>Harvest Mode</b>	<b>Difference</b>	
Decline Rate	3% per year	15% per year		
Oil Produced (mm Barrels)	2026	854	1172	
	<b>NPV10 (\$M)</b>	<b>NPV10 (\$M)</b>	<b>NPV Difference (\$M)</b>	<b>Implied Investment Decision</b>
Net Cases:				
ACES	8235	6893	1342	Reinvest
PPT(SQ)	9176	7133	2042	Reinvest
35% tax rate	8022	6130	1892	Reinvest
Gross Cases:				
13% + no credits	6860	7207	(348)	DO NOT Reinvest
16% + no credit	6248	6889	(641)	DO NOT Reinvest
16% + 20% credit	7180	7027	152	DO NOT Reinvest
19% + no credit + no progressivity	6246	6706	(460)	DO NOT Reinvest

Assumes: 20 year horizon, OPEX+CAPEX=\$5/BOE for Harvest, \$15/BOE for Reinvestment. All cases assume 26 progressivity unless noted.

# How Much of a \$1.00 Oil Price Increase is Captured by Producer

(Mature fields - In production > 10 years)



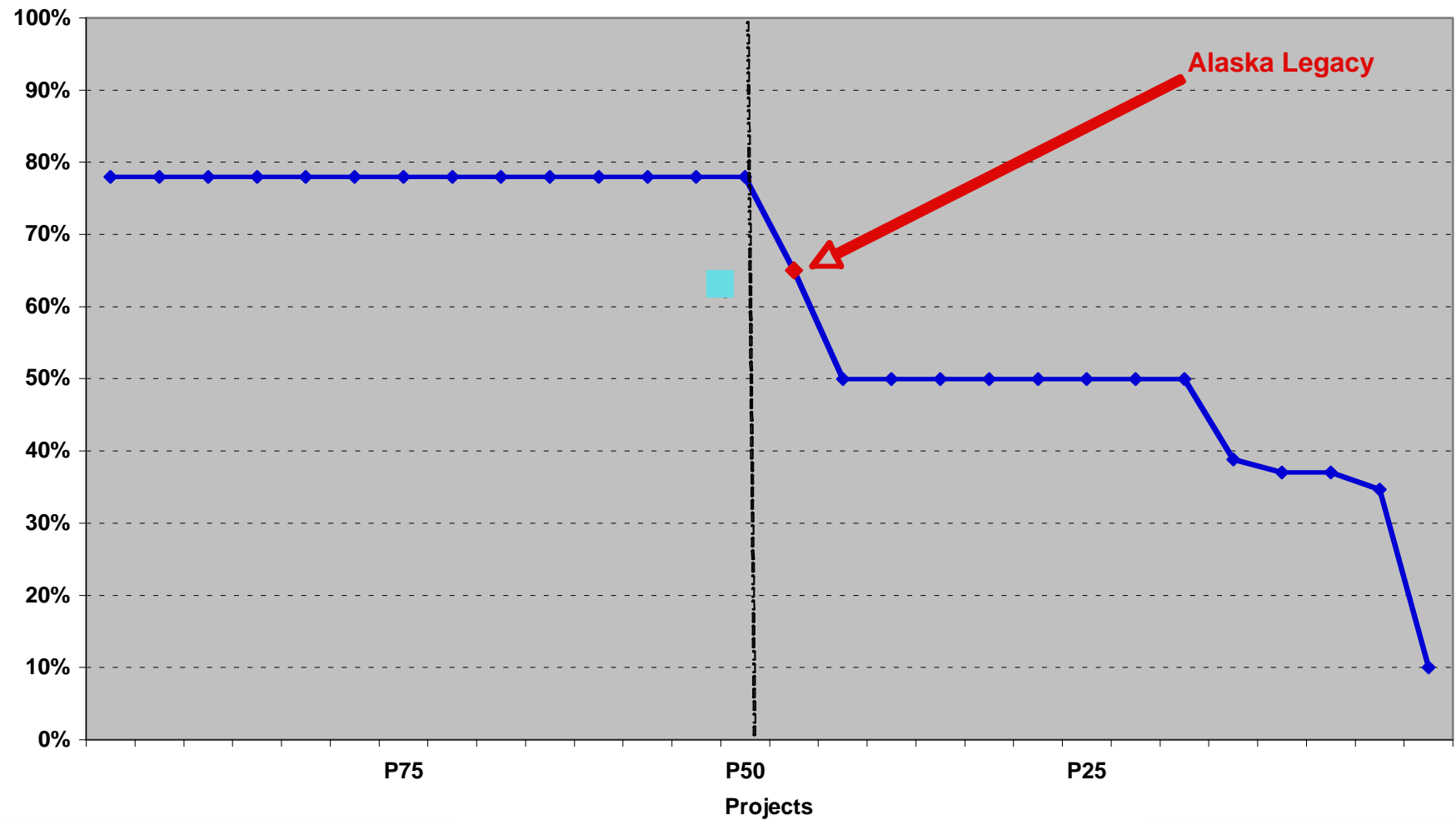
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<b>Governmental Tax Structures</b>	
	Median (Mid-Point)
All Governments	57¢
Production Sharing Governments	15¢
Tax Royalty Governments	57¢
Norway	22¢
<b>Alaska - ACES</b>	<b>35¢</b>
Alaska - PPT (Status Quo)	39¢
UK	50¢
Gulf of Mexico	57¢

Marginal Government Take @ \$60  
Tax & Royalty Tax Regimes (excluding GOM)  
Mature Fields



ire



# Sensitivities

## Sensitivity to Alternative Assumptions



### ACES at \$60

#### North Slope Production Tax Revenues in Millions of Dollars

	FY 2008	FY 2009	FY 2010	Relative to ACES		
				FY 2008	FY 2009	FY 2010
ACES	1421	1977	2170	-	-	-
ACES w/ 22.5% rate	1320	1748	1928	-102	-229	-242
ACES w/ PPT Progressivity	1356	1826	2011	-65	-151	-159
ACES w/ TIE Credits in	1315	1789	1972	-107	-188	-198
ACES w/ credits all in first year	1324	2003	2160	-97	26	-9
ACES w/ 27% rate	1503	2160	2363	81	183	194
ACES w/ 30% rate	1625	2435	2653	203	458	484