

01/24/13

SB 21 -

Analysis of
Alaska's Tax

System by

Barry

Pulliam, Econ

One Research

<TARGET><BILL>SB 21</BILL><SUBJECT>01-24-13 SB 21 -
Analysis of Alaska's Tax System by Barry Pulliam, Econ One
Research</SUBJECT><COMM>STTP28</COMM></TARGET>

Analysis of Alaska's Tax System, North Slope Investment and The Administration's Proposal

Econ One Research, Inc.

January 24, 2013

Presentation Structure

- I. Introduction**
- II. The Petroleum Industry in Alaska**
- III. History of North Slope Production, Development and Tax Systems**
- IV. North Slope Activity Over The Past Decade**
- V. Benchmarking North Slope Activity Against Other Areas**
- VI. Attractiveness of Investments Under ACES**
- VII. The Administration's Proposed Changes**

I. Introduction



Econ One: Who We Are

- **Economic Research and Consulting Firm**
 - **Offices in Los Angeles, Houston, Sacramento and Washington D.C.**
 - **Provide Economic Analysis In Energy and Other Industries**
 - **The Econ One Team Is Led By Barry Pulliam**
 - **Includes Washington Lem, Lisa McGuff, Tasha Reese and Dr. Anthony Finizza**
 - **Advised the State of Alaska on Petroleum Related Matters For Over Two Decades**
 - **Worked With the Cowper, Hickel, Knowles, Murkowski, Palin, and Parnell Administrations**
 - **Assisted the Legislature Between 2005 and 2008 on Tax and Gas Development Issues**
 - **Energy-Related Work Outside Alaska**
 - **State Governments: Texas, Louisiana, New Mexico, Oklahoma, California**
 - **Federal Government Agencies: Department of Interior, Federal Trade Commission**
 - **Producers, Refiners, Pipelines and Chemical Companies**
-

Overview of Analysis

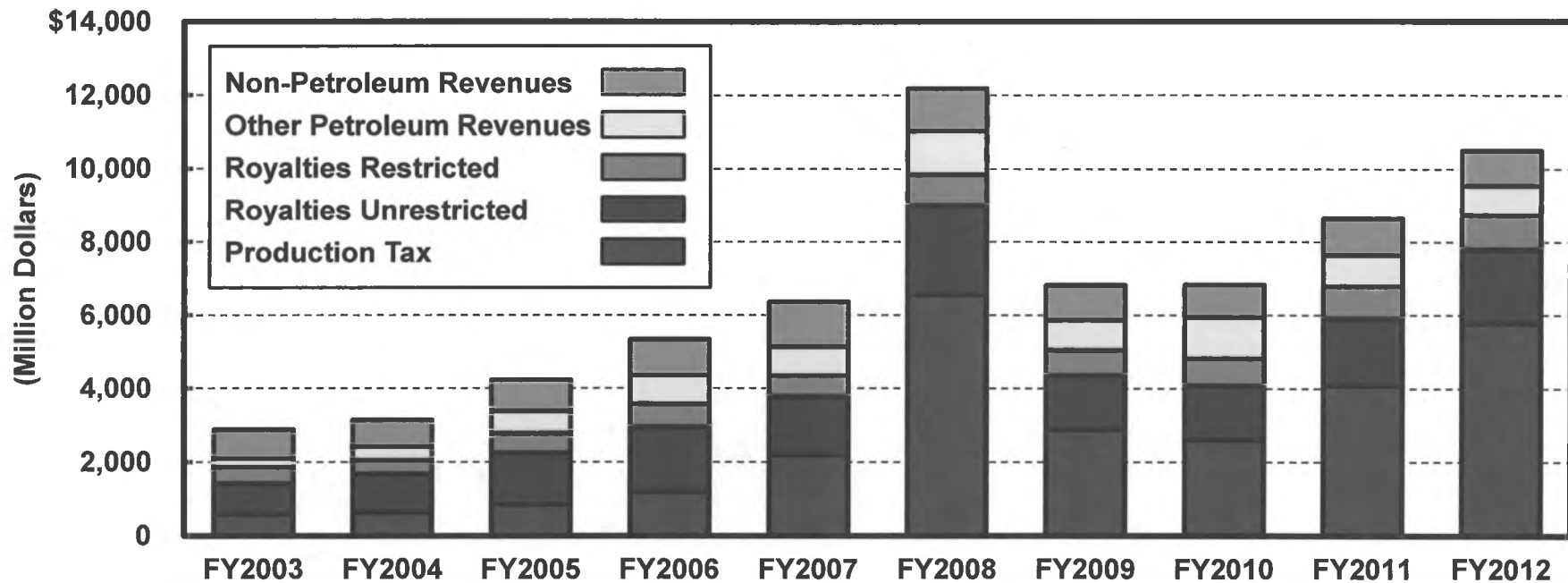
- **North Slope Development, Production, and Resources**
- **Evolution of Alaska's Fiscal and Tax System**
 - **Gross Tax (ELF), Net Tax (PPT, ACES)**
- **Examination of North Slope Activity Over The Past Decade**
 - **Production, Employment, Spending, Drilling**
- **Benchmarking the North Slope Against Other Areas**
 - **Key Producing Areas in OECD Countries**
 - **Lower-48, Canada, North Sea, Australia**
- **Examination of North Slope Investment Opportunities**
 - **Across Alaska's Gross and Net Tax Systems**
 - **Relative to Benchmark Areas**
- **Examination of Proposed Changes to Tax System**
 - **Rationale and Implications**
 - **Impact on Investment Opportunities**

II. The Petroleum Industry in Alaska

Impact of Petroleum on State Revenues

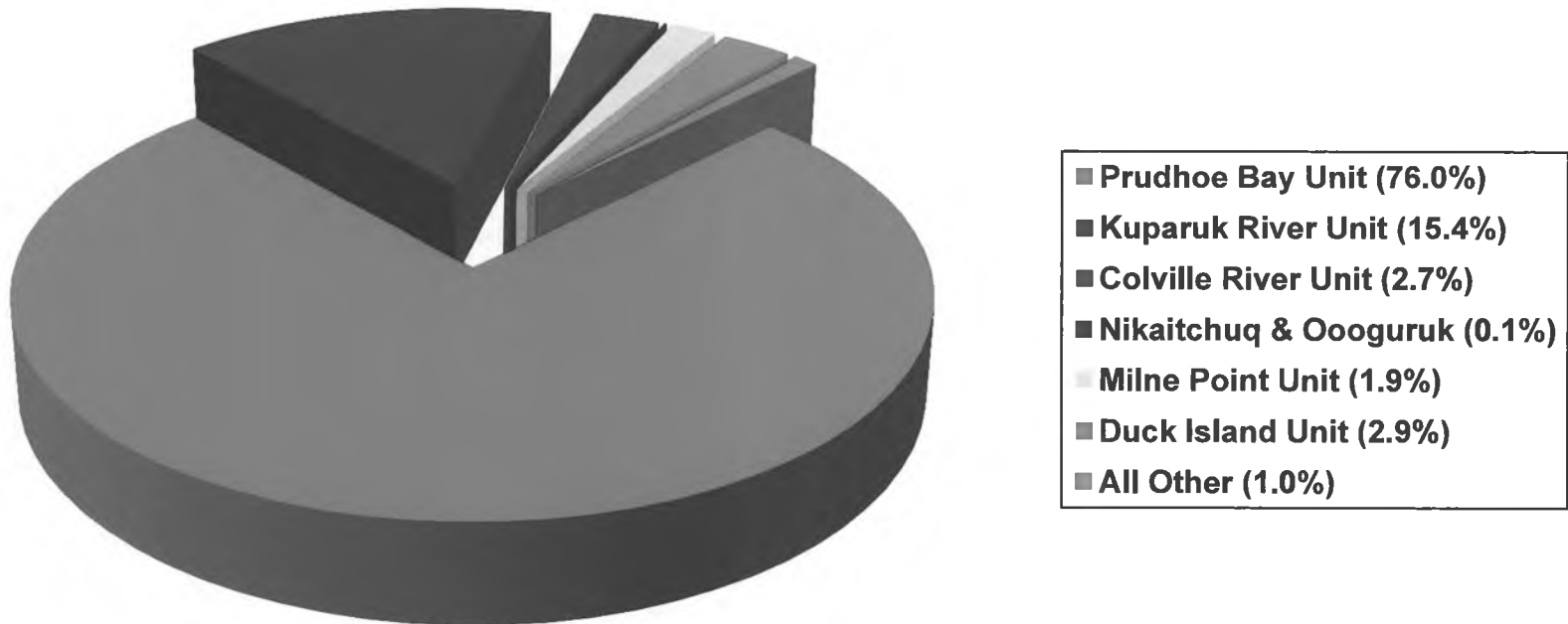
Total State Revenues Excluding Federal and Investment FY2003 - FY2012

- **Petroleum Industry is Largest Contributor to State Economy**
- **Industry Accounted For 92% of Unrestricted Revenues and 86% of Restricted and Unrestricted Revenues Over the Past Decade**
- **Production Taxes Accounted for 61% of Petroleum Revenues In FY2012, Up From 27% Prior to FY2007**



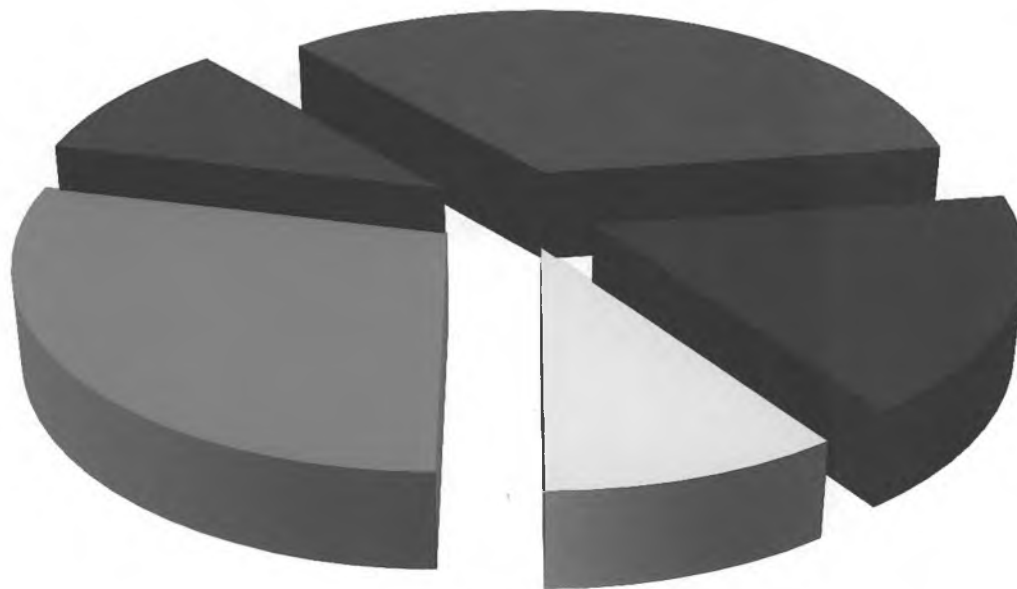
Alaska North Slope: An Overview

- **The North Slope Has Produced Approximately 16 Billion Barrels of Crude Oil Since 1977**
- **The Vast Majority of North Slope Production Has Come From Two Giant “Legacy” Fields, Prudhoe Bay and Kuparuk, Discovered in the 1960s. Production From These Two Fields is Naturally Declining Over Time, Though the Decline Has Been Partially Offset by the Addition of Smaller Discoveries.**



Alaska North Slope: An Overview (cont'd)

- **Many North Slope Fields are Now at Mature Stages. However, Less Than Half of its Potential Economic Oil Resources Have Been Produced to Date**
- **In Total, the North Slope Contains Approximately 40 Billion Barrels of Additional Estimated Economic Recoverable Resources at Today's Prices**



- **Historical Production**
(16.2 BBO)
- **Conventional Resources - Discovered**
(5.6 BBO est.)
- **Conventional Resources - Undiscovered**
(19.2 BBO est.)
- **ANWR**
(9.9 BBO est.)
- **Unconventional Resources**
(5.5 BBO est.)

Alaska North Slope: An Overview (cont'd)

- **While the Potential is Great, These Remaining Resources are Not “Low-Hanging” Fruit**
 - **The Exploration and Development Costs on the North Slope are High Relative to Much of the Rest of the World**
 - **The North Slope is a Physically Challenging Environment, With Much of the Remaining Resources Located Offshore**
 - **And Much of the Remaining Resources are Located on Federal Properties, Where Development Has Been and May Continue to be Delayed Due to Legal Challenges and Changing Federal Policies and Requirements**

- **In Addition, the North Slope has Significant Natural Gas Resources That Have Yet to be Commercialized**



Estimated Undiscovered Conventional Oil Resources on Alaska North Slope

	Technically Recoverable Resources			Economically Recoverable	Expected Typical
	P95	Mean	P5	@ \$90/bbl	Field Size
	(1)	(2)	(3)	(4)	(5)
	(Million Barrels)				
Central North Slope	2,800	3,400	3,900	3,000	32 - 64
Beaufort Sea	400	8,200	23,200	5,800	-
Chukchi Sea	2,300	15,400	40,100	9,900	-
NPRA	400	900	1,700	500	32 - 64
ANWR	5,900	10,400	15,200	9,900	64 - 128
Total		38,300		29,100	

Source:

USGS Reports 2011-1103 and 2009-1112;

BOEM, Assessment of undiscovered technically recoverable oil and gas resources of the nation's outer continental shelf.



Estimated Undeveloped Unconventional Oil Resources on Alaska North Slope

Shale ~ 1 Billion Bbls
(Mean Estimated Technically Recoverable Barrels)
(USGS, 2012)

Viscous and Heavy Oil
(Includes All Schrader/West Sak and Ugnu Reservoirs in the Kuparuk River,
Prudhoe Bay, Milne Point and Nikaitchuq Units, Not Just PAs or Areas
Under Development)

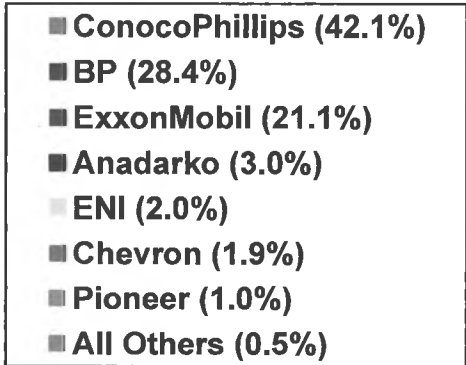
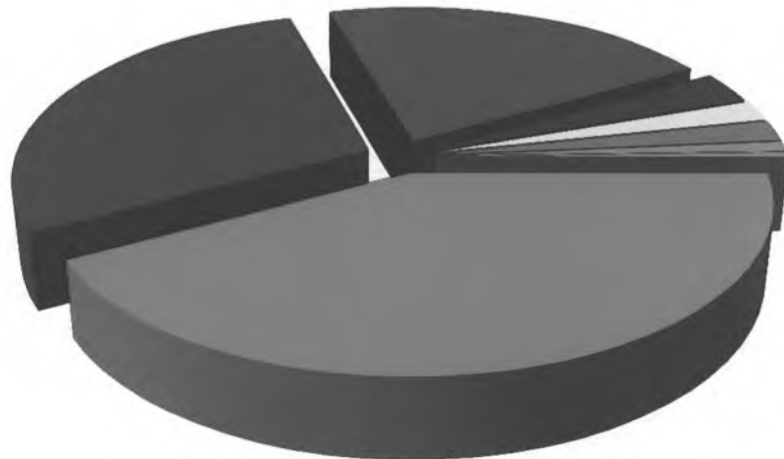
Total In-Place Resource 24 - 27 Billion Bbls
(Hartz, et al., 2007; AOGCC)

Economically Recoverable 3.6 - 5.6 Billion Bbls
(Assuming 15% Average Recovery)

Current and Potential ANS Producers

- **Three Large Producers Account for Most of the State's Current Production. However, in Recent Years, Alaska Has Attracted a Number of New Participants, With Several Developing and Operating Fields on Their Own**

<u>The Majors</u>	<u>Other Producers</u>	<u>Explorers</u>
BP	Anadarko	Armstrong
ConocoPhillips	Pioneer	Brooks Range
Exxon Mobil	ENI	Great Bear Petroleum
Chevron	Savant	Linc Energy
		Repsol
		Shell
		Statoil



Current and Potential ANS Producers The Majors

- **Account for Approximately 9.5 Million BOED of Production Worldwide**
- **Account for More Than 90% of North Slope Production, About 0.4 Million BOED Net in Alaska**
- **Activity in Alaska**
 - **BP: Developing Resources From Existing Fields; Facility Renewal; Liberty Suspended**
 - **ConocoPhillips: Developing Kuparuk, Colville River and Expansion**
 - **ExxonMobil: Developing Point Thomson**
 - **Not Actively Exploring Outside These Areas**
- **Outside of Alaska**
 - **BP: High Margin Areas: Angola, Azerbaijan, Gulf of Mexico, North Sea**
 - **ConocoPhillips: High Margin Areas: Unconventional Lower-48, North Sea, Canada, Asia Pacific**
 - **ExxonMobil: Russia; Recent Offshore Discoveries in Gulf of Mexico (Hadrian) and Newfoundland (Hebron)**

Current and Potential ANS Producers Other Producers / Explorers

- **Pioneer and ENI Operating and Continuing to Develop Oooguruk and Nikaitchuq, Respectively**
 - **First Operators on North Slope Other Than Majors**
 - **Combined Resource Potential Greater Than 250 Million BOE**
- **Anadarko is Fourth Largest Interest Owner on North Slope; Acquired Additional Foothill Leases This Year**
- **Repsol Partnering With Affiliate of Armstrong Oil and Gas**
 - **Announced \$768 Million Multi-Year Budget; Drilled 3 Exploration Wells in 2012**
- **Brooks Range Developing Mustang: Estimated P2 Reserves Between 40 and 50 Million BOE**
 - **Working With AIEDA on Initial Financing**
- **Great Bear Exploring Shale Potential**
- **Linc Energy Exploring Umiat in NPRA**
- **Savant Operating and Developing Badami; Took Over From BP in 2011**

Current and Potential ANS Producers Offshore Explorers

- **Shell Spent \$2.1 Billion to Acquire Chukchi and Beaufort Sea Leases in 2008**
 - **Estimated Spending of \$4.5 Billion to Date**
 - **First Drilling in 2012**

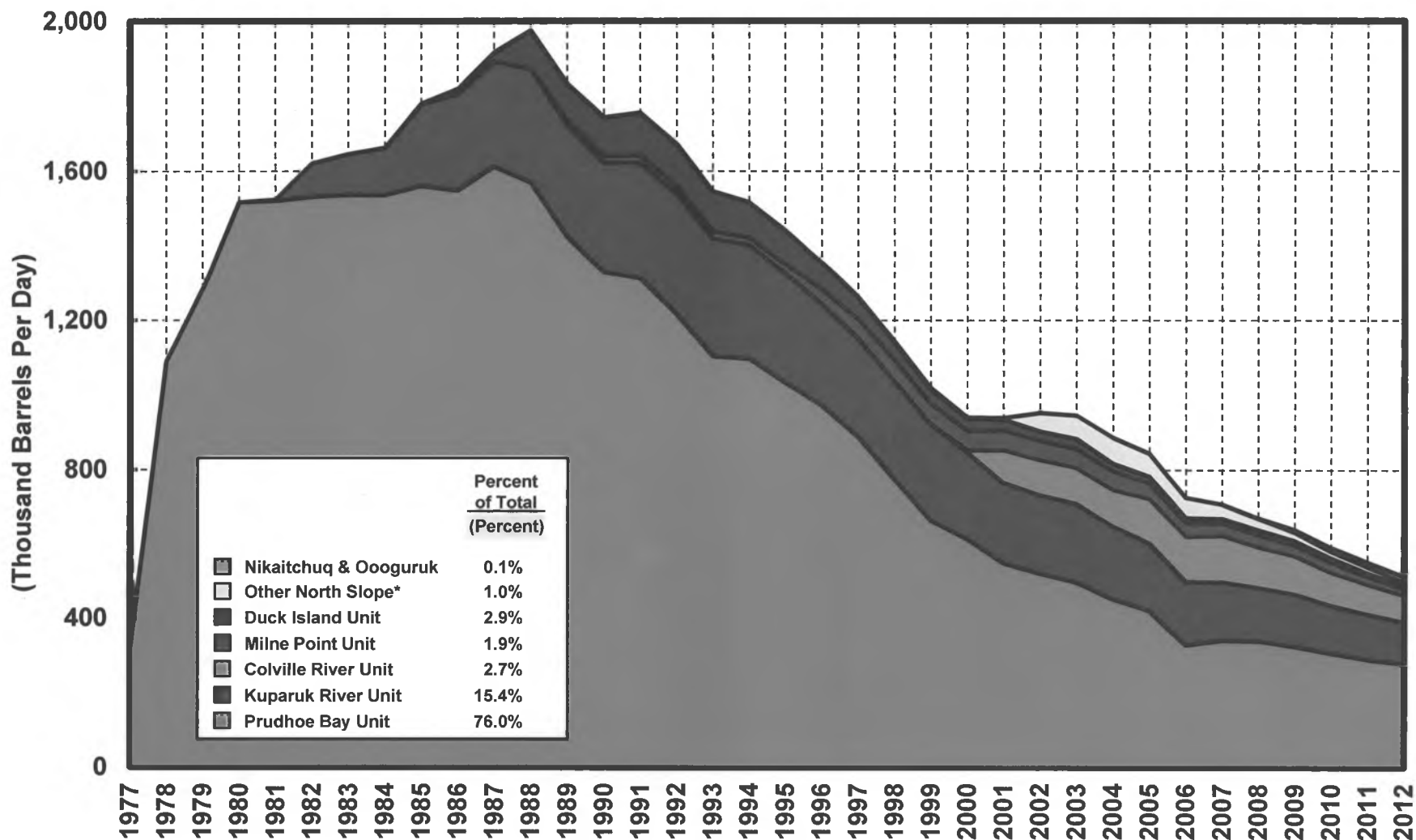
- **ConocoPhillips Spent \$500 Million on Chukchi Leases**
 - **Plans Drilling Activity in 2014**

- **Statoil Spent \$23 Million on Offshore Leases**
 - **Watching Shell for Now**

III. History of North Slope Production, Development and Tax Systems

Historical Volumes by Year and Field

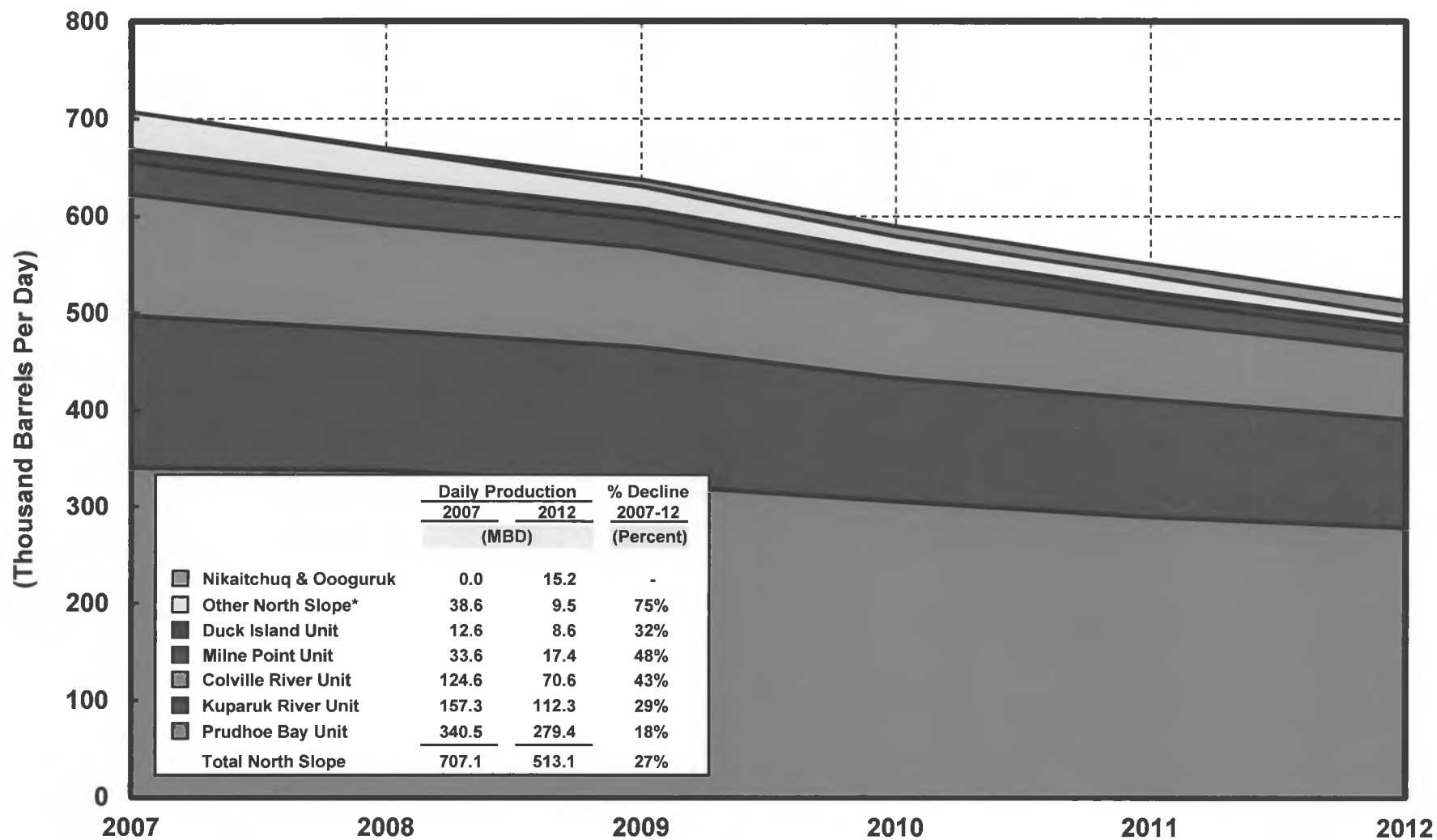
1977 - 2012



* Badami and Northstar.
Source: AOGCC.

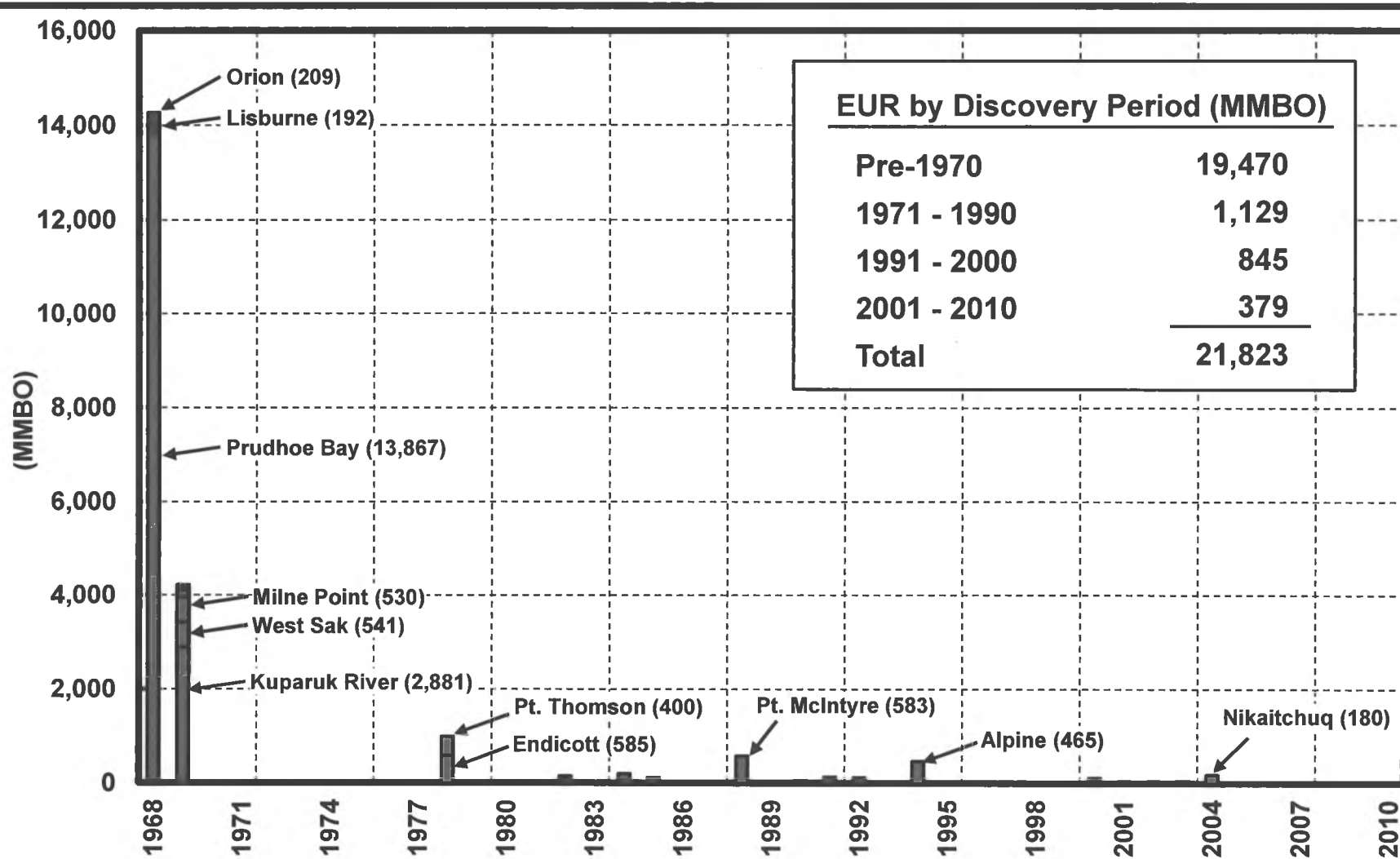
Historical Volumes by Year and Field

2007 - 2012



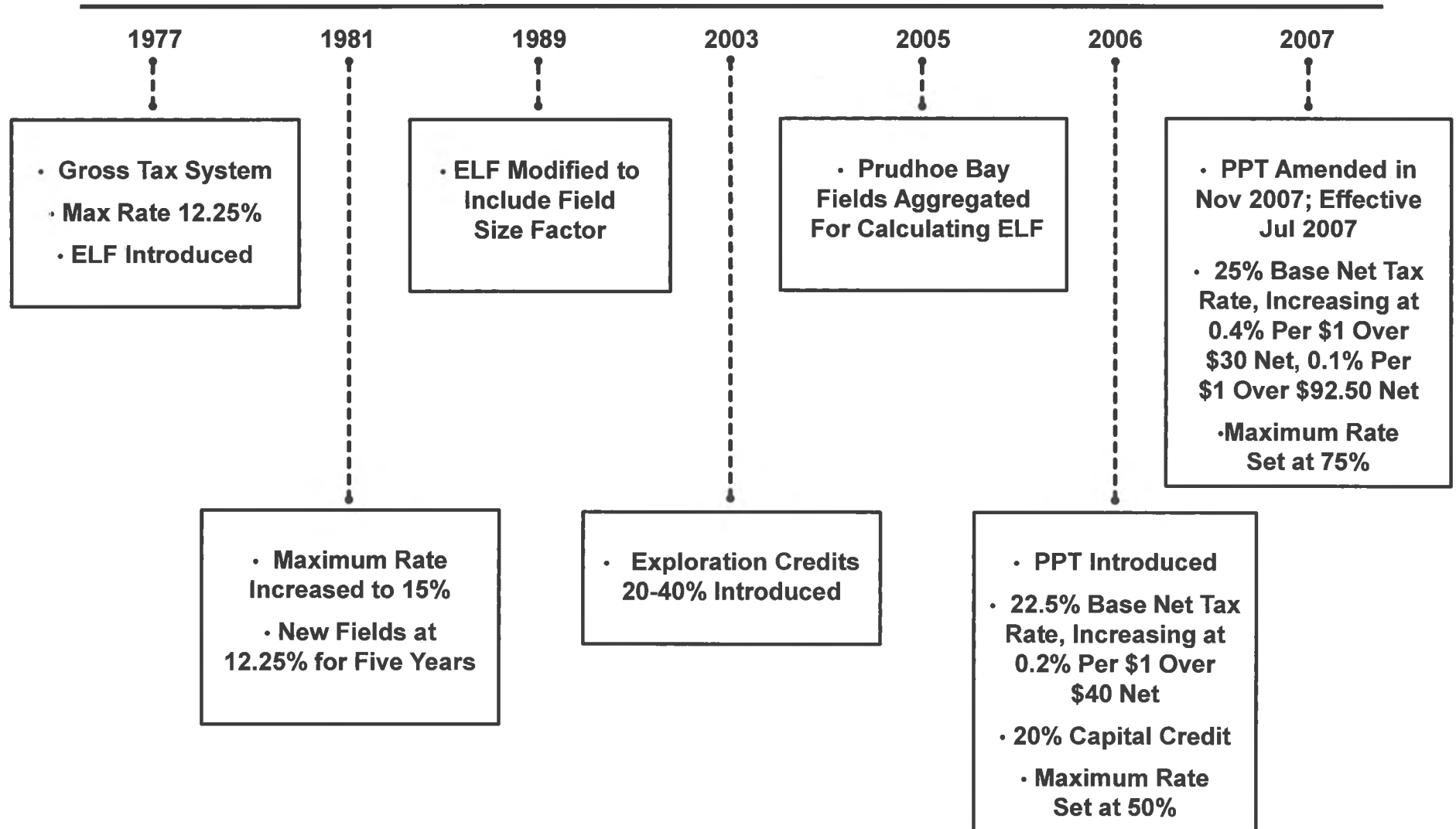
* Badami and Northstar.
Source: AOGCC.

Alaska North Slope Estimated Ultimate Oil Recovery (EUR) by Discovery Year (1969 – 2010)

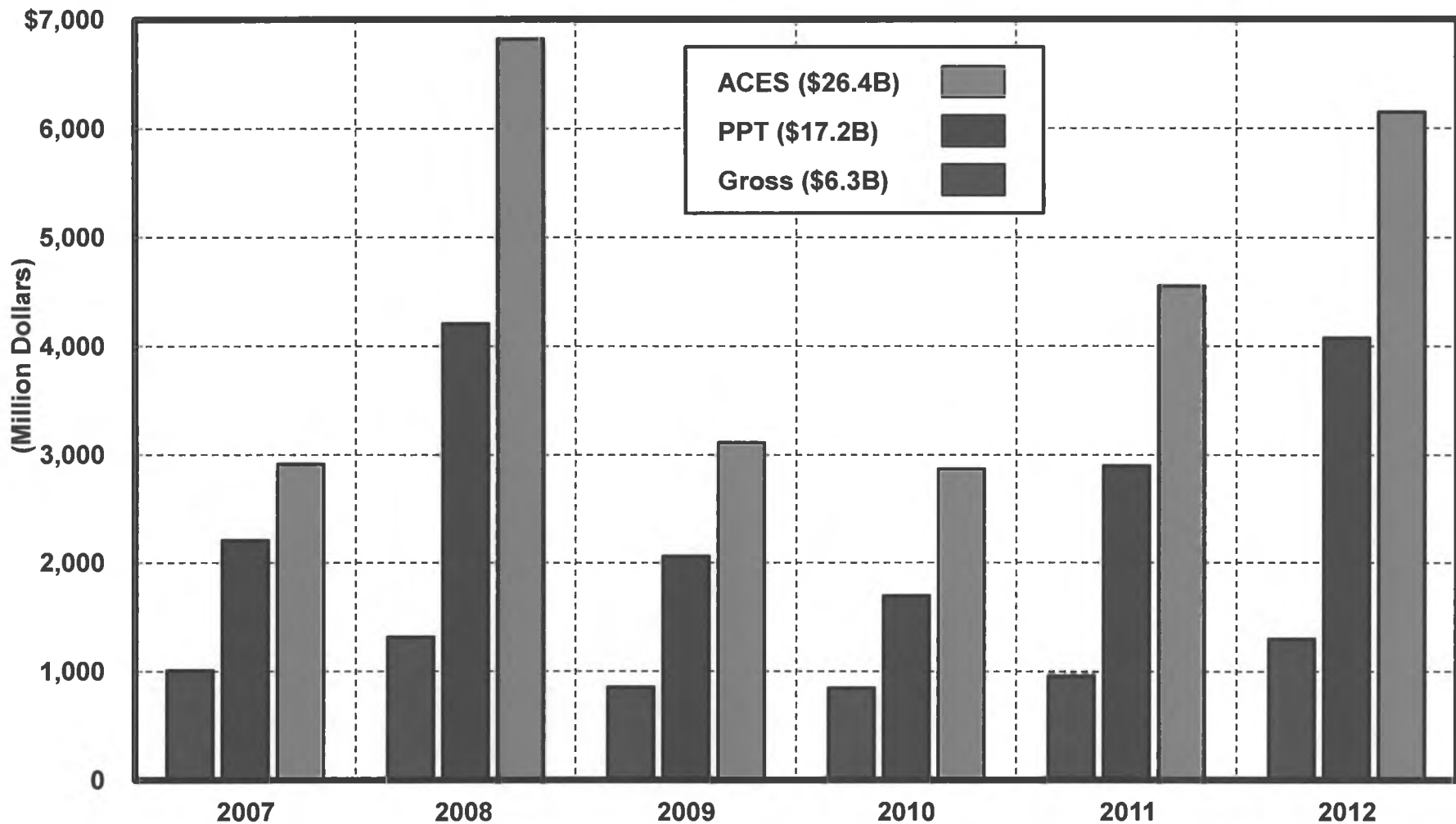


Source: DNR: The Historical Resource and Recovery Growth in Developed Fields, Arctic Slope of Alaska, 2004; DOE/NETL-2009/1385; AOGCC.

A History of Alaska's Production Tax System: North Slope



Estimated Production Tax Revenue (Assuming No Production Changes Across Systems) FY2007 - FY2012

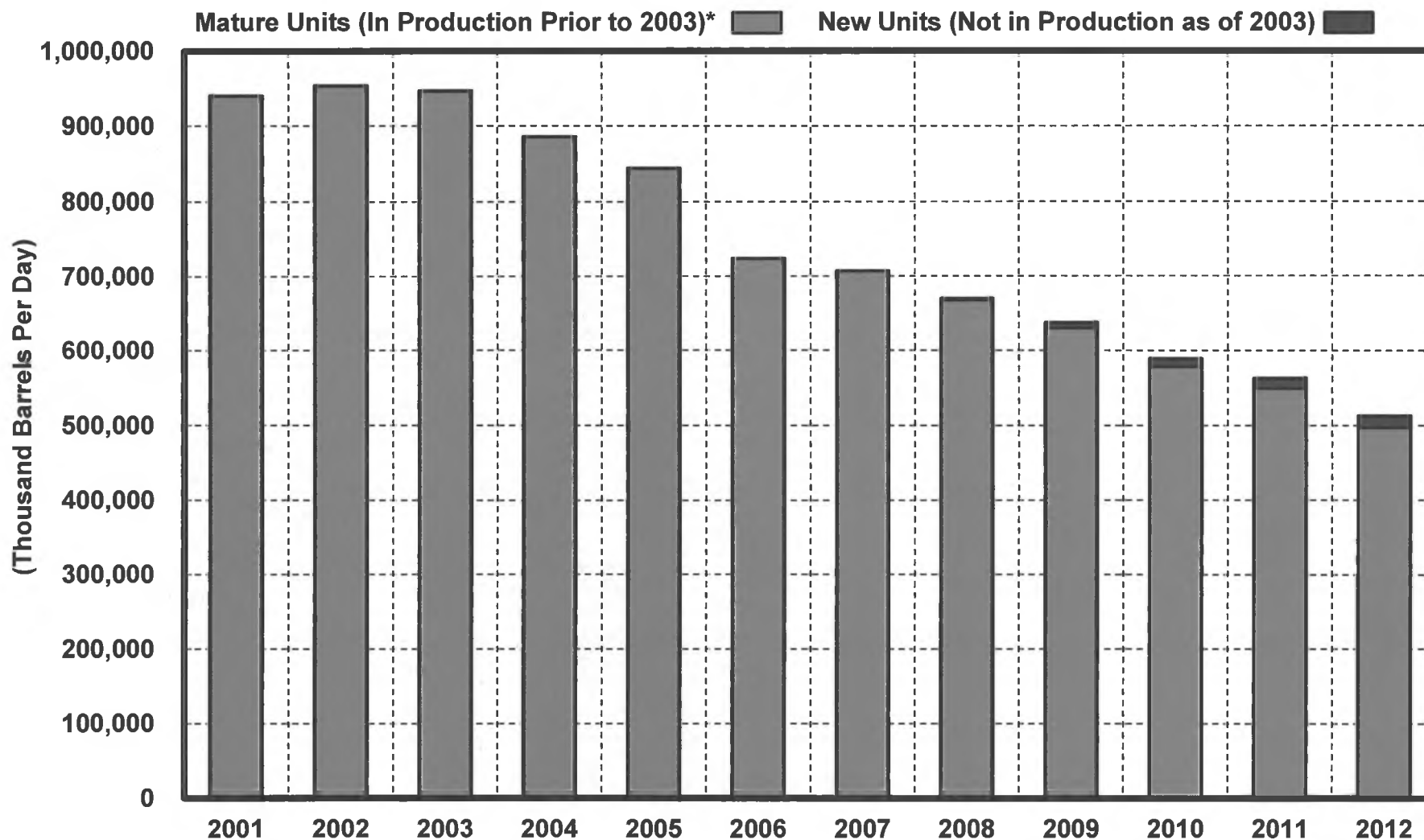


Note: ACES figures are actual amount collected; figures for PPT and Gross are estimated based on application of terms under these tax systems to actual production and prices.

Source: DOR.

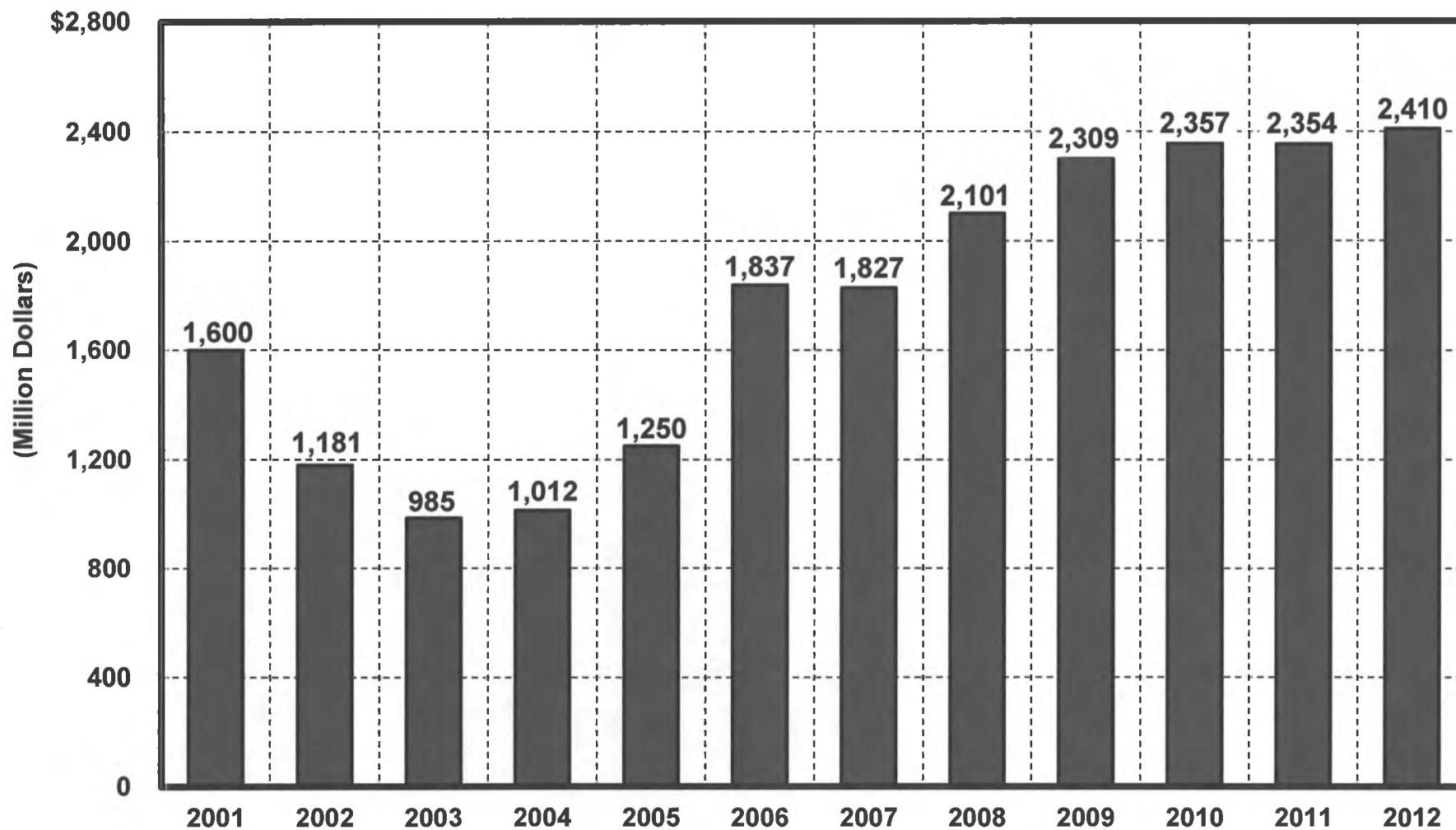
IV. North Slope Activity Over the Past Decade

Alaska North Slope Production by Unit 2001 - 2012



* Comprised of Prudhoe Bay, Kuparuk, Colville River, Badami, Northstar, Duck Island, Milne Point
Source: AOGCC.

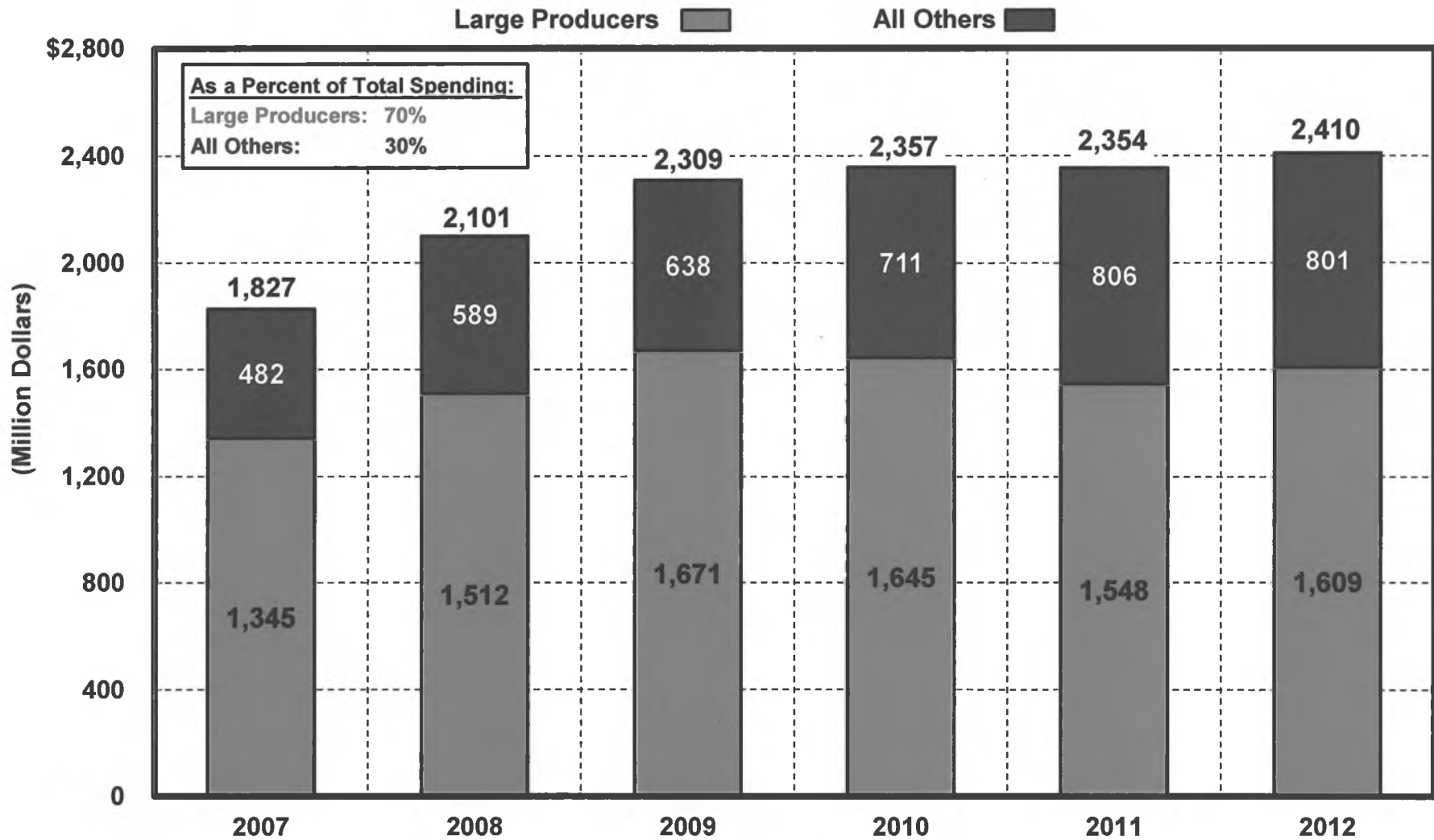
Reported Capital Spending for Alaska North Slope CY2001 - CY2012*



* Does not include expenditures associated with offshore federal properties.; 2012 estimated from preliminary data.

Source: DOR.

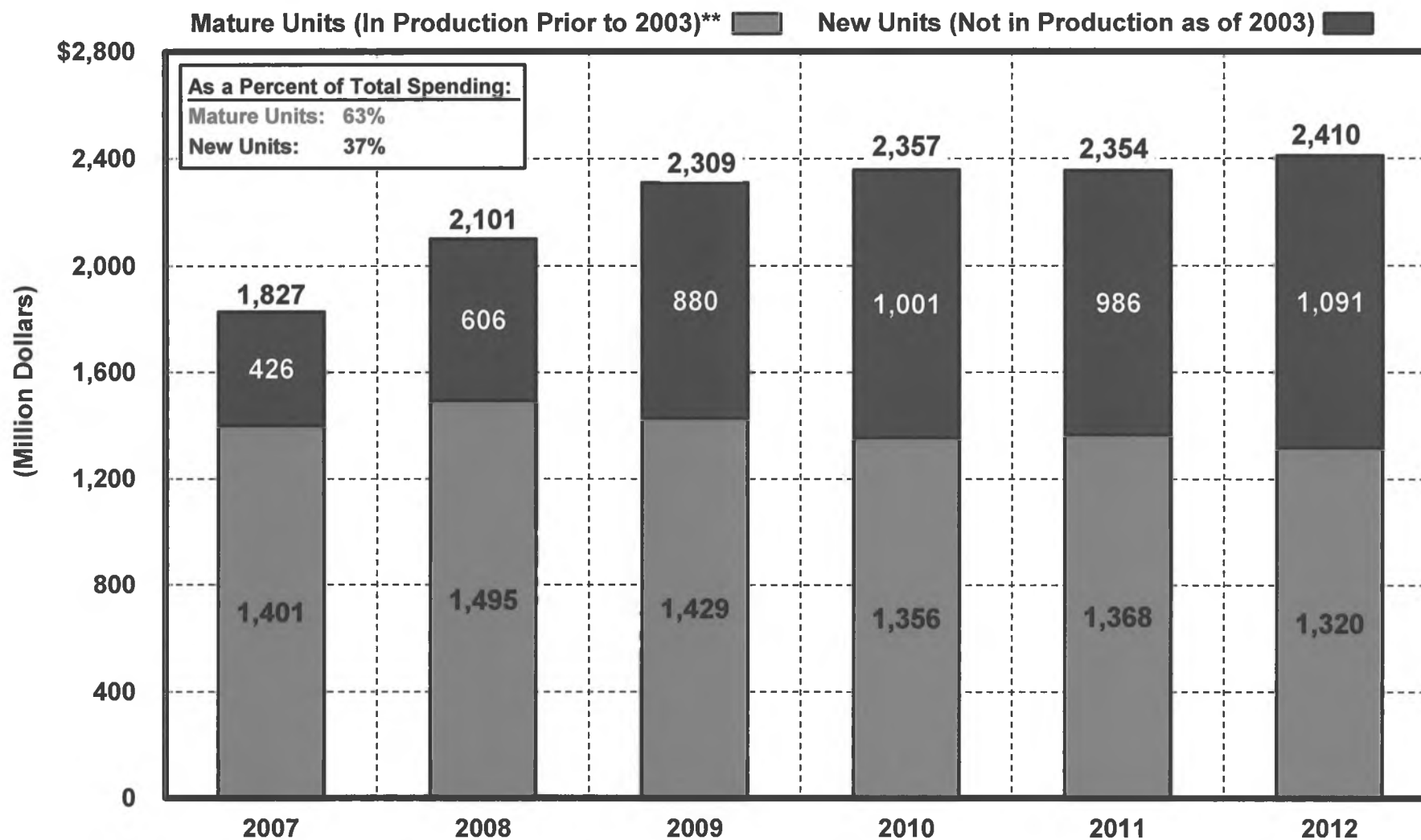
Reported Capital Spending by Alaska North Slope Producers CY2007 - CY2012*



* Does not include expenditures associated with offshore federal properties.; 2012 estimated from preliminary data.

Source: DOR.

Reported Capital Spending by Alaska North Slope Producers by Unit CY2007 - CY2012*

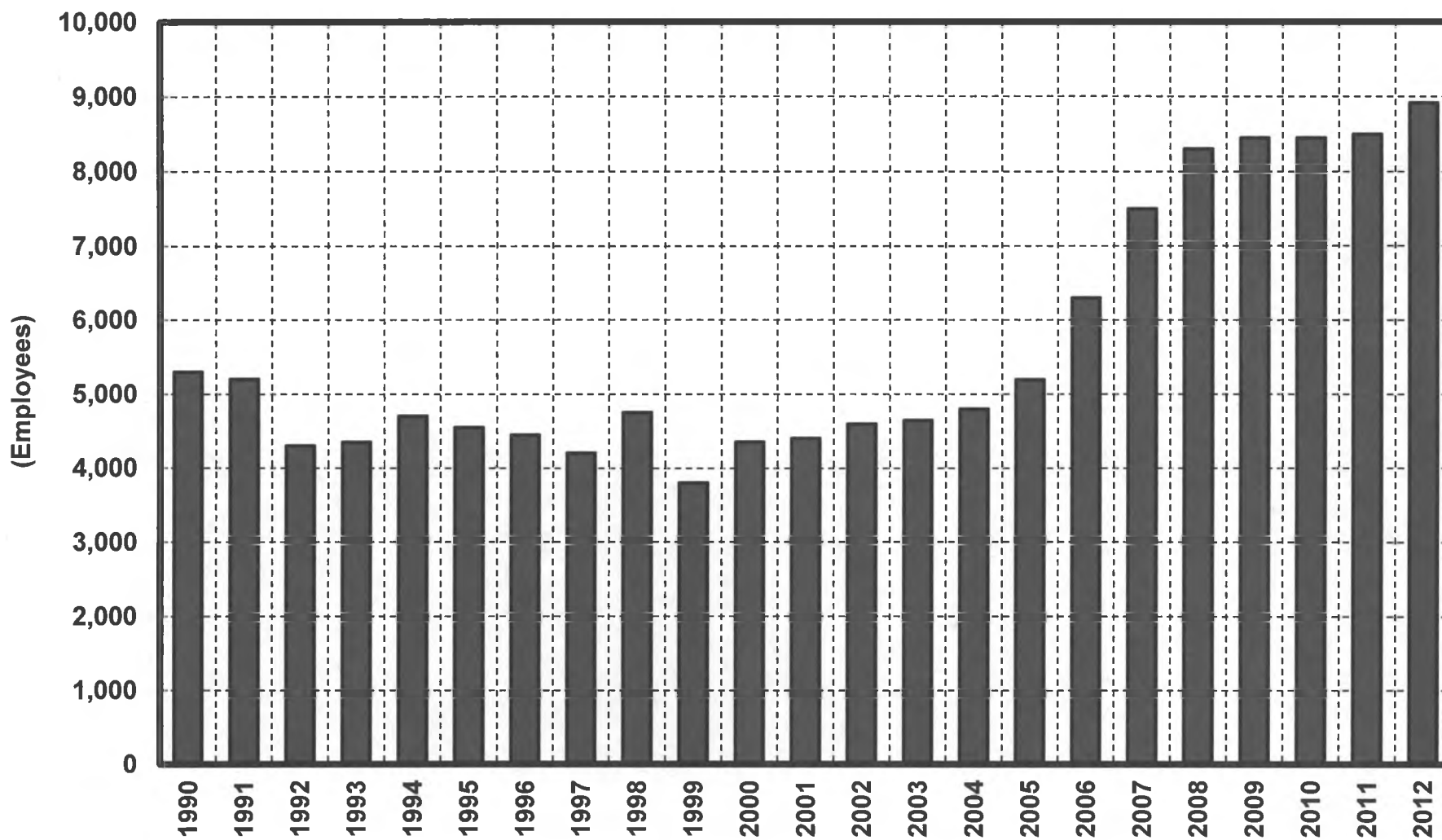


* Does not include expenditures associated with offshore federal properties.; 2012 estimated from preliminary data.

** Comprised of Prudhoe Bay, Kuparuk, Colville River, Badami, Northstar, Duck Island, Milne Point

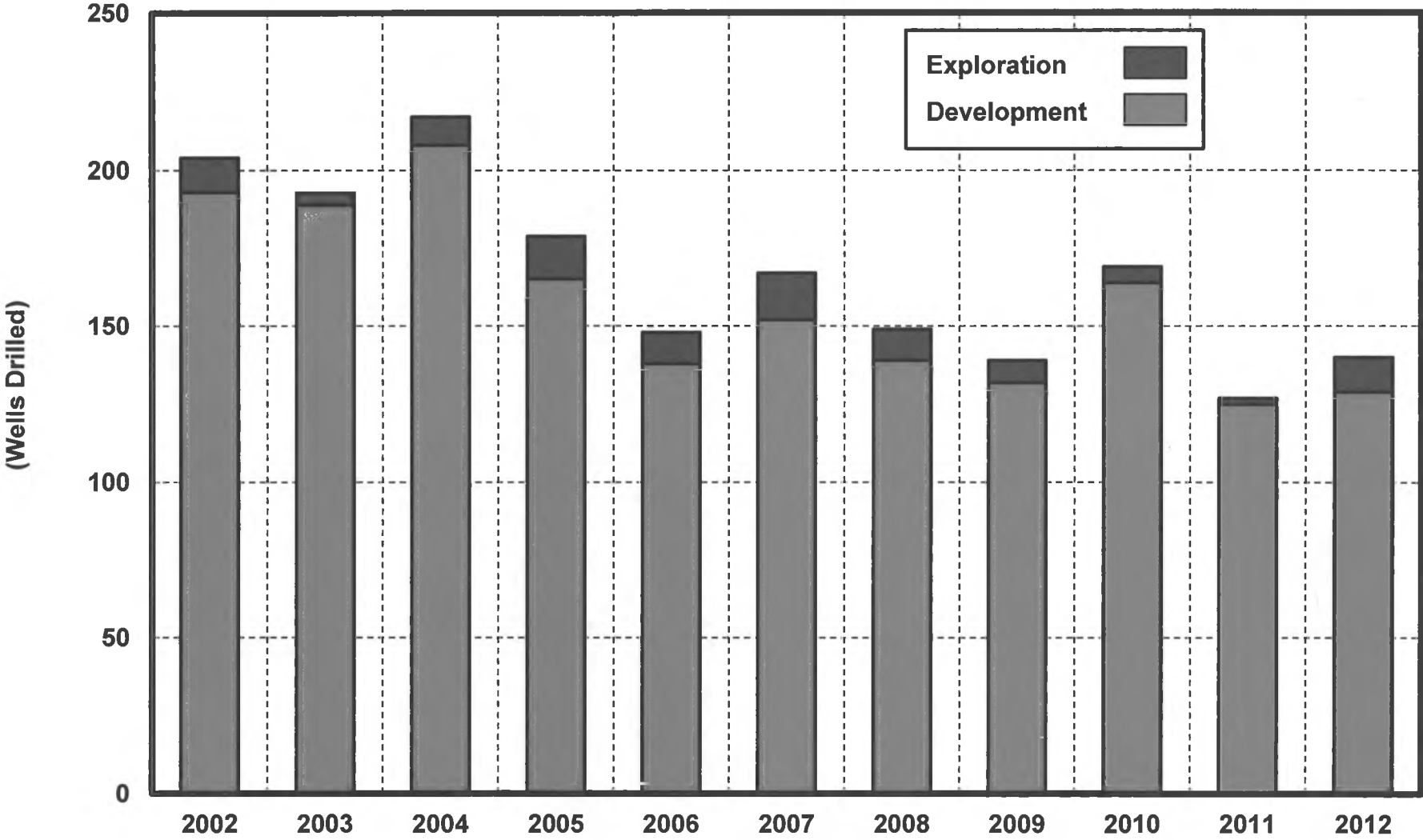
Source: DOR.

Alaska North Slope Oil and Gas Industry Employment 1990 - 2012



Source: Alaska Department of Labor.

Alaska North Slope Wells Drilled 2002 - 2012



Source: 2002-2010: DNR; 2011-2012: AOGCC.

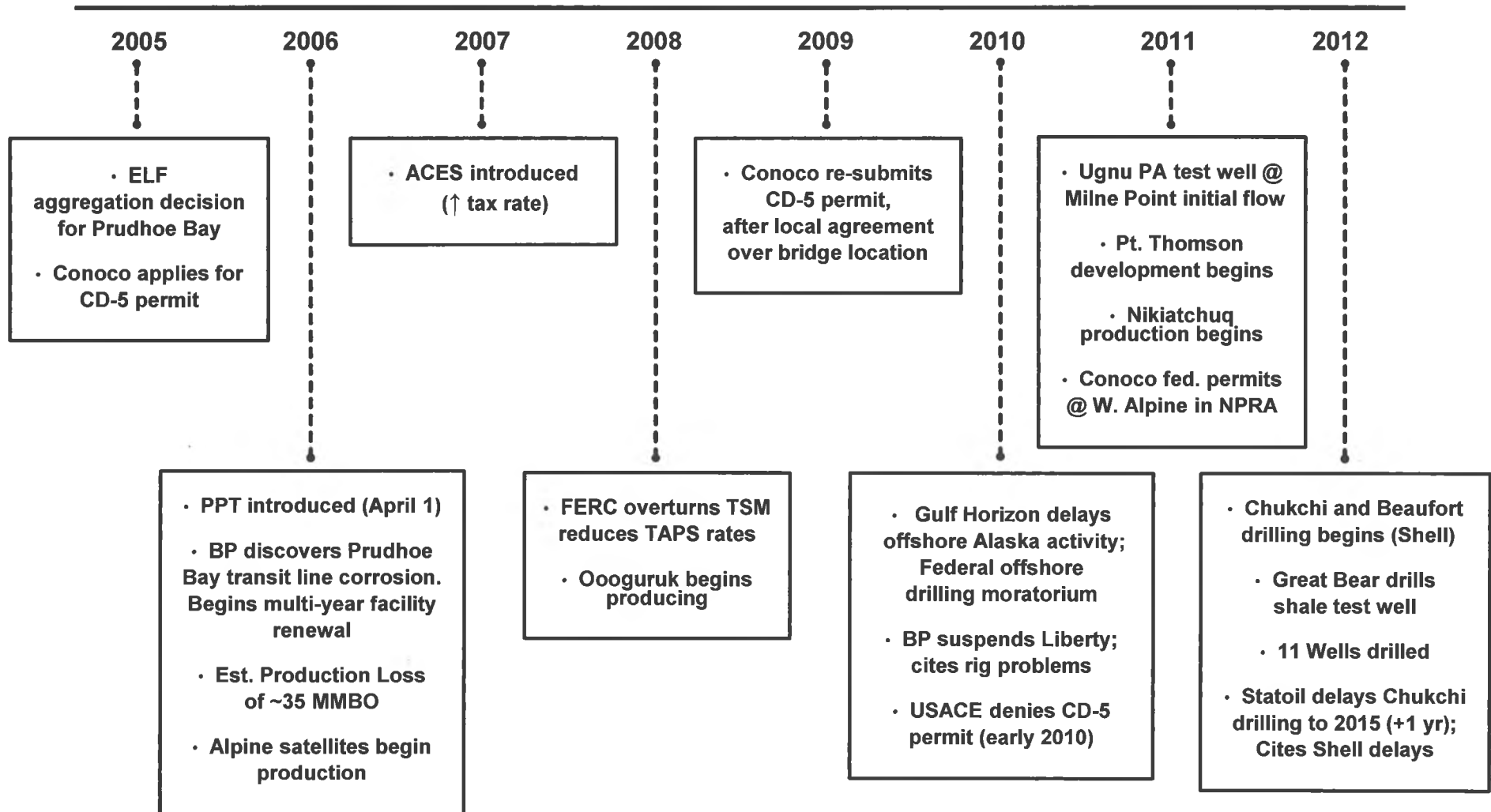
Drilling Activity in Alaska North Slope: By Well Completed Date January 2005 - December 2012

	2005	2006	2007	2008	2009	2010	2011	2012	Total
Development*									
BPXA	98	72	80	85	82	83	48	49	669
ConocoPhillips	67	65	72	49	40	65	61	56	522
ENI (inc. Kerr-McGee)	-	-	-	-	2	7	9	15	33
Pioneer	-	-	-	4	9	8	5	6	32
Brooks	-	-	-	-	-	-	-	-	-
Anadarko	-	-	-	-	-	-	-	-	-
Repsol	-	-	-	-	-	-	-	-	-
ExxonMobil	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	1	2	3	6
Total	165	137	152	138	133	164	125	129	1,262
Exploratory									
BPXA	-	-	5	1	-	-	-	-	6
ConocoPhillips	5	5	2	2	2	-	1	1	18
ENI (inc. Kerr-McGee)	6	1	4	-	-	-	-	-	11
Pioneer	-	2	-	-	1	-	-	2	5
Brooks	-	-	1	4	-	2	1	3	11
Anadarko	-	-	1	2	3	-	-	-	6
Repsol	-	-	-	-	-	-	-	3	3
ExxonMobil	-	-	-	-	-	2	-	-	2
Others	3	3	7	9	5	3	-	2	32
Total	14	11	20	18	11	7	2	11	94
Total									
BPXA	98	72	85	86	82	83	48	49	675
ConocoPhillips	72	70	74	51	42	65	62	57	540
ENI (inc. Kerr-McGee)	6	1	4	-	2	7	9	15	44
Pioneer	-	2	-	4	10	8	5	8	37
Brooks	-	-	1	4	-	2	1	3	11
Anadarko	-	-	1	2	3	-	-	-	6
Repsol	-	-	-	-	-	-	-	3	3
ExxonMobil	-	-	-	-	-	2	-	-	2
Others	3	3	7	9	5	4	2	5	38
Total	179	148	172	156	144	171	127	140	1,356

* Development includes service wells.

Source: AOGCC.

Timeline of Significant Events on Alaska North Slope Since 2005



V. Benchmarking North Slope Activity Against Other Areas

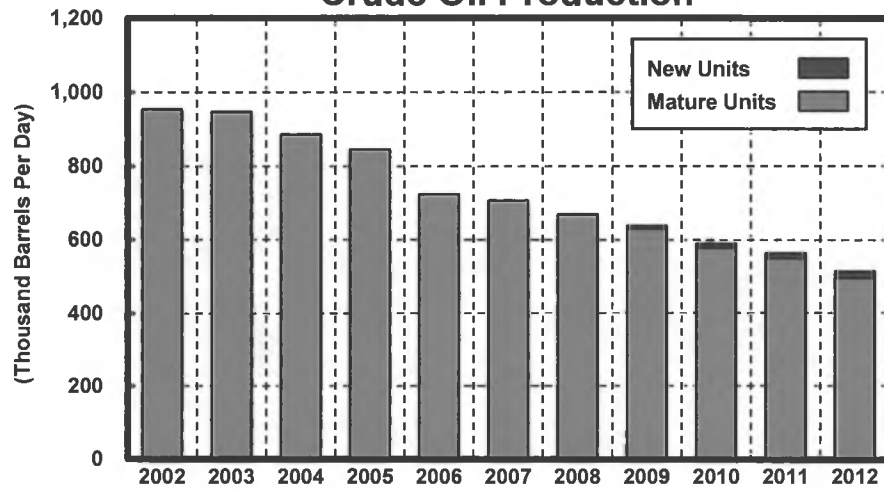
Benchmarking

-
- **Benchmarking Allows Us to Evaluate Activity in Alaska by Controlling for Significant Variables That are Common to All Oil Producing Properties, Such as Price and General Economic Conditions**
 - **No Two Producing Areas are Exactly Alike. Mindful of This, We Attempt to Choose Locations That Share a Number of Similar Characteristics, Allowing for the Most Meaningful Comparisons**
 - **We Benchmark the North Slope Against Several Areas Located in OECD Countries**
 - **The North Sea**
 - **The U.S. and Several Key Producing States / Areas**
 - **Canada and Producing Provinces**
 - **Australia**
 - **All of These OECD Areas Share Many of the Same, Characteristics With the North Slope**
 - **Similar Political and Legal Structure / Risk**
 - **Significant Prospectivity**
 - **But, Much of the “Low-Hanging” Fruit Has Been Produced**
 - **Development of Remaining Resources are Largely High-Cost, Either Conventional or Unconventional**
 - **Resources are Developed in Large Part by the Private Sector**
-

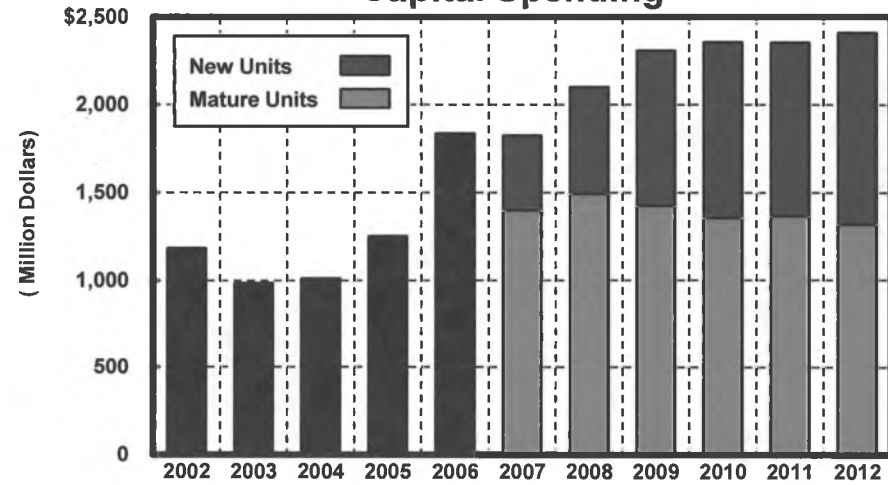
Country/Area Profile

Alaska North Slope

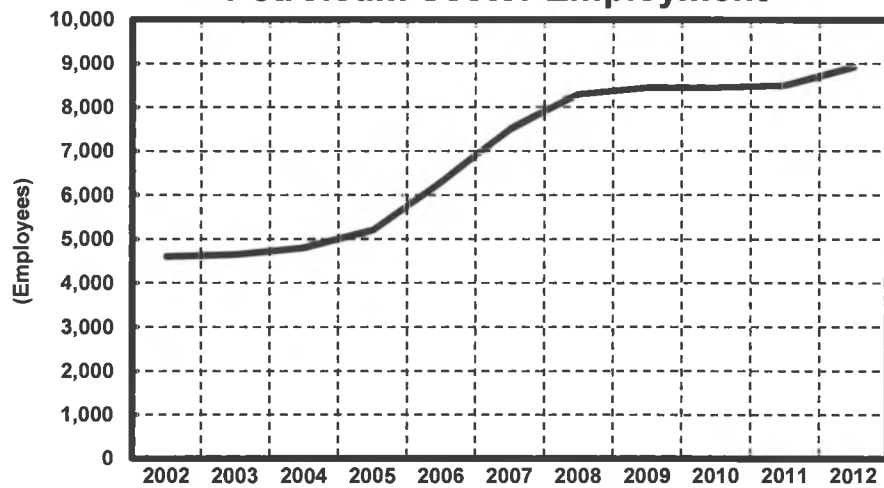
Crude Oil Production



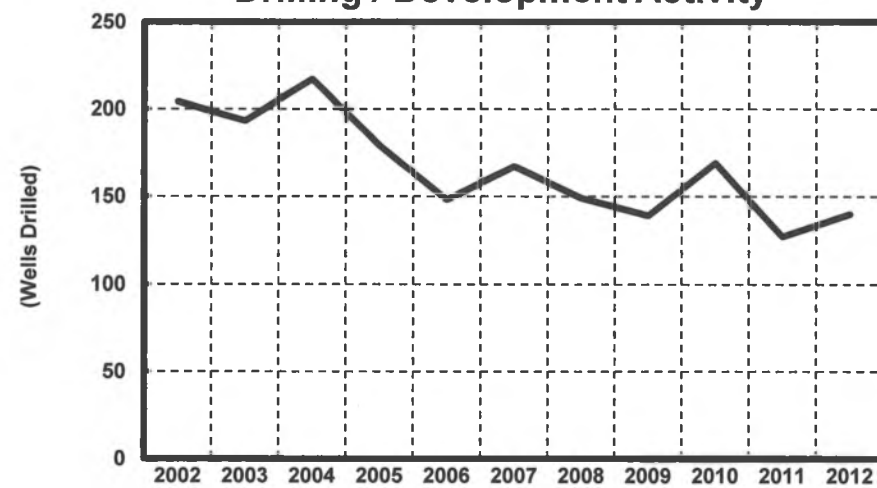
Capital Spending



Petroleum Sector Employment



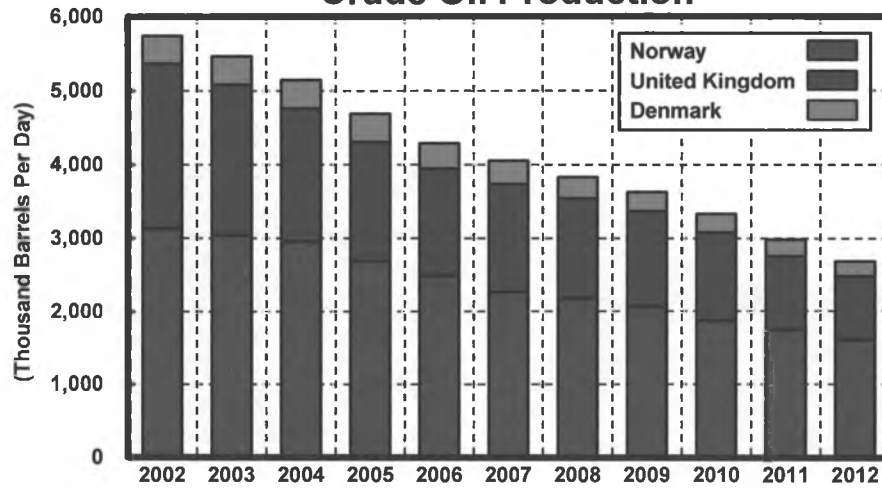
Drilling / Development Activity



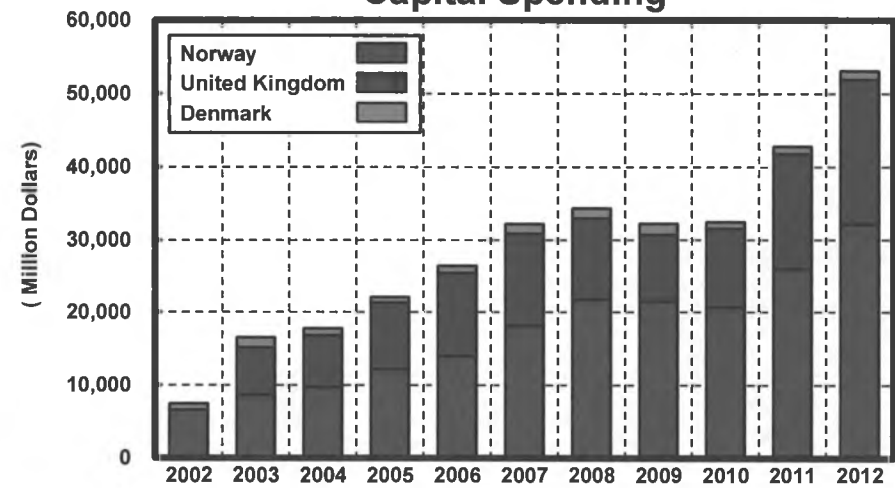
Country/Area Profile

Northwest Europe (North Sea)

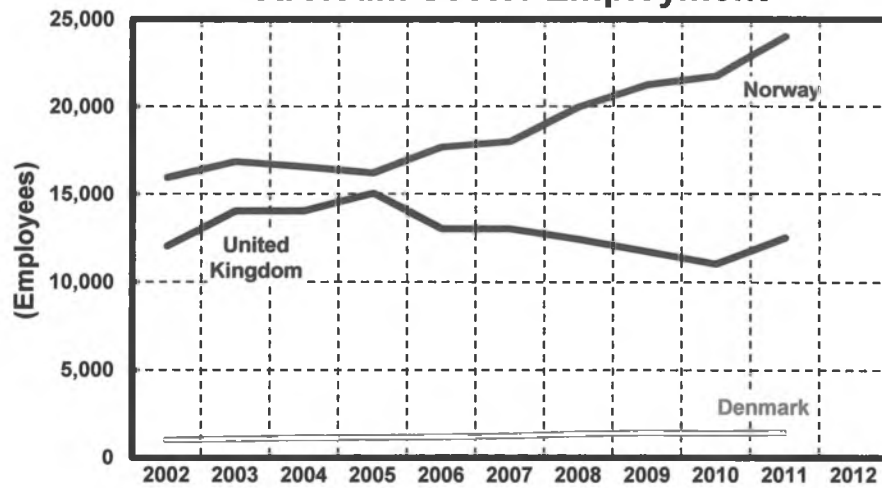
Crude Oil Production



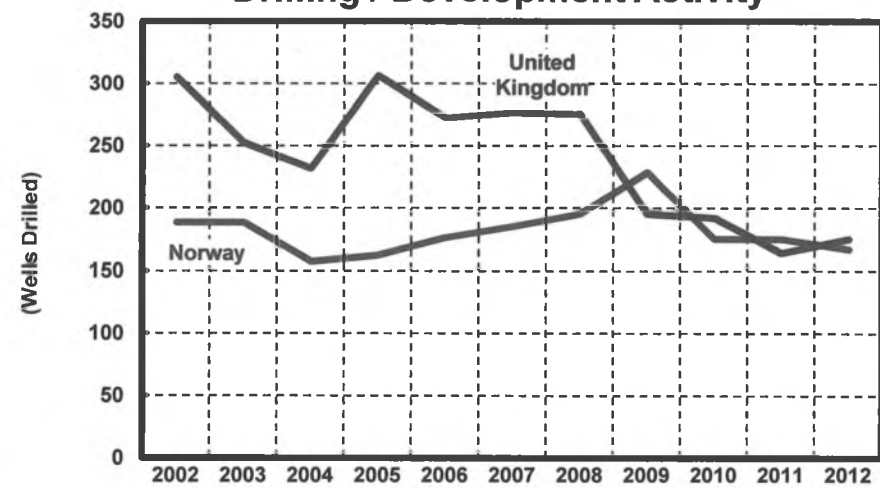
Capital Spending



Petroleum Sector Employment



Drilling / Development Activity

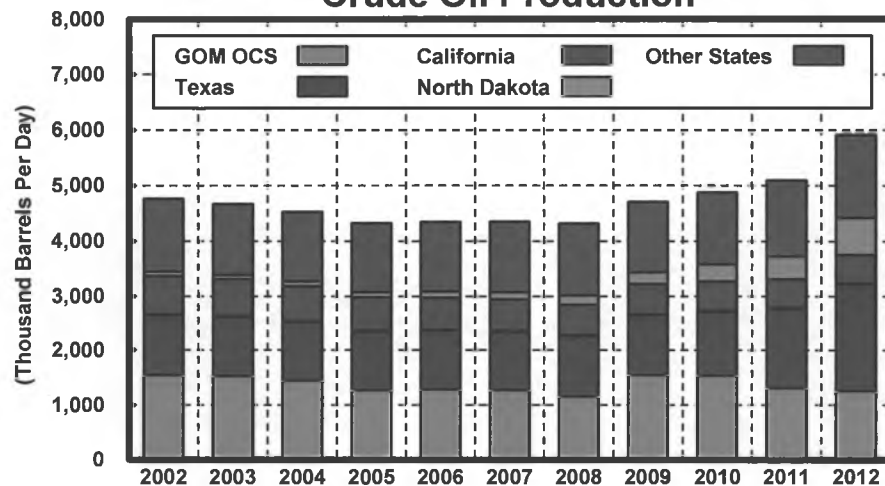


Note: 2012 figures are preliminary.

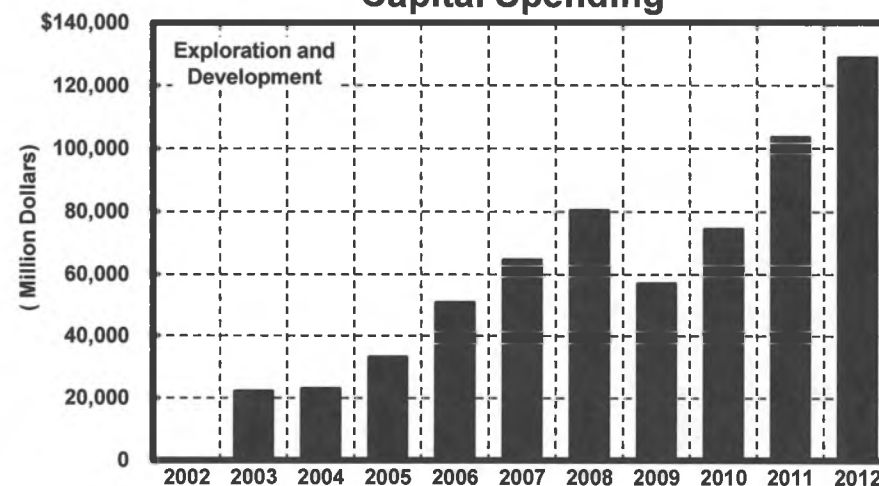
Country/Area Profile

United States Excluding Alaska North Slope

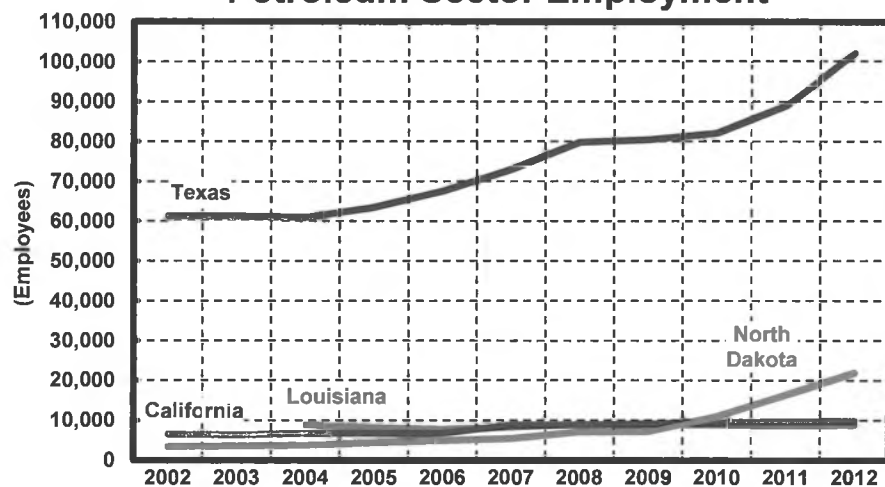
Crude Oil Production



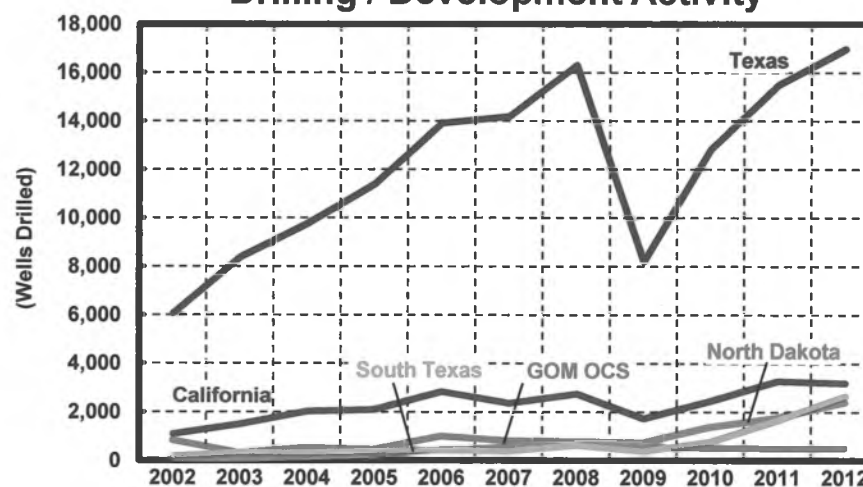
Capital Spending



Petroleum Sector Employment



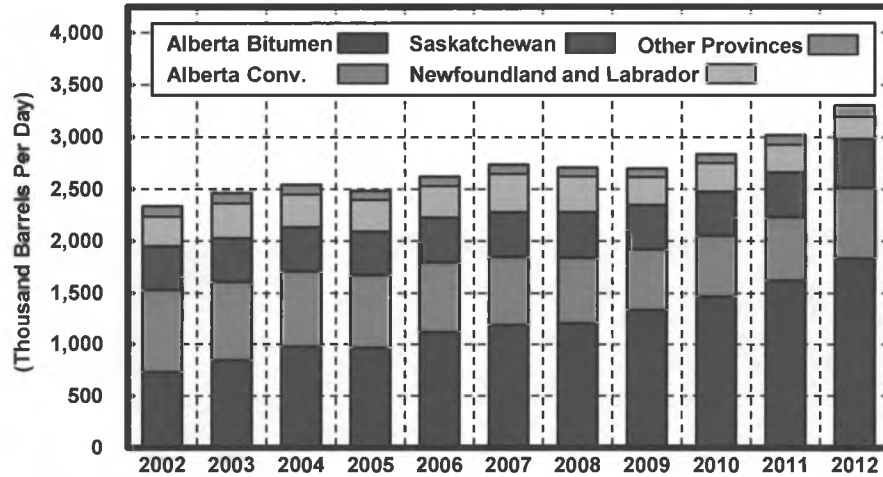
Drilling / Development Activity



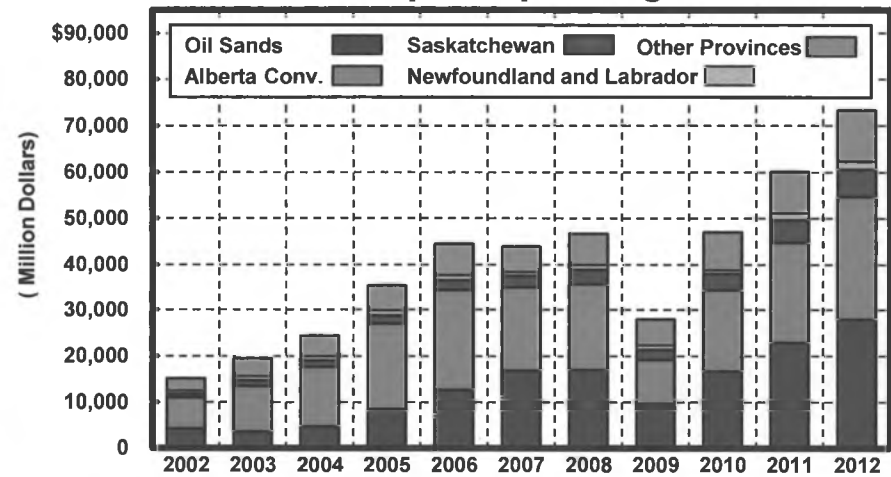
Note: 2012 figures are preliminary.

Country/Area Profile Canada

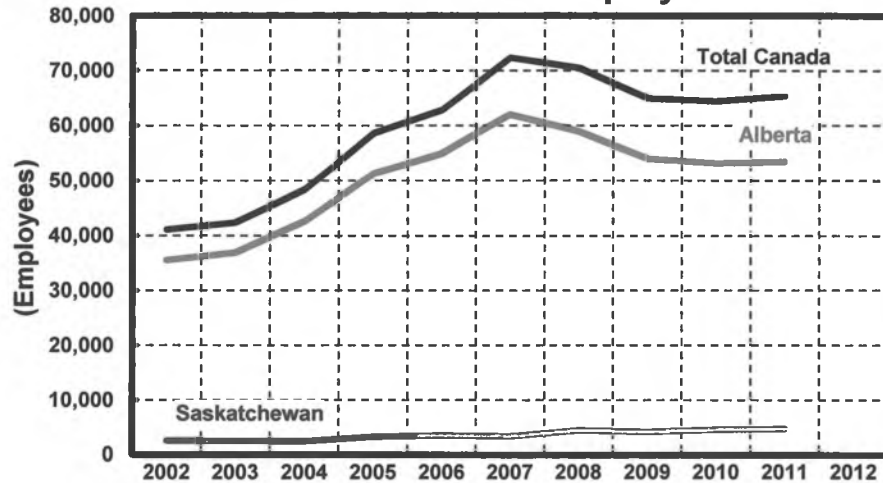
Crude Oil Production



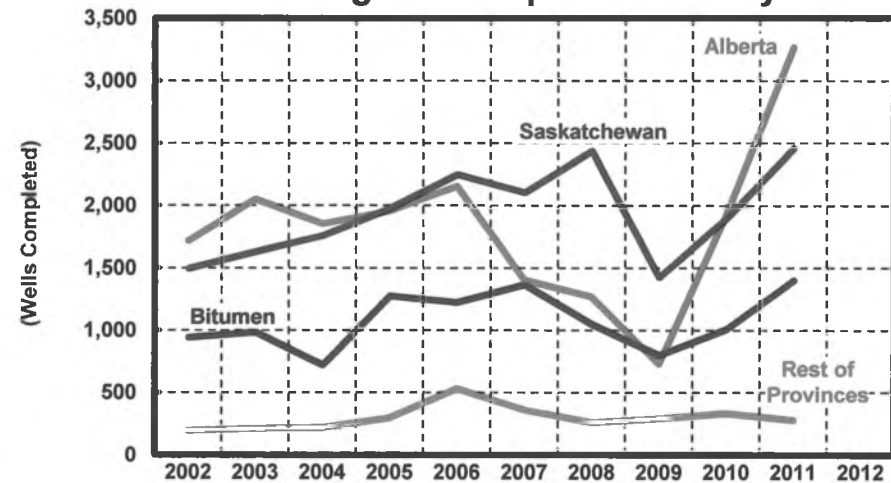
Capital Spending



Petroleum Sector Employment



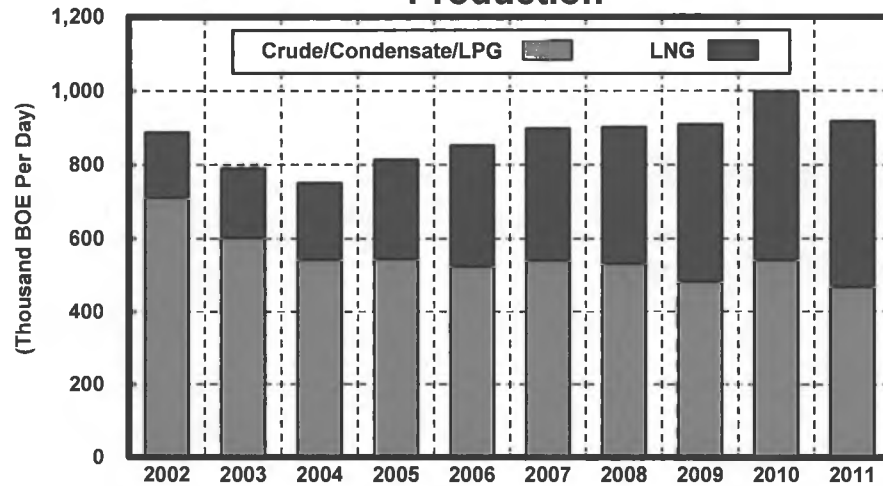
Drilling / Development Activity



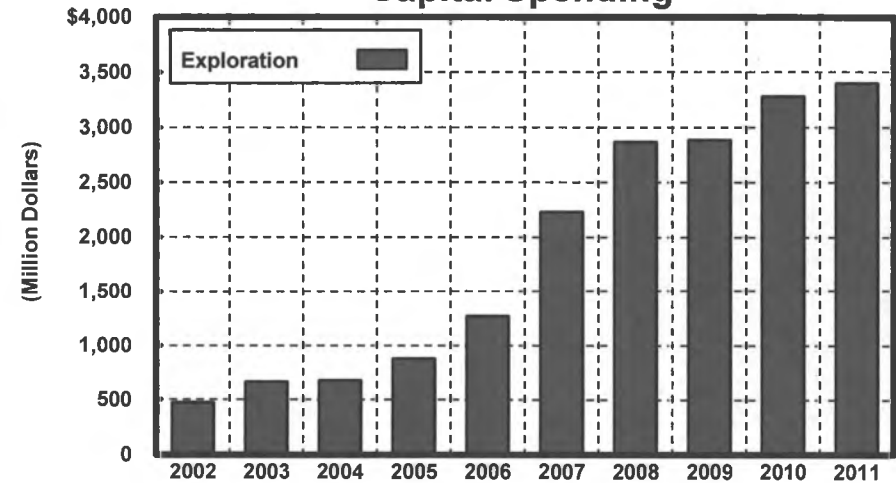
Note: 2012 figures are preliminary.

Country/Area Profile Australia

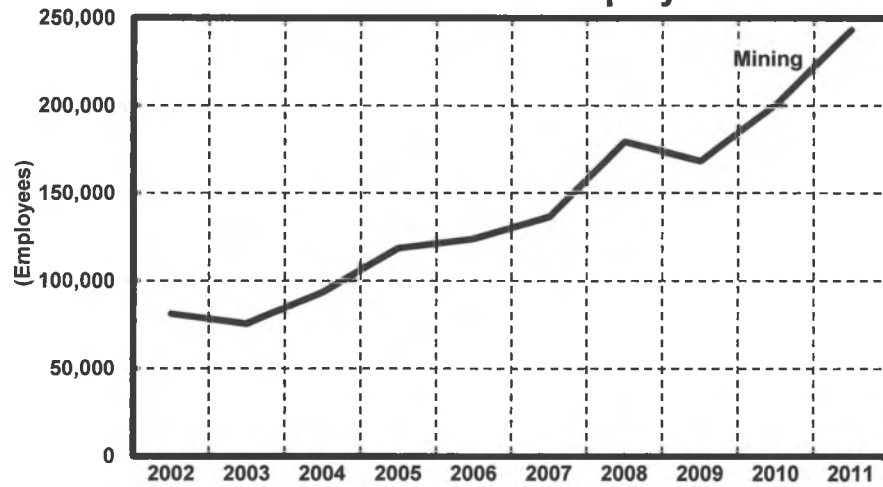
Production



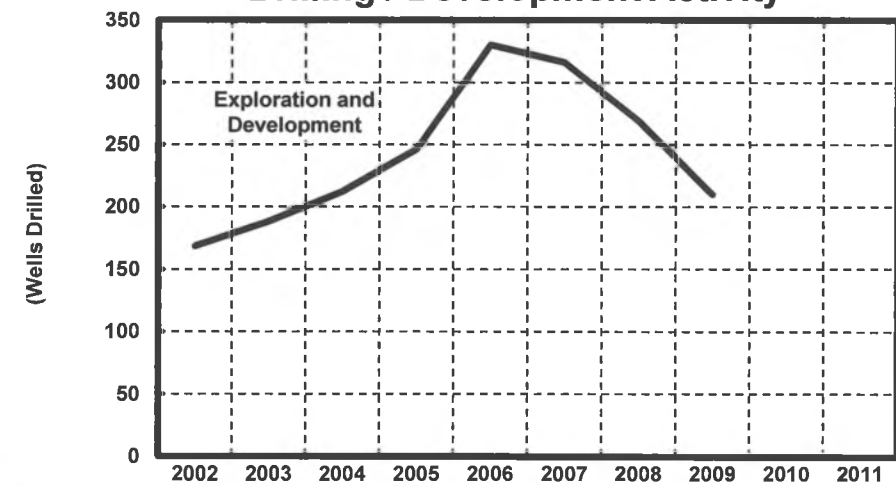
Capital Spending



Petroleum Sector Employment



Drilling / Development Activity

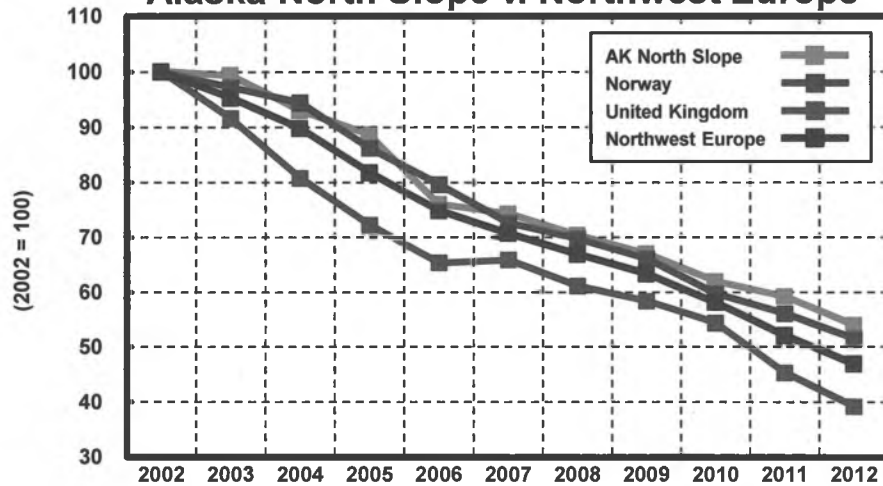


Comparisons Across Locations: Indexing

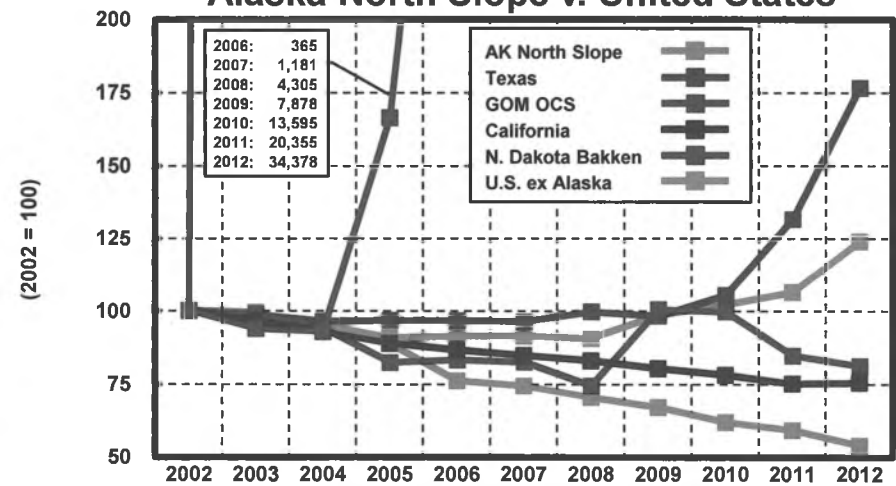
Year	Daily Production			Index Value		
	Alaska North Slope	California	Texas	Alaska North Slope	California	Texas
	(Thousand Barrels Per Day)			(2002 = 100)		
2002	954	707	1,112	100 <small>= (954/954)*100</small>	100 <small>= (707/707)*100</small>	100 <small>= (1,112/1,112)*100</small>
2006	724	612	1,075	76 <small>= (724/954)*100</small>	87 <small>= (612/707)*100</small>	97 <small>= (1,075/1,112)*100</small>
2010	513	552	1,171	62 <small>= (513/954)*100</small>	78 <small>= (552/707)*100</small>	105 <small>= (1,171/1,112)*100</small>

Crude Oil Production Comparisons to Alaska

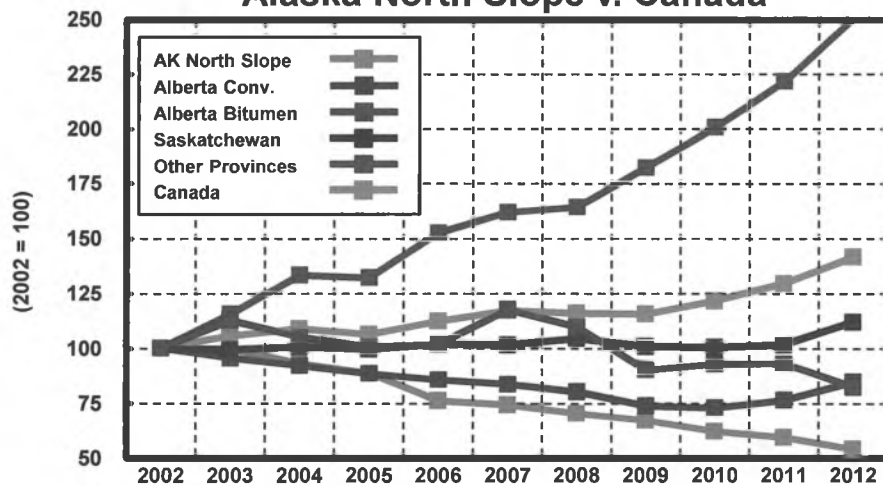
Alaska North Slope v. Northwest Europe



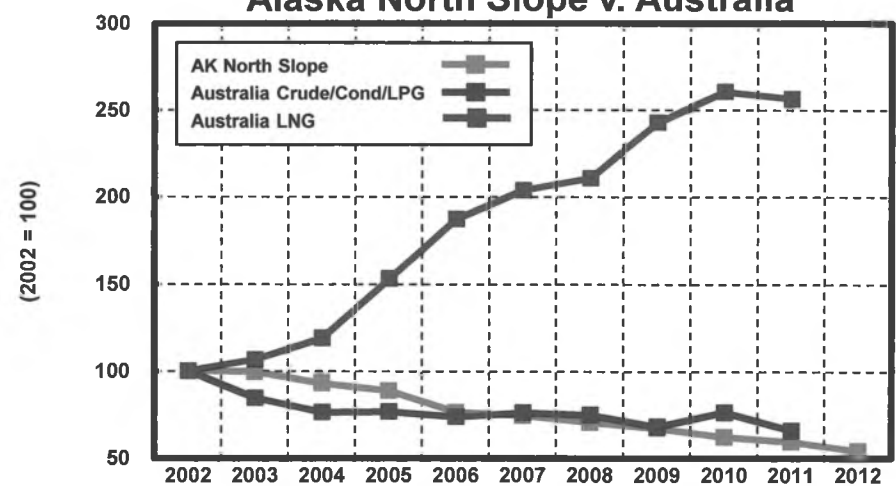
Alaska North Slope v. United States



Alaska North Slope v. Canada

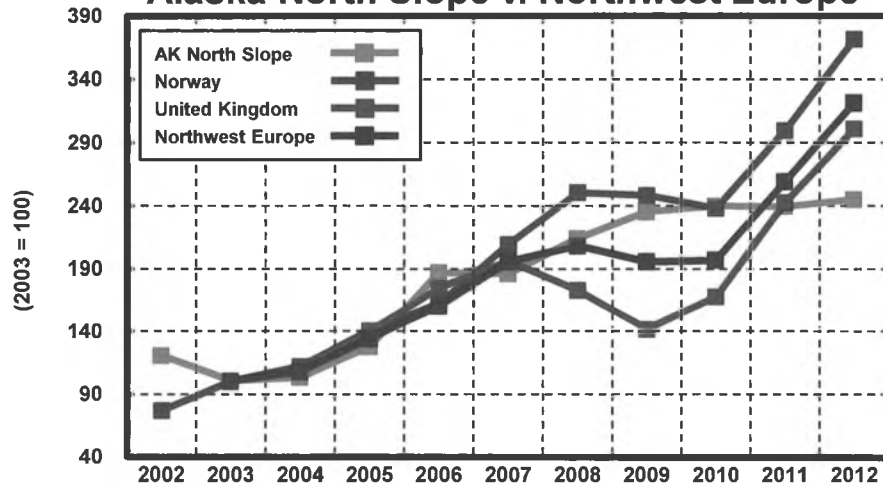


Alaska North Slope v. Australia

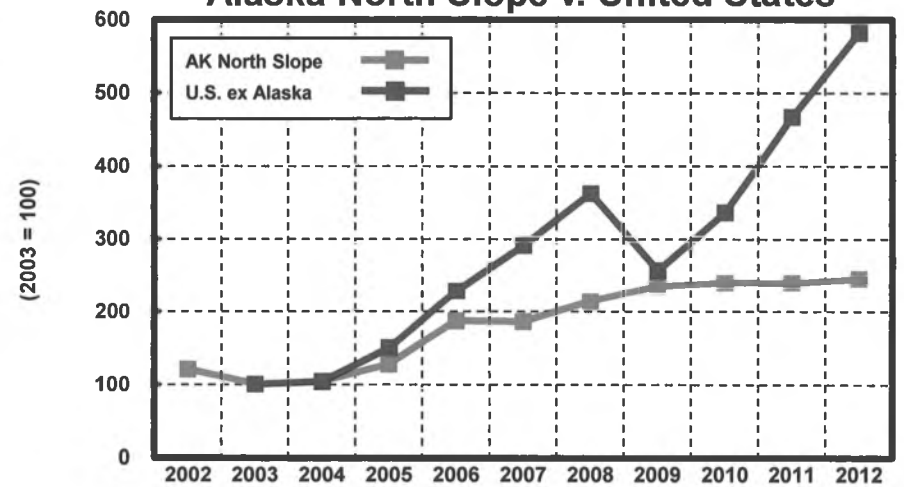


Capital Spending Comparisons to Alaska

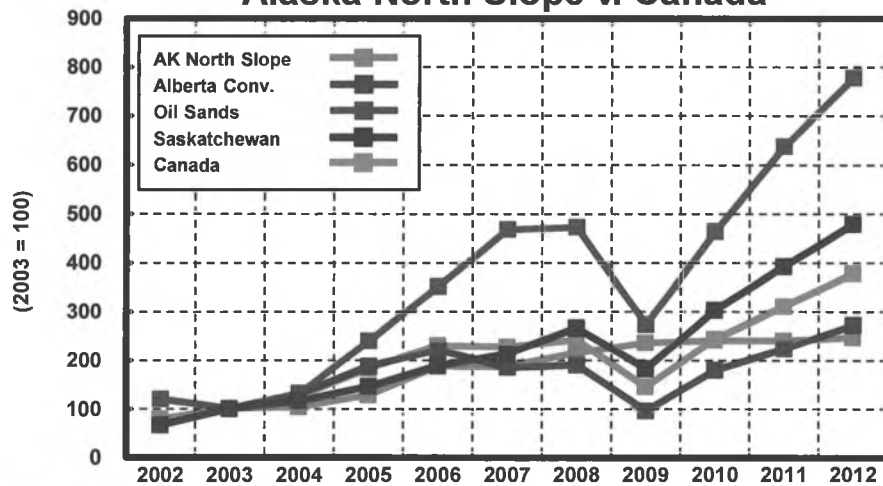
Alaska North Slope v. Northwest Europe



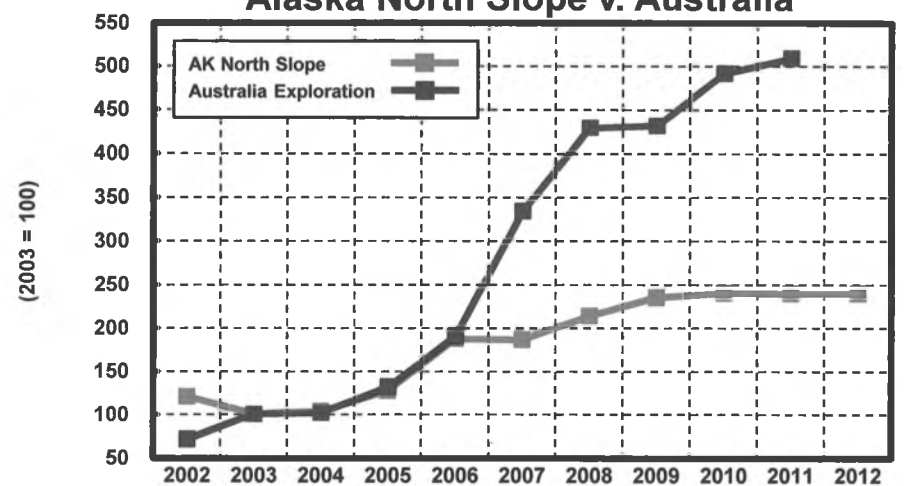
Alaska North Slope v. United States



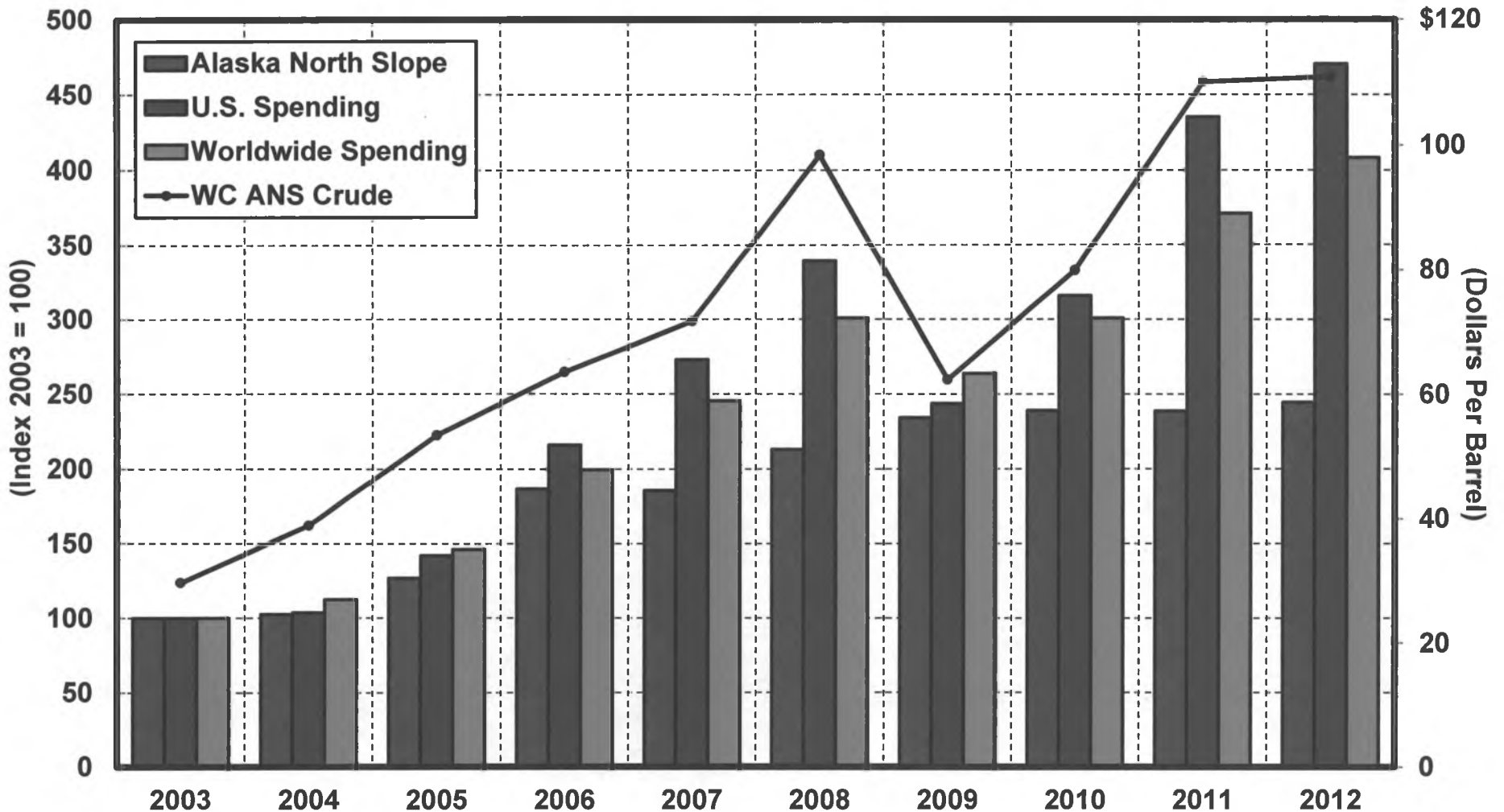
Alaska North Slope v. Canada



Alaska North Slope v. Australia



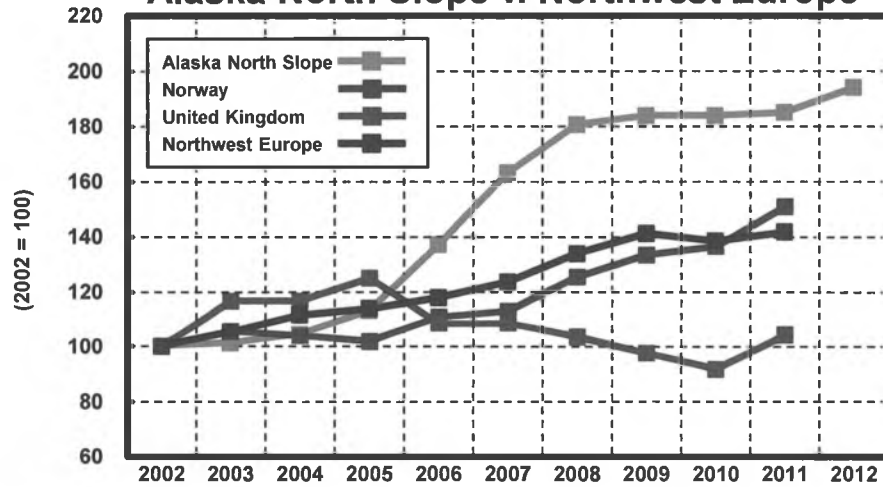
Estimated Capital Spending for Exploration and Development Alaska North Slope vs. U.S. and Worldwide Spending* 2003 - 2012



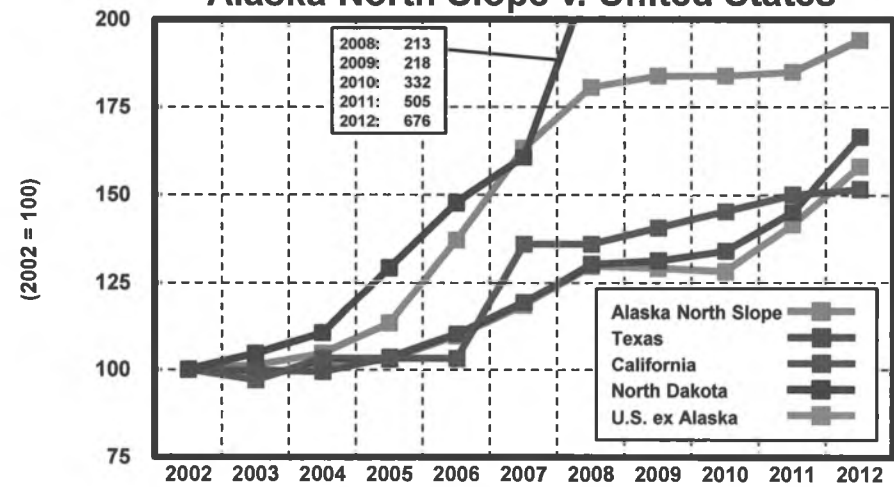
* North Slope based on tax return information; U.S. based on top 50 public companies; worldwide based on top 75 public companies

Employment Comparisons to Alaska

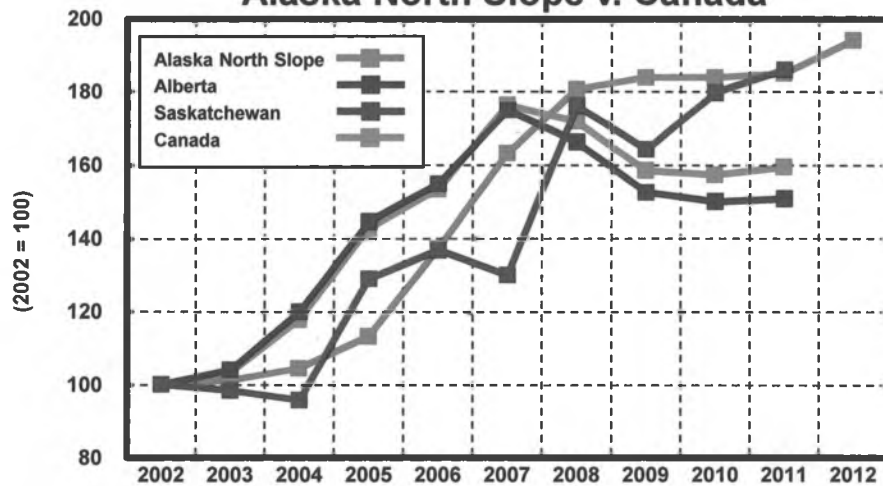
Alaska North Slope v. Northwest Europe



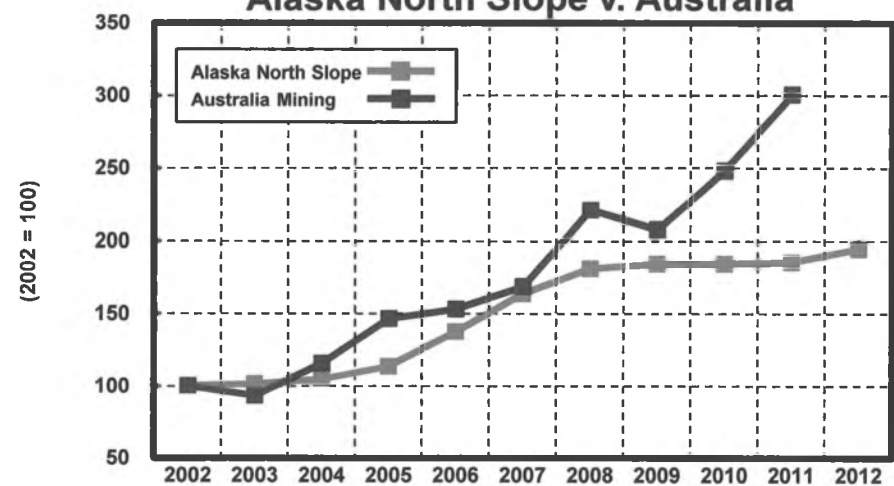
Alaska North Slope v. United States



Alaska North Slope v. Canada

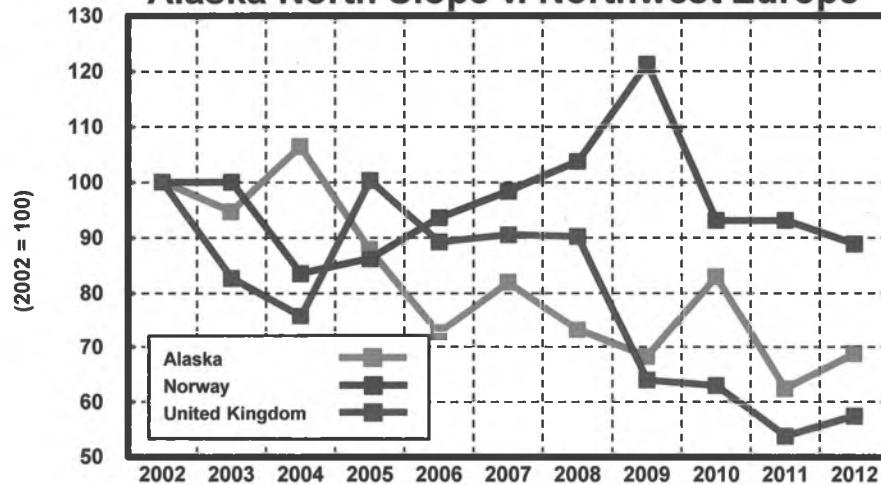


Alaska North Slope v. Australia

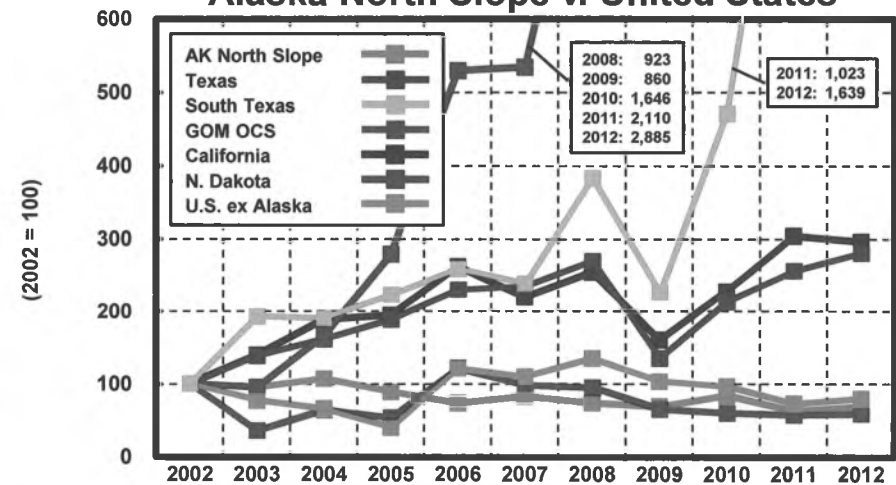


Drilling / Development Activity Comparisons to Alaska

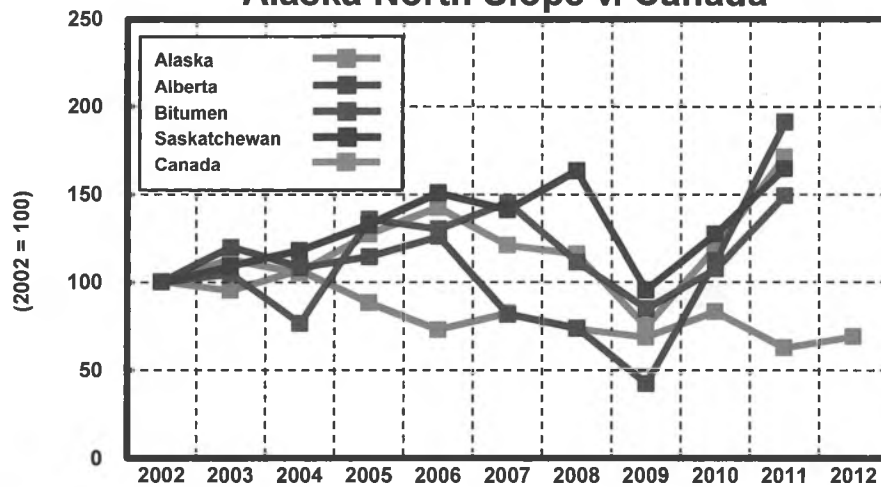
Alaska North Slope v. Northwest Europe



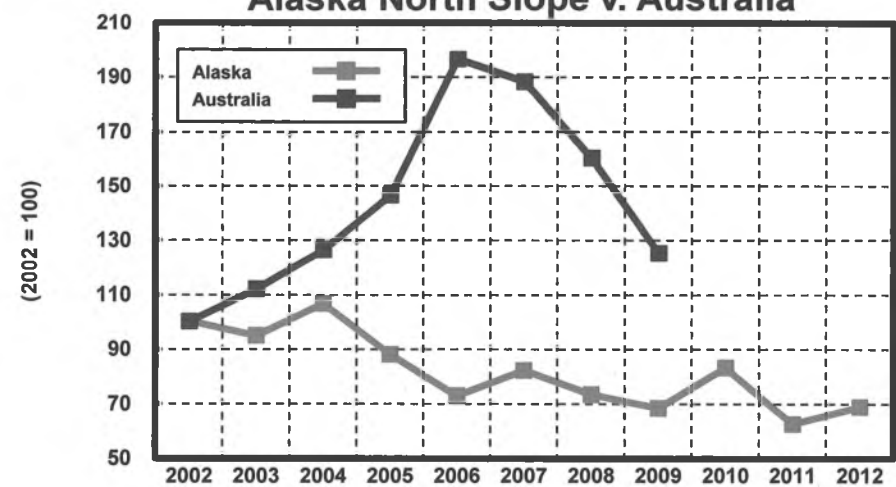
Alaska North Slope v. United States



Alaska North Slope v. Canada



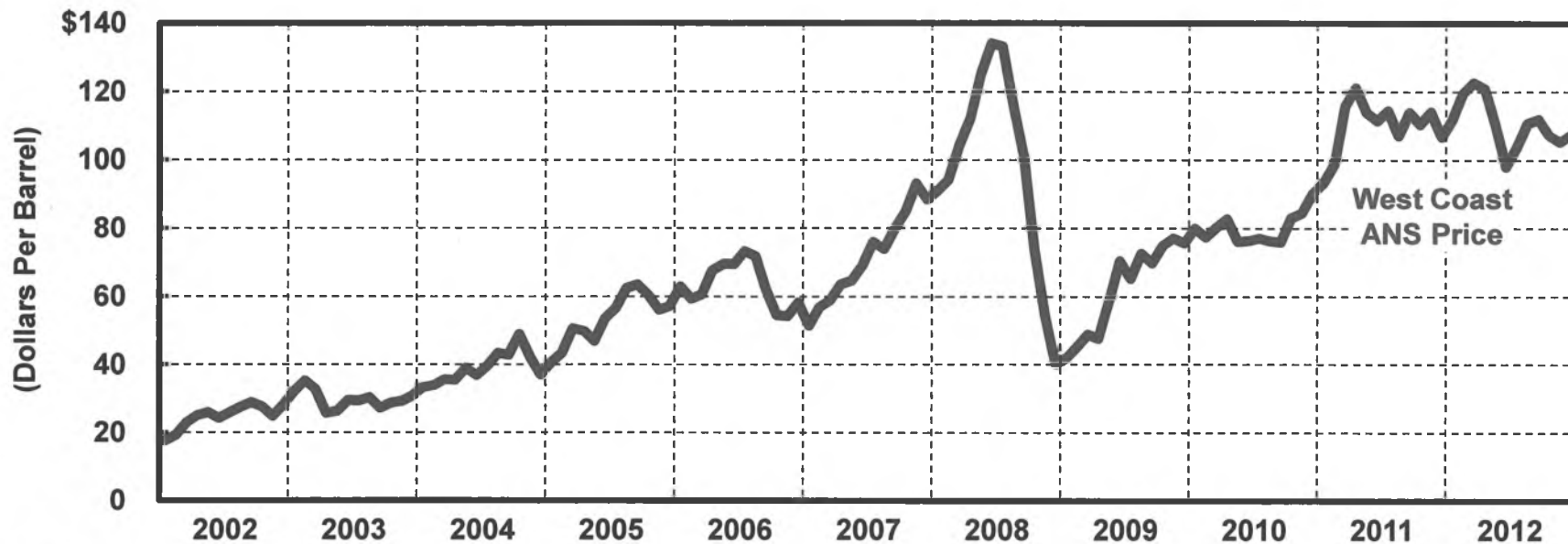
Alaska North Slope v. Australia



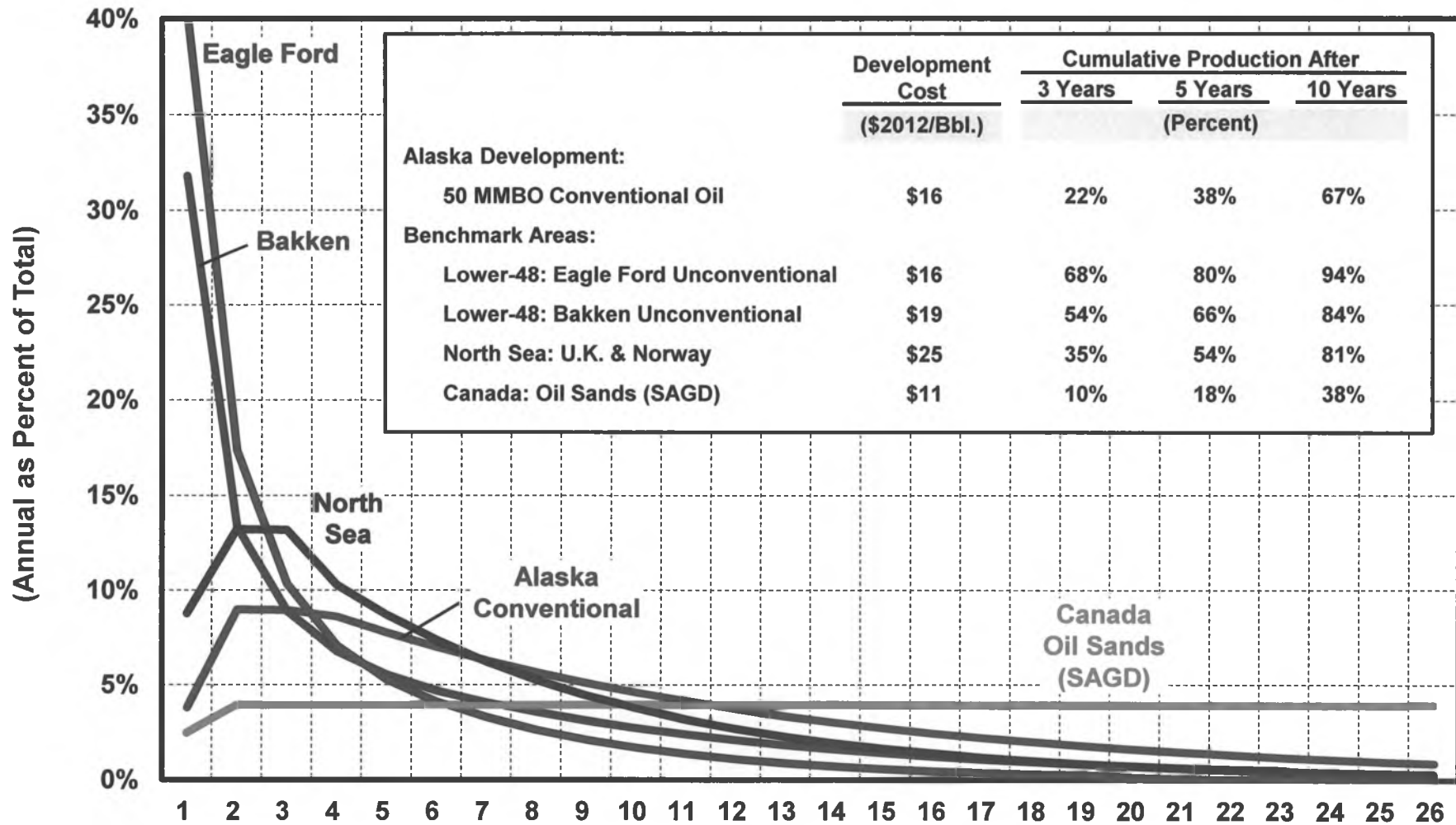
VI. Attractiveness of Investments Under ACES

Crude Oil Prices Used for Analysis

- Likely Long Term Sustainable Range Between \$80/Bbl and \$130/Bbl Real
- Prices May Move Out of This Range for Periods of Time
- Sustained Prices Below Range Makes Many Projects Uneconomic; Supplies Reduced
- Sustained Prices Above Range Starts to Attract More Oil Supply, Reduces Demand for Petroleum Products (e.g., Gasoline Prices Above \$5/Gal.) and Encourages Substitutes
- Producers Will “Stress Test” Projects Near Lower End of Range



Summary of Production Profiles Examined For Alaska and Benchmark Developments

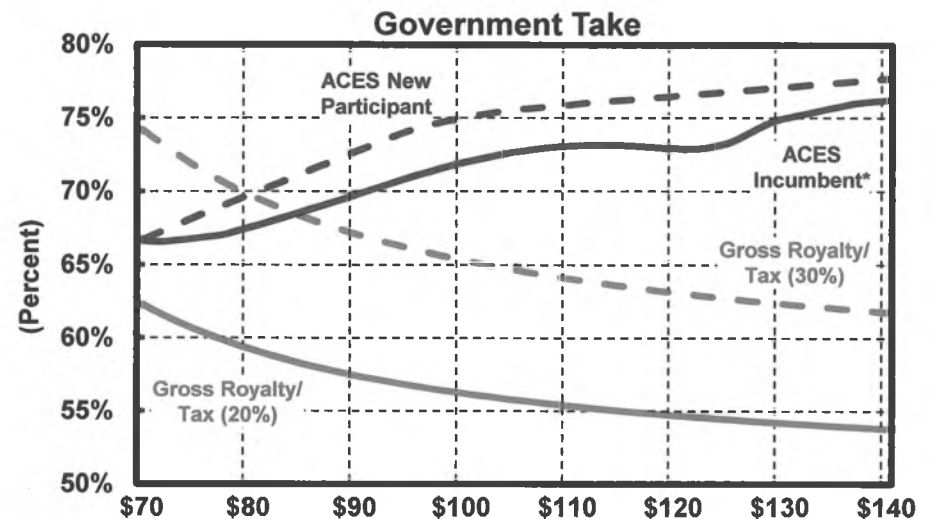
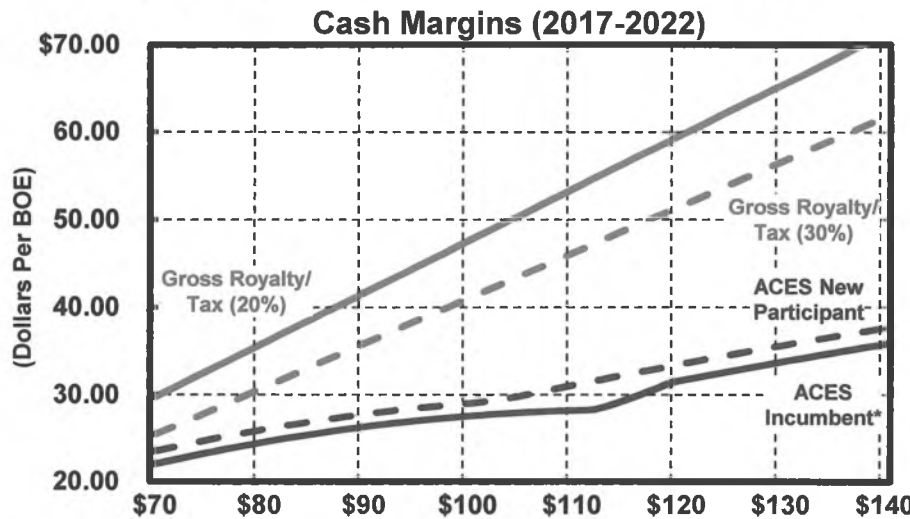
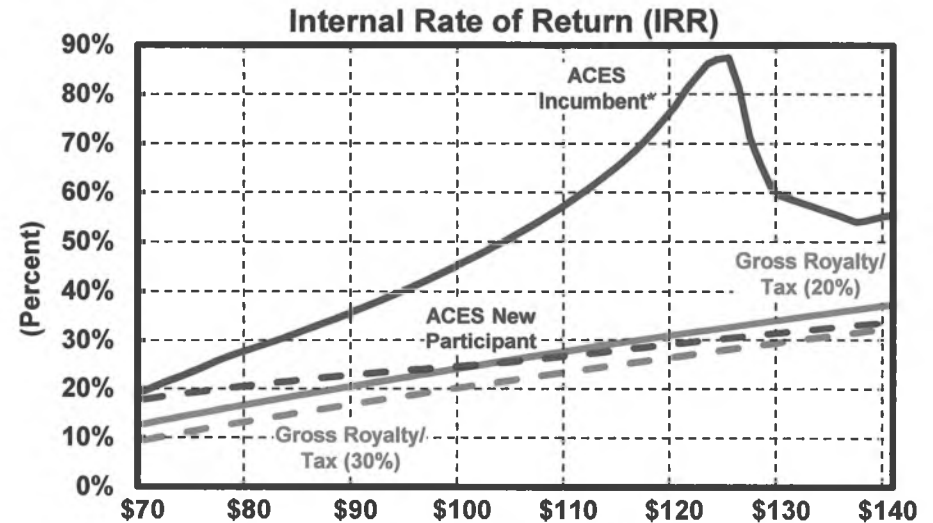
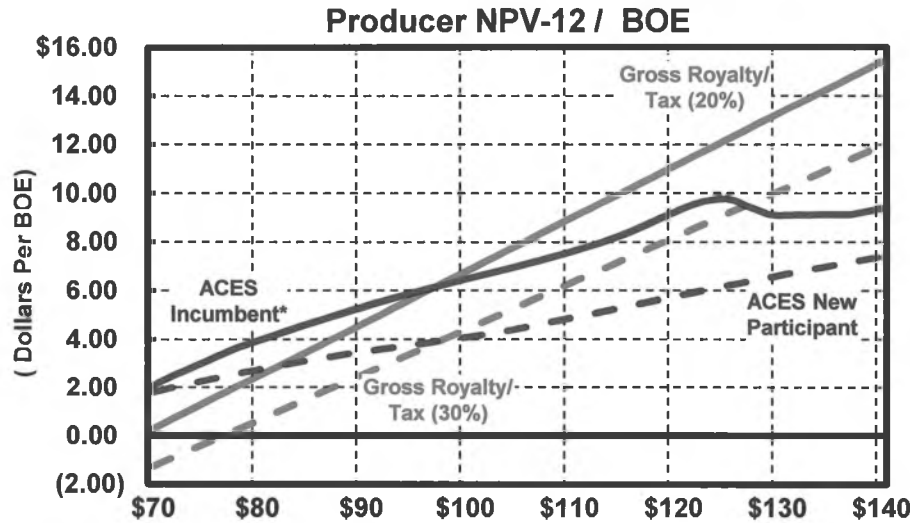


Investment Measures Analyzed

- **Producer NPV-12 Per BOE**
- **Internal Rate of Return (IRR)**
- **5-Year Cash Margins**
- **Profitability Index-12**
- **Government Take**
- **State NPV-12 Per BOE**

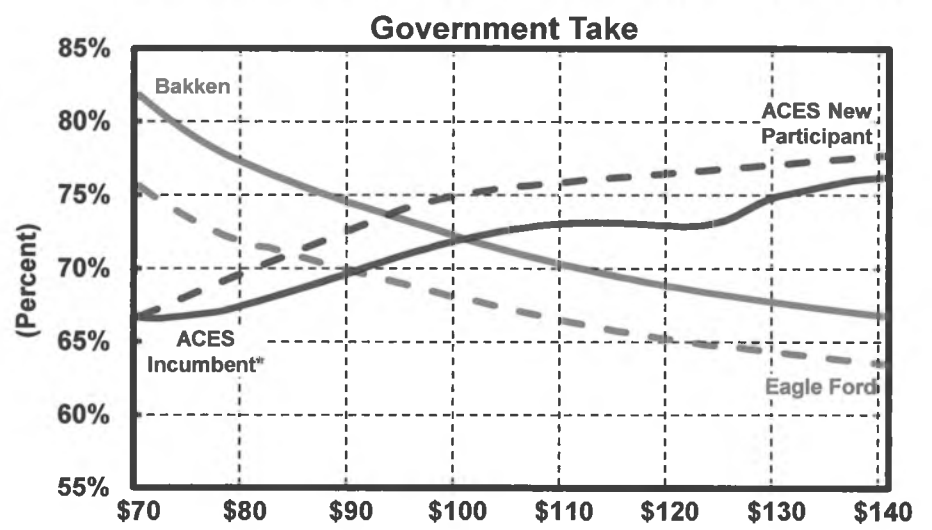
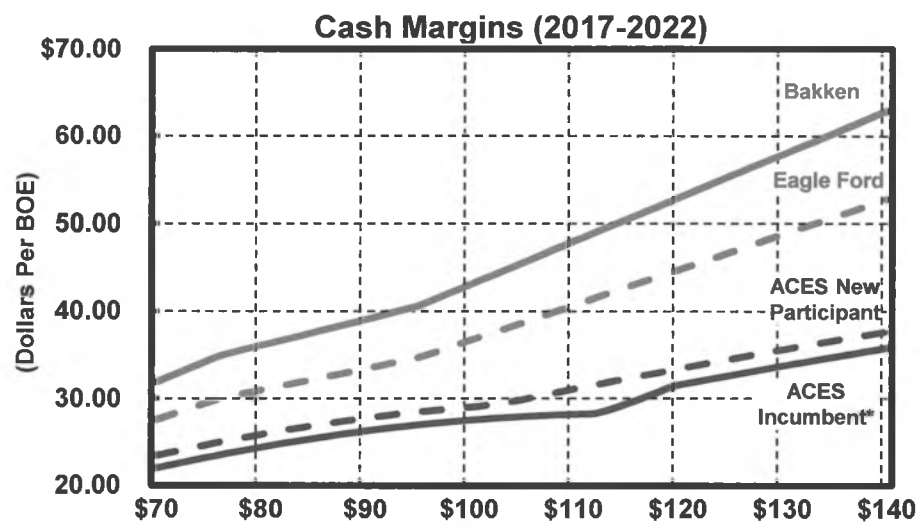
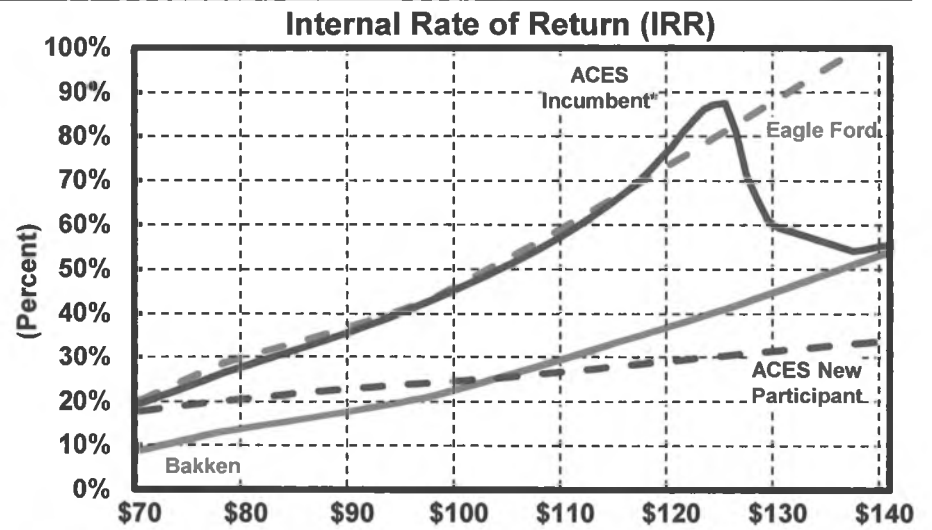
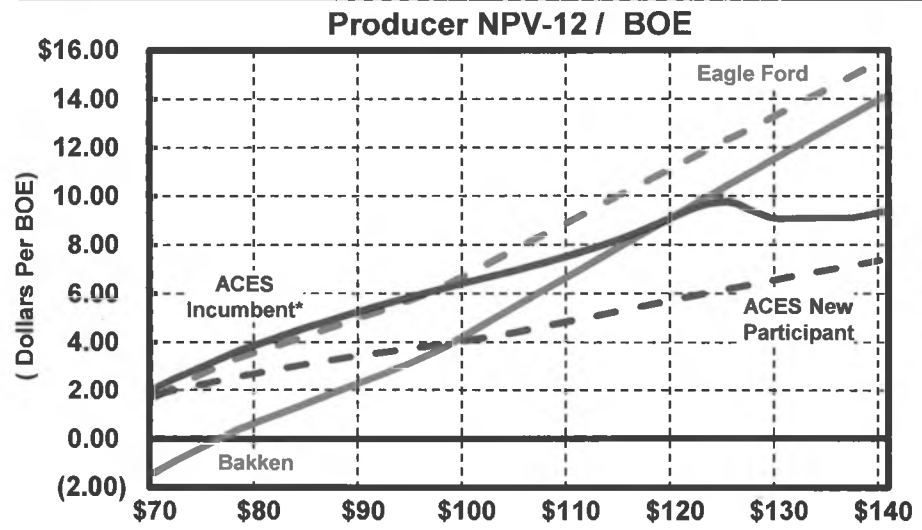
Investment Measures

Development of Conventional Oil Reserves



* Analysis of incumbent production includes "buy-down" impact for reduced taxes on existing production.

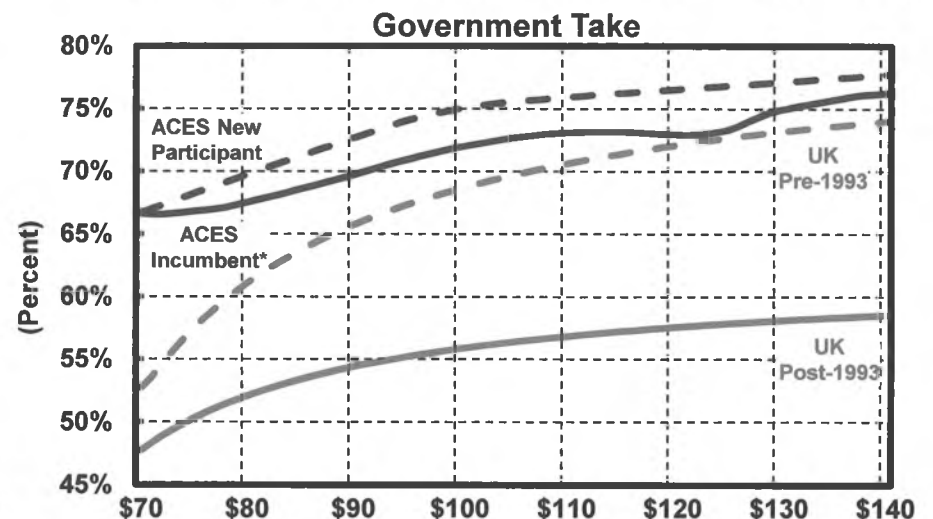
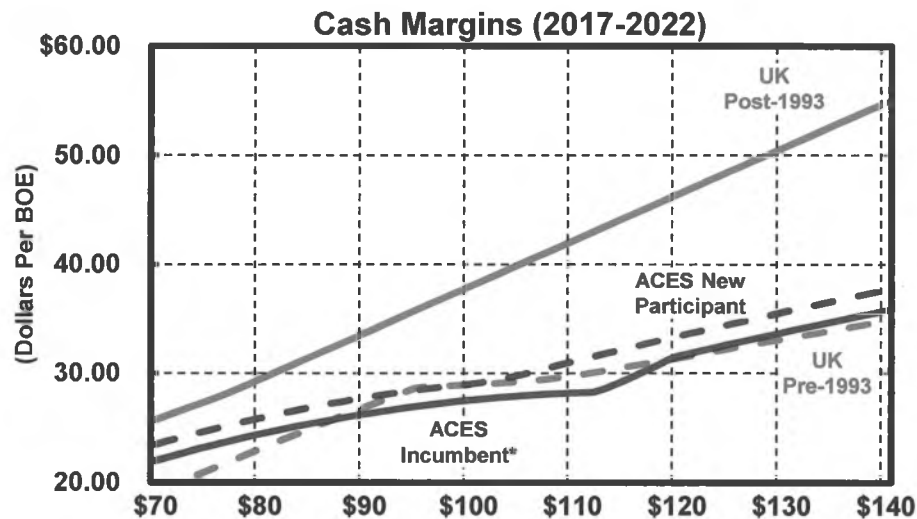
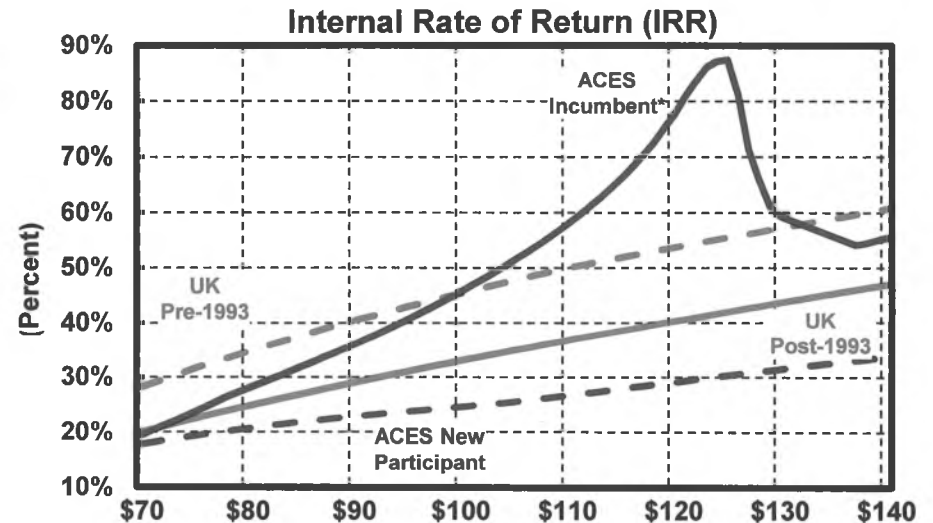
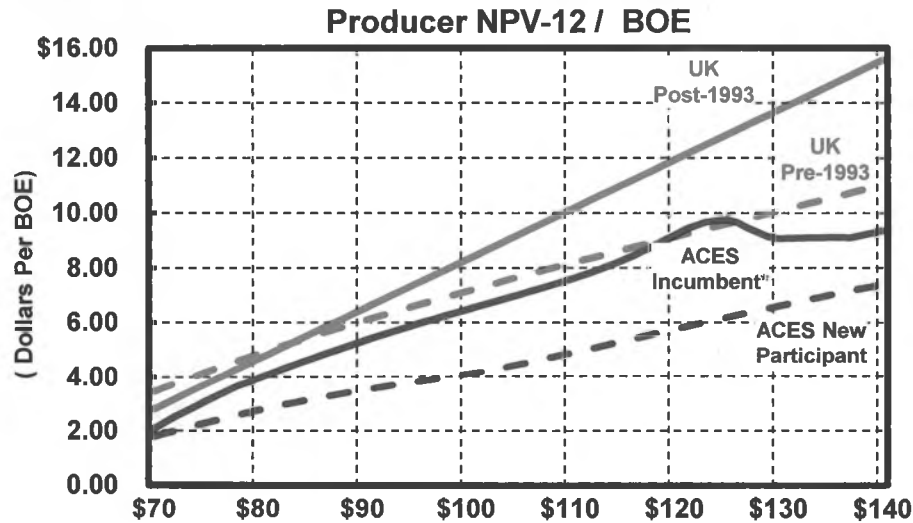
Investment Measures Conventional Oil Alaska Development v. Unconventional Lower-48



* Analysis of incumbent production includes "buy-down" impact for reduced taxes on existing production.

Investment Metrics

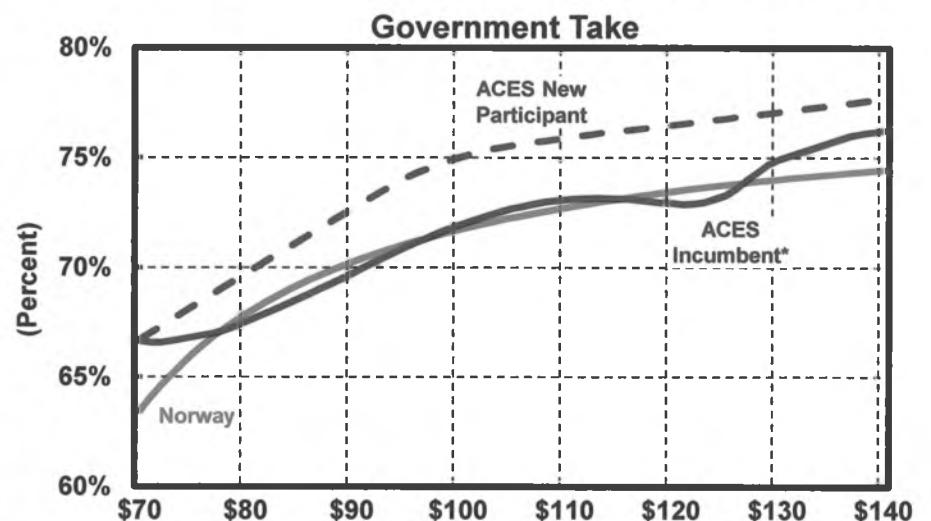
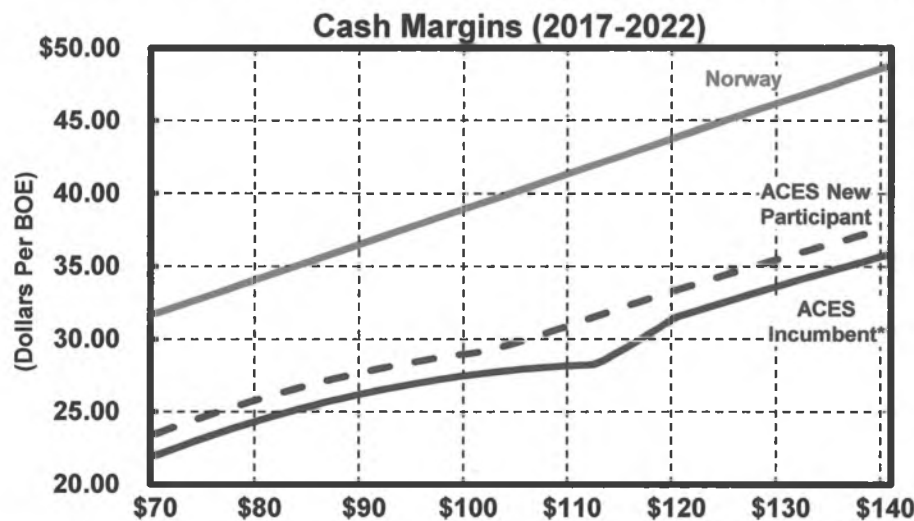
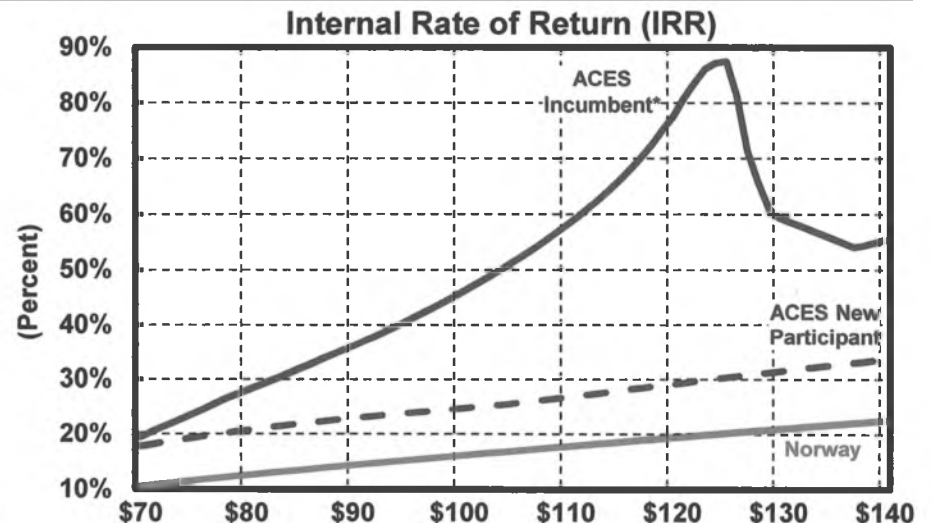
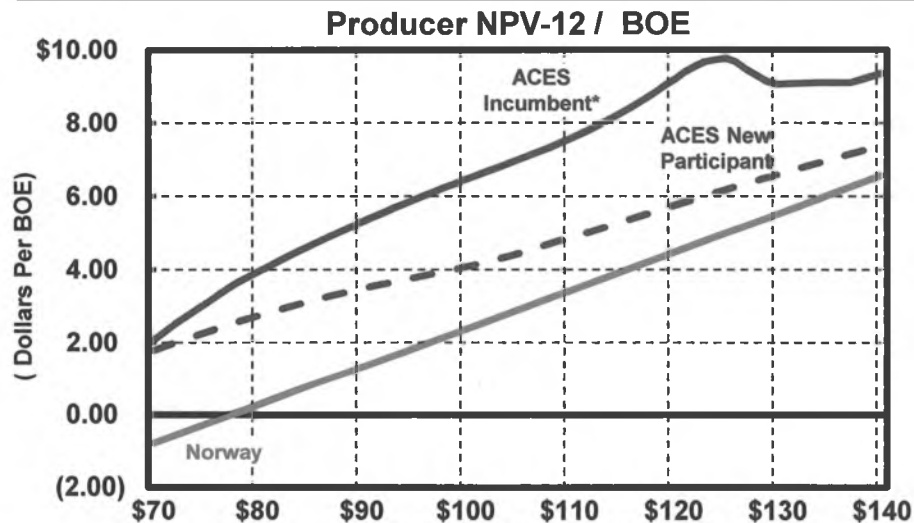
Conventional Oil Alaska Development v. North Sea (United Kingdom with Brownfield Allowance)



* Analysis of incumbent production includes "buy-down" impact for reduced taxes on existing production.

Investment Metrics

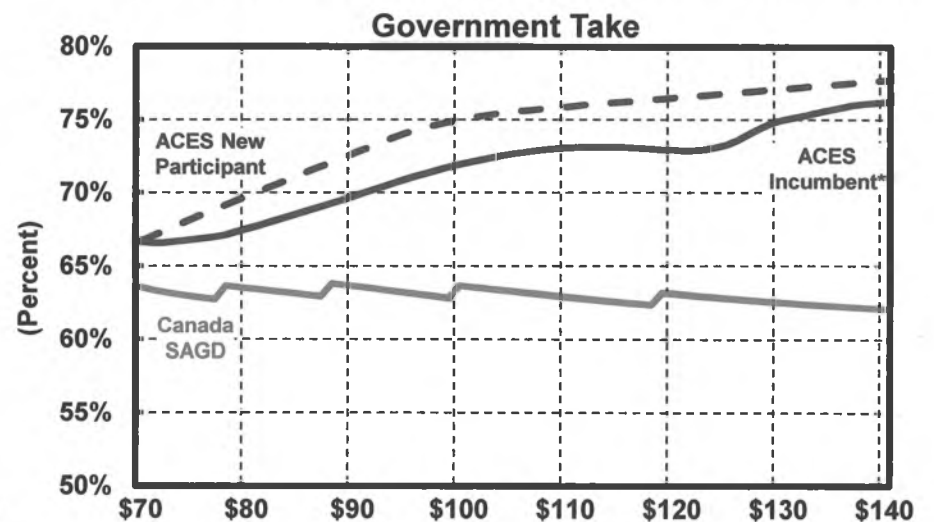
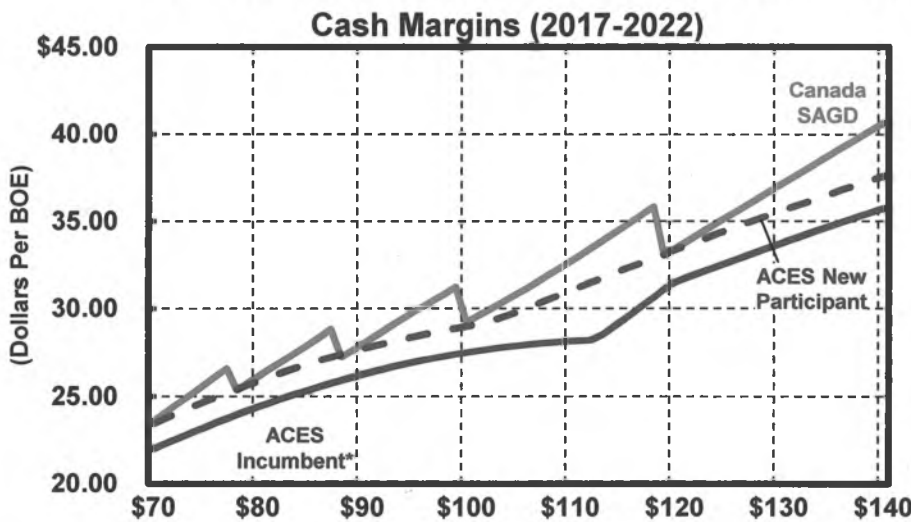
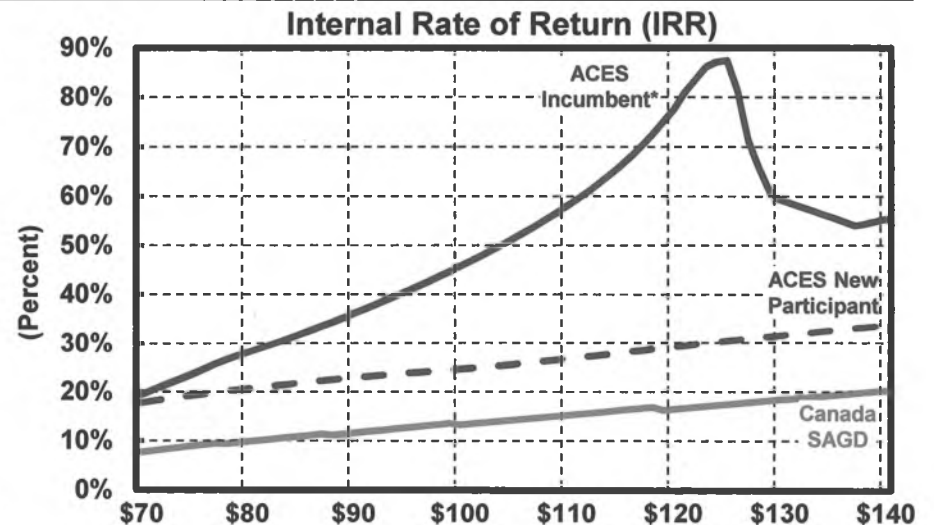
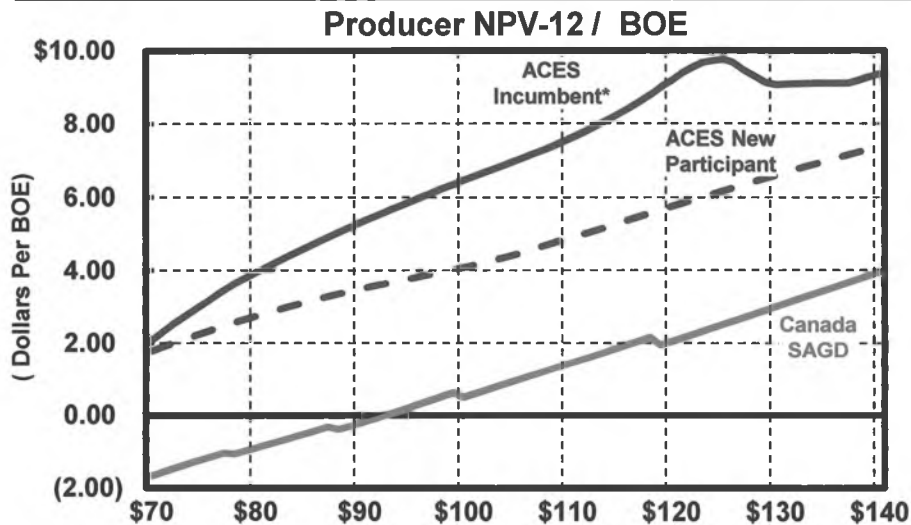
Conventional Oil Alaska Development v. North Sea (Norway)



* Analysis of incumbent production includes "buy-down" impact for reduced taxes on existing production.

Investment Metrics

Conventional Oil Alaska Development v. Canada Oil Sands (SAGD)



* Analysis of incumbent production includes "buy-down" impact for reduced taxes on existing production.

Summary of Investment Measures

West Coast ANS Price	Alaska 50 MMBO Conventional Oil		Unconventional Lower-48	Canada Oil Sands SAGD	Norway	U.K. Development & Fiscal System			
	New Participant	Incumbent Participant				Pre-1993	Pre-1993 w/ Brownfield Allowance*	Post-1993	Post-1993 w/ Brownfield Allowance*
	(1)	(2)							
Producer NPV-12 / BOE (Dollars Per BOE)									
\$80	\$2.73	\$3.93	\$2.14	(\$0.93)	\$0.24	\$1.20	\$4.81	\$2.41	\$4.62
\$100	\$4.07	\$6.45	\$5.52	\$0.46	\$2.34	\$3.02	\$7.09	\$6.04	\$8.25
\$120	\$5.74	\$9.17	\$10.17	\$2.01	\$4.44	\$4.83	\$9.09	\$9.67	\$11.88
Profitability Index-12									
\$80	1.21	1.30	1.15	0.88	1.01	1.06	1.22	1.11	1.21
\$100	1.31	1.49	1.37	1.06	1.14	1.14	1.33	1.28	1.38
\$120	1.43	1.69	1.69	1.26	1.27	1.22	1.42	1.45	1.55
IRR (Percent)									
\$80	20.6%	27.9%	21.8%	9.7%	12.4%	18.4%	34.5%	18.4%	24.7%
\$100	24.6%	45.7%	34.5%	13.1%	16.0%	27.0%	45.2%	27.0%	32.9%
\$120	29.1%	77.6%	55.3%	16.3%	19.3%	34.6%	53.5%	34.6%	40.2%
5-Year (2017-2021) Cash Margins (Dollars Per BOE)									
\$80	\$25.85	\$24.38	\$33.41	\$26.07	\$34.11	\$12.45	\$22.94	\$24.91	\$29.35
\$100	\$28.95	\$27.48	\$39.69	\$29.14	\$38.96	\$16.69	\$28.85	\$33.38	\$37.82
\$120	\$33.35	\$31.50	\$48.71	\$33.37	\$43.81	\$20.93	\$31.29	\$41.86	\$46.30
Government Take (Percent)									
\$80	69.7%	67.5%	74.4%	63.4%	67.8%	81.0%	61.0%	62.0%	52.0%
\$100	75.0%	71.9%	70.0%	63.5%	71.7%	81.0%	68.6%	62.0%	55.8%
\$120	76.5%	72.9%	66.9%	63.0%	73.4%	81.0%	72.0%	62.0%	57.5%
State NPV-12/BOE (Dollars Per BOE)									
\$80	\$5.95	\$4.10	-	-	-	-	-	-	-
\$100	\$12.54	\$8.88	-	-	-	-	-	-	-
\$120	\$18.61	\$13.34	-	-	-	-	-	-	-

* Brownfield Allowance applied to 100 MMBOE development.

Note: Analysis of incumbent production includes "buy-down" impact for reduced taxes on existing production.

VII. The Administration's Proposed Changes

Key Aspects of Administration's Proposal

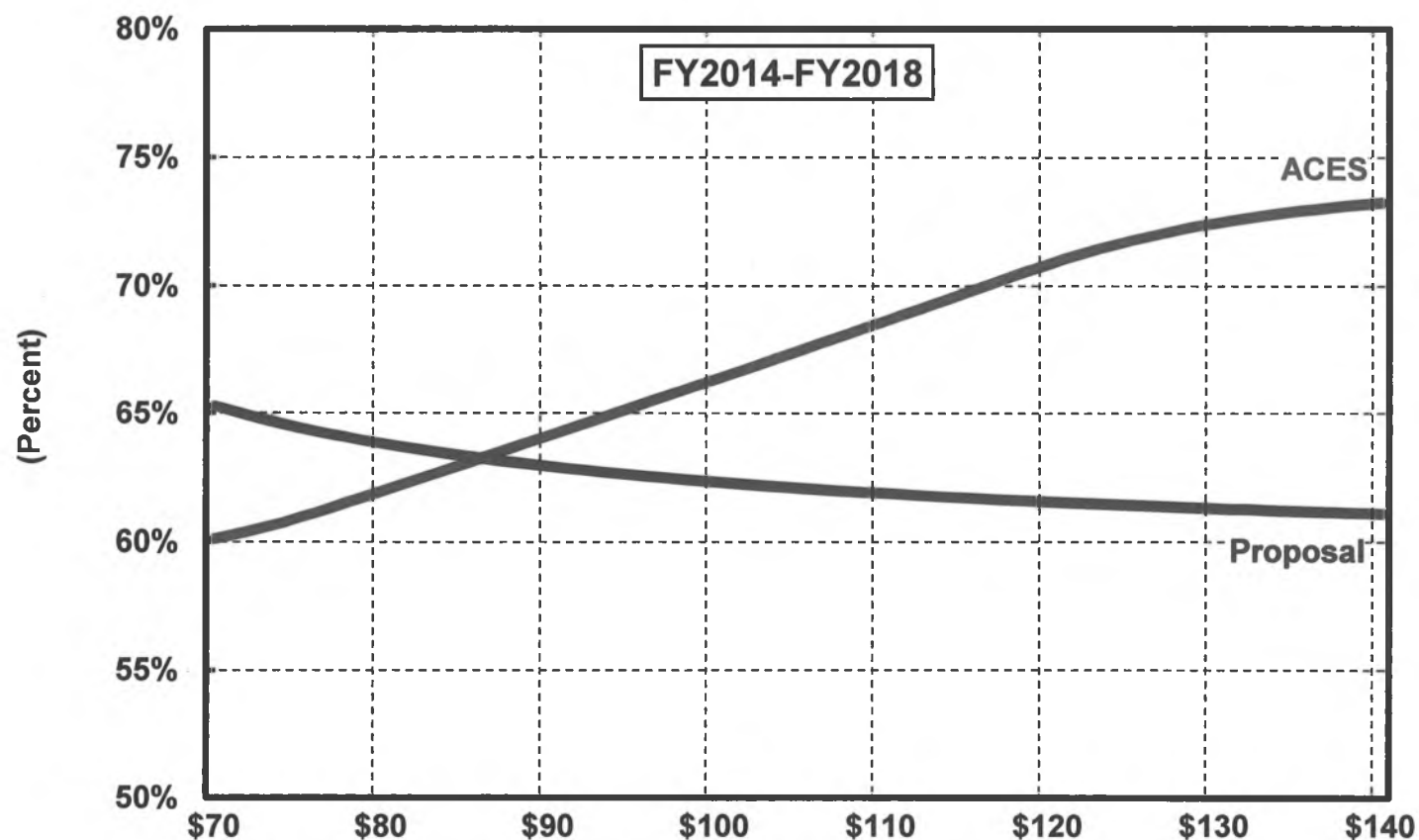
- **Establishes 25% Flat Net Tax Rate; No Progressivity**
- **Eliminates Capital Credit and State Purchase of Losses**
- **Establishes 20% Gross Revenue Exclusion (GRE) to Incent Production of New Oil**
- **Losses May be Carried Forward and Applied Against Tax Obligation When Production Occurs**
- **Extends New Entrant Credits Through 2022**
- **No Change Outside of North Slope**

Key Aspects of Administration's Proposal (cont'd)

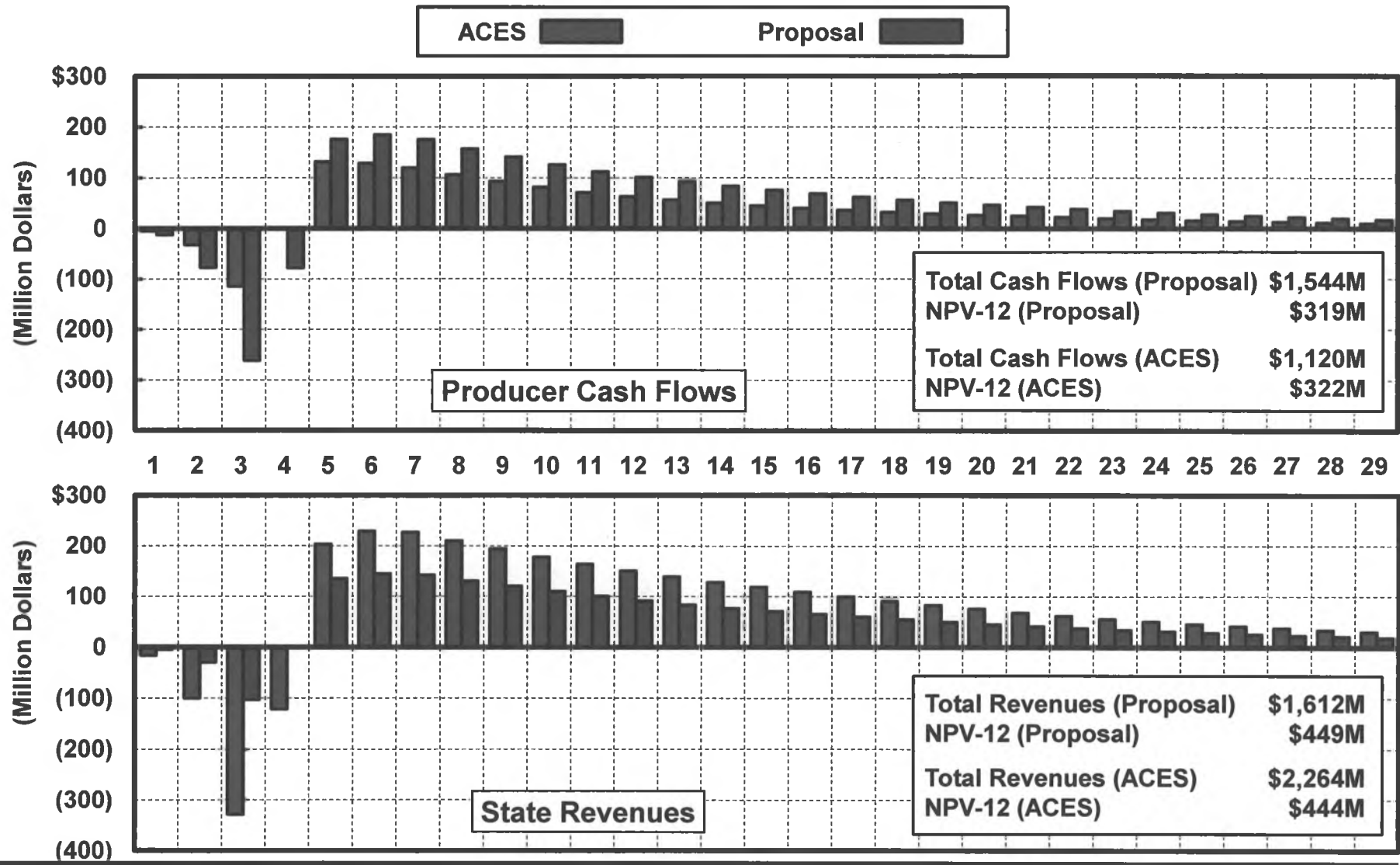
- **Provides Balance Between State and Producers**
 - Reduction of Tax Rates at High Prices, Balanced with Elimination of Credits
 - State Continues to Receive Largest Percentage of Oil Production Revenues at Any Price
 - Provides Tax Relief and Higher Margins in Sustainable Price Ranges
 - **Simplifies Tax System and Provides Clarity for Planning**
 - Eliminates Question of Marginal Tax Rate / Take for Investment Planning
 - Eliminates Incentives for "Gold Plating" Caused by High Marginal Rates
 - **Maintains Alignment Between State and Producer Incentives**
 - Net Tax Allows for Deduction of Costs Against Tax
 - **Provides Incentive for Development of New Resources Without Taxing State Treasury**
 - GRE Provides Lower Effective Tax Rate for New Development
 - New Developers can Recover Costs of Development Once Production Begins
 - Does Not Require State to Fund Development Costs Through Potentially Expensive Credit Purchases
 - **Extremely Positive Message to Potential Investors**
 - Will Encourage Broader Participation in Development of Alaska's North Slope
 - Economics of New Participants Closer to Incumbents'
-

Key Aspects of Administration's Proposal (cont'd)

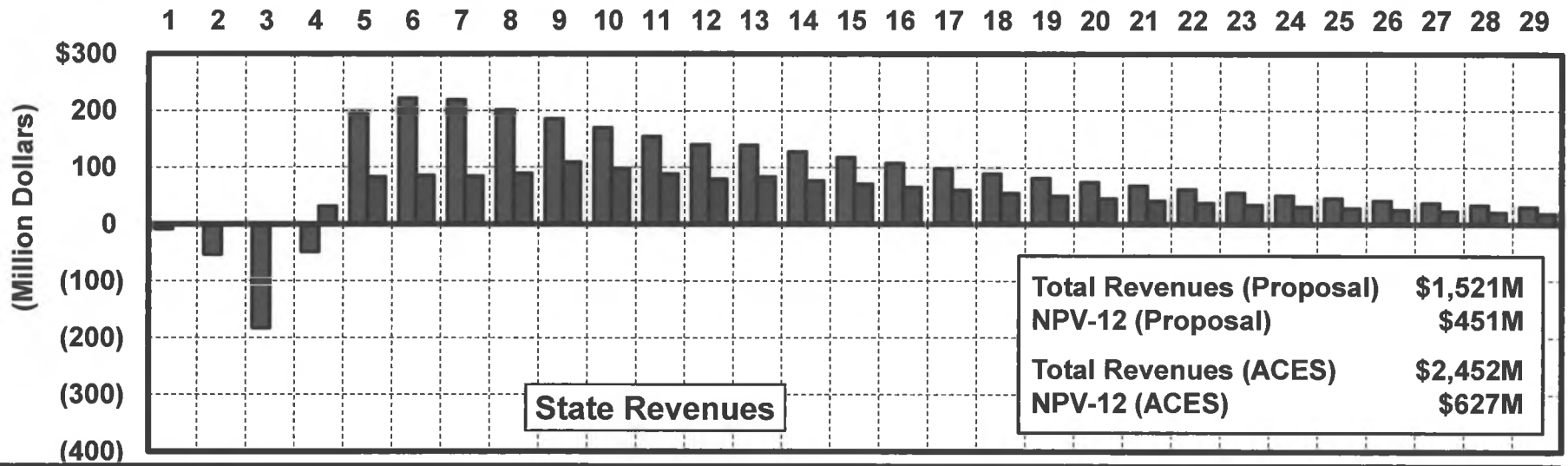
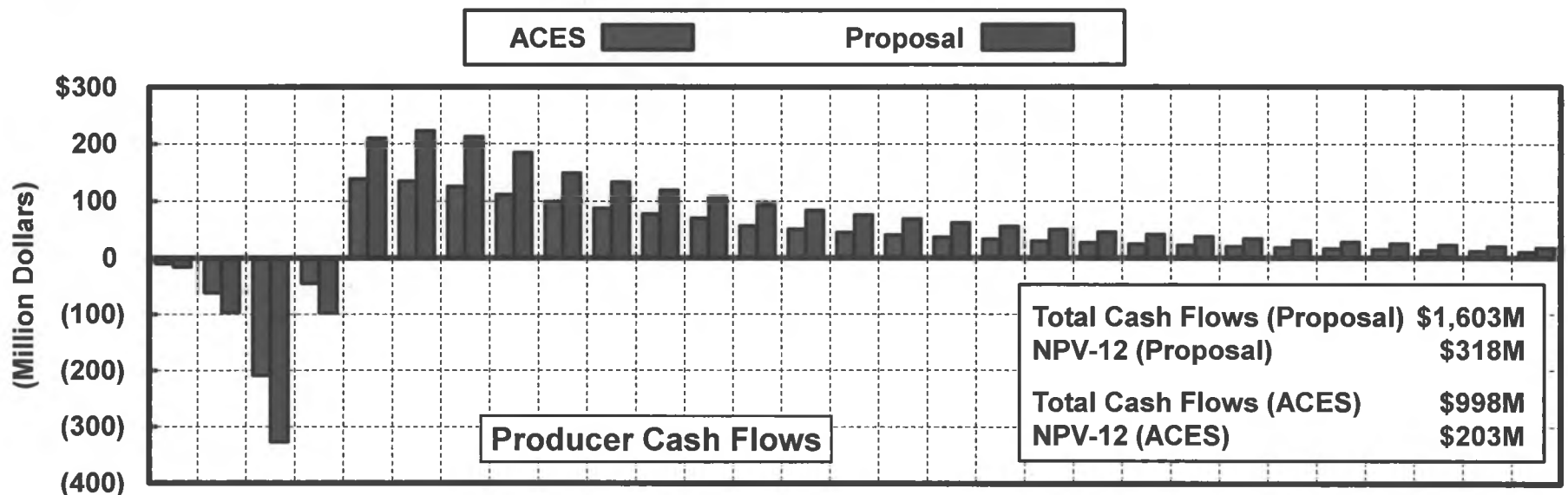
- **Average Government Take Moves From Progressive to Relatively Neutral Under Proposal**



Annual State Revenues and Producer Cash Flows at \$100 West Coast ANS 50 MMBO Conventional Oil Alaska Development Incumbent Participant in Alaska



Annual State Revenues and Producer Cash Flows at \$100 West Coast ANS 50 MMBO Conventional Oil Alaska Development New Participant in Alaska



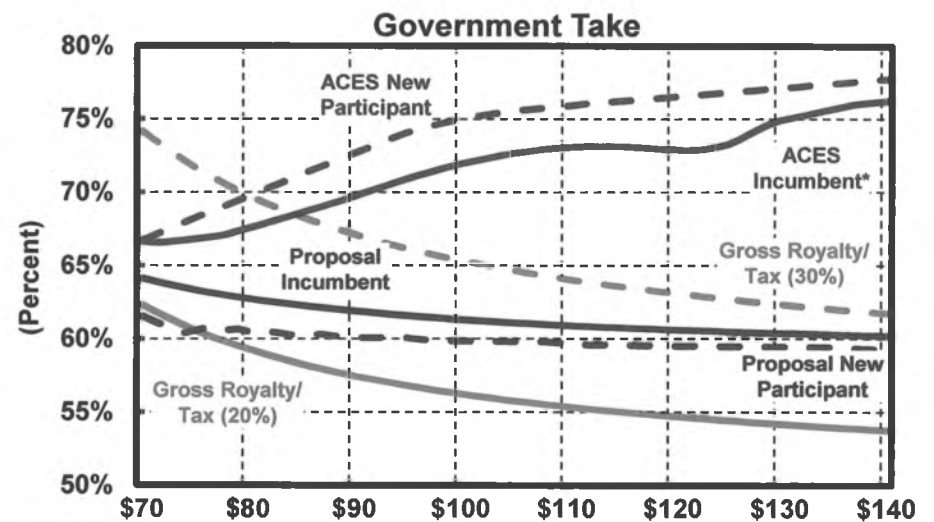
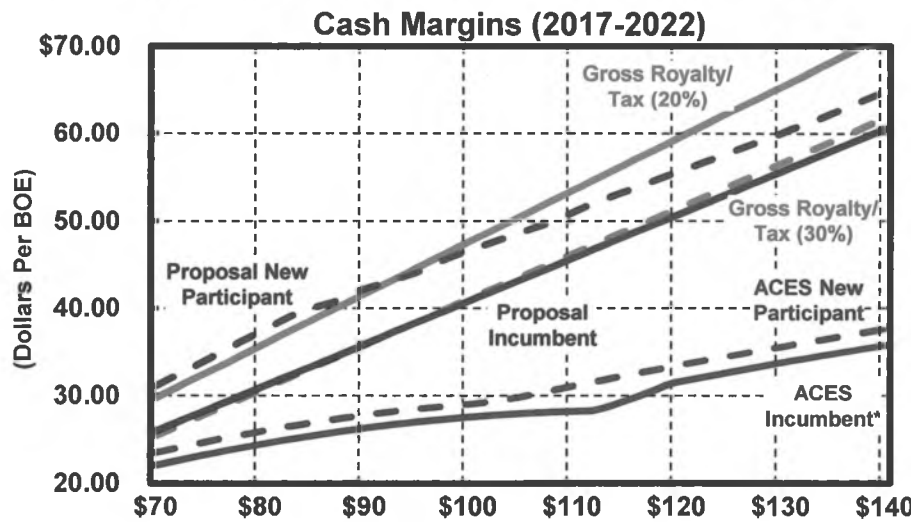
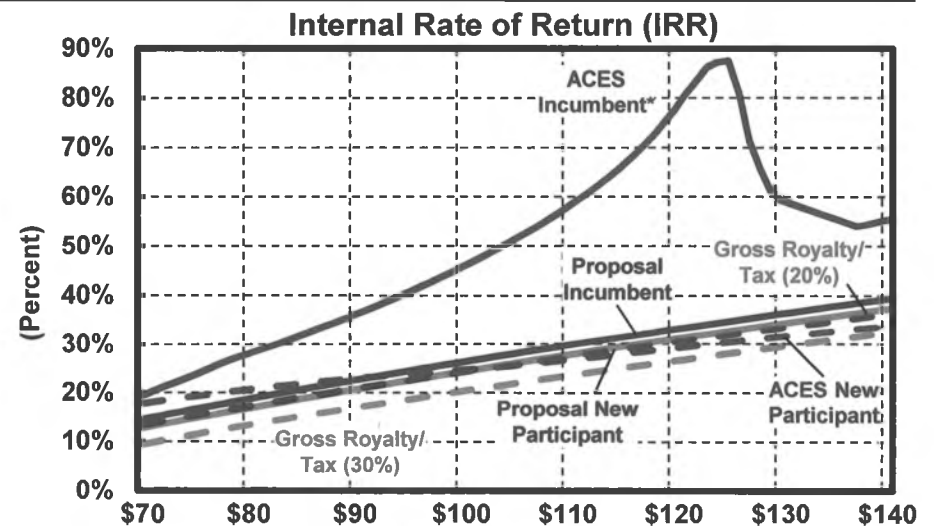
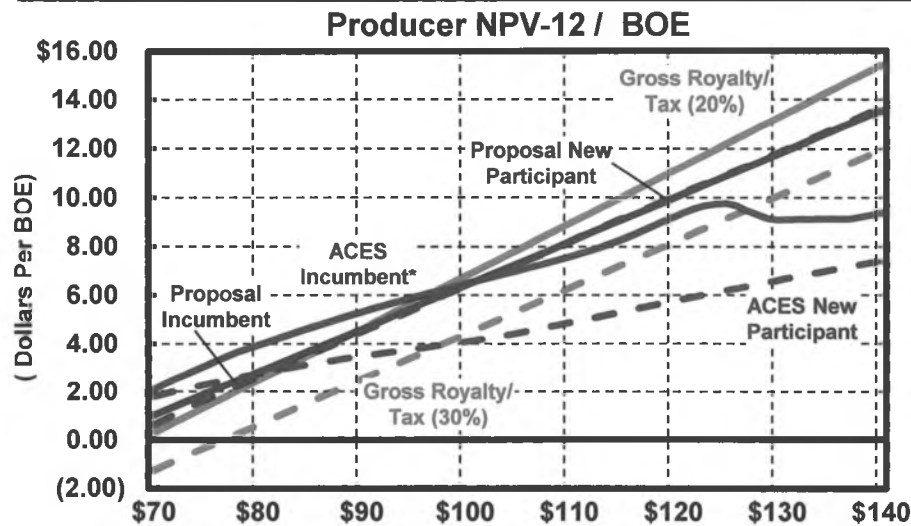


Summary of State Revenues and Producer Cash Flows Totals and NPV-12 50 MMBO Conventional Oil Alaska Development

West Coast ANS Price	New Participant		Incumbent Participant	
	ACES	Proposal	ACES	Proposal
	(1)	(2)	(3)	(4)
Producer Cash Flows (Million Dollars)				
\$80	\$806	\$1,053	\$865	\$993
\$100	\$998	\$1,603	\$1,120	\$1,544
\$120	\$1,250	\$2,153	\$1,440	\$2,094
Producer NPV-12 (Million Dollars)				
\$80	\$136	\$130	\$196	\$140
\$100	\$203	\$318	\$322	\$319
\$120	\$287	\$500	\$458	\$498
State Revenues (Million Dollars)				
\$80	\$1,422	\$1,042	\$1,331	\$1,133
\$100	\$2,452	\$1,521	\$2,264	\$1,612
\$120	\$3,390	\$2,001	\$3,098	\$2,091
State NPV-12 (Million Dollars)				
\$80	\$298	\$307	\$205	\$292
\$100	\$627	\$451	\$444	\$449
\$120	\$931	\$602	\$667	\$606

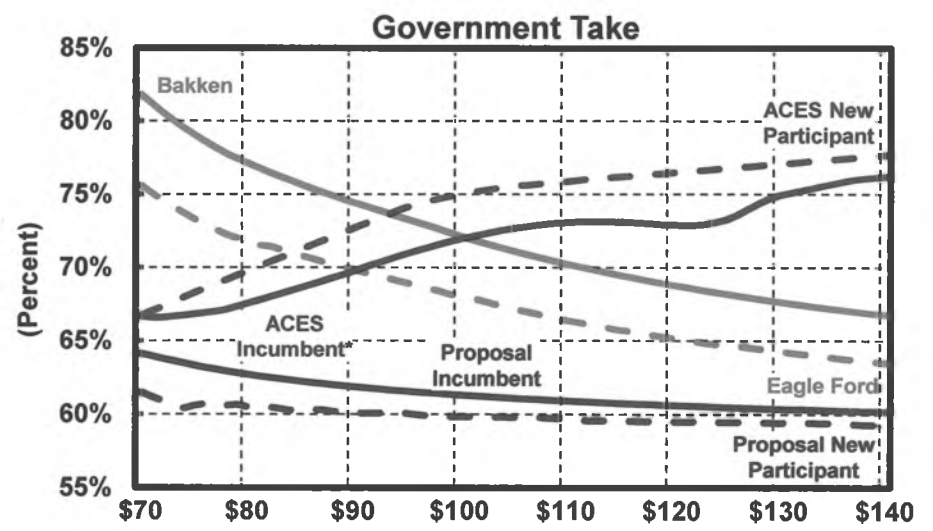
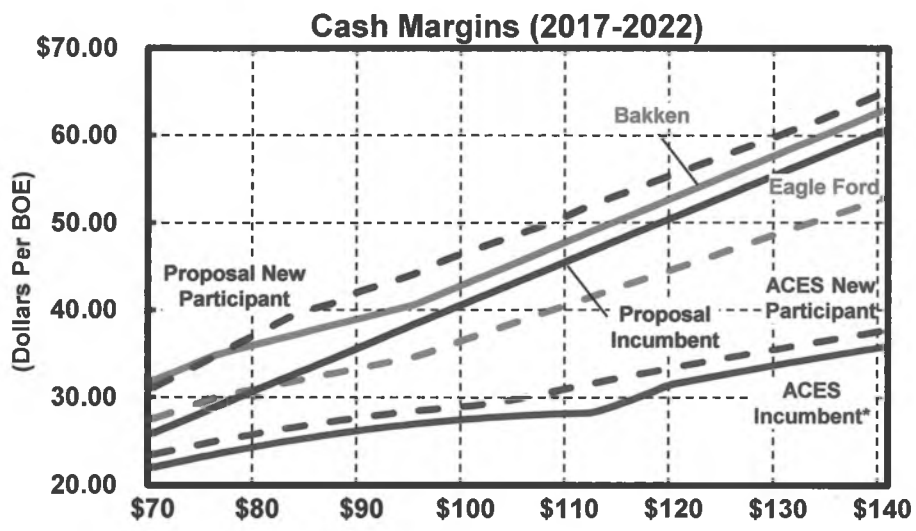
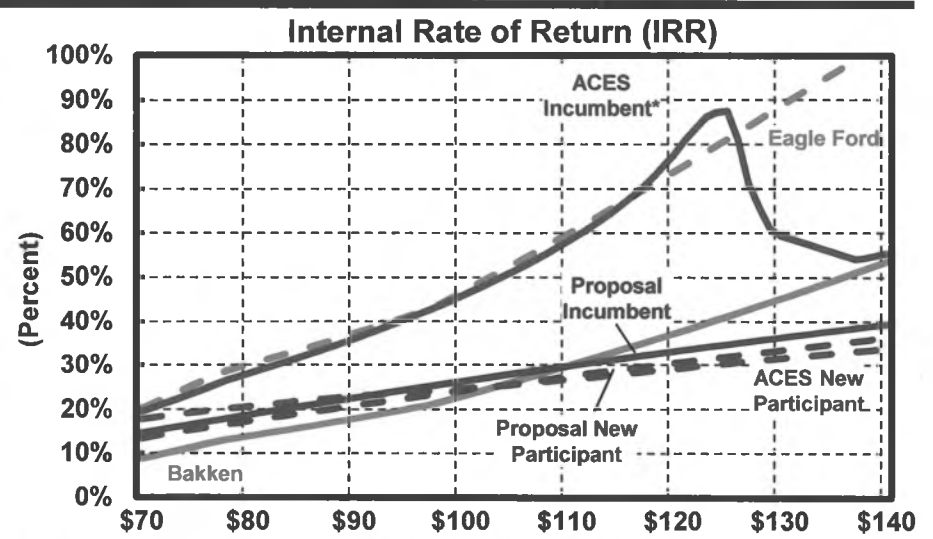
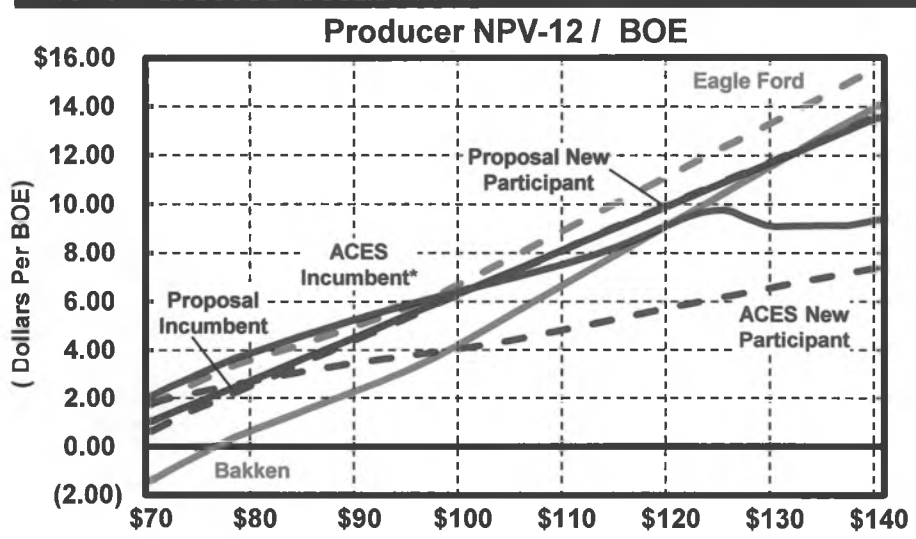
Investment Measures

Development of Conventional Oil Reserves



* Analysis of incumbent production includes "buy-down" impact for reduced taxes on existing production.

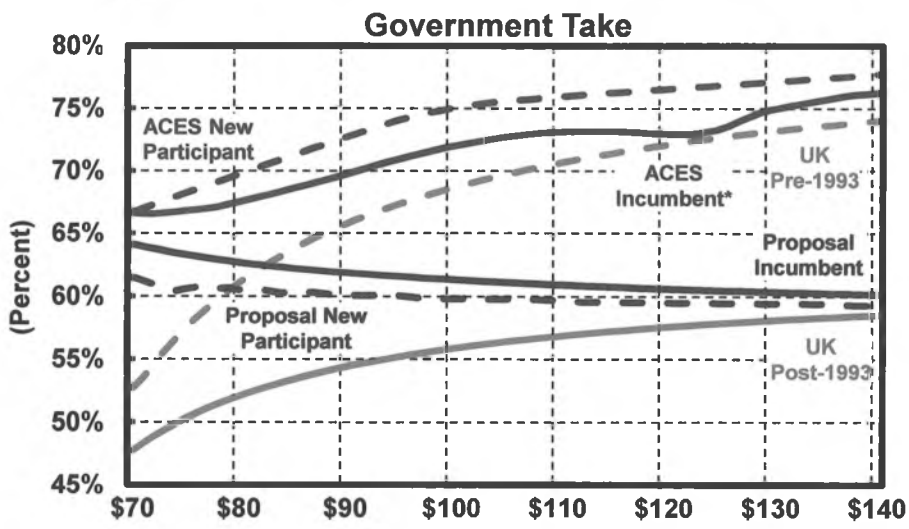
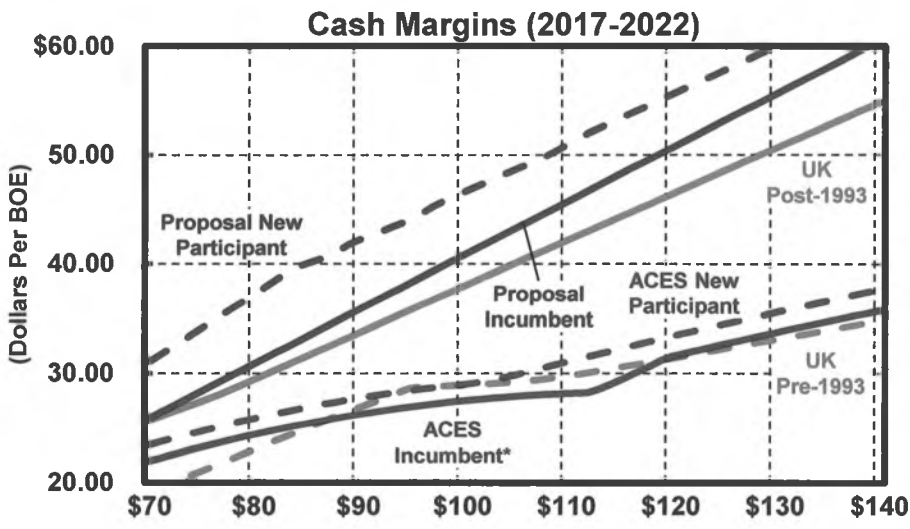
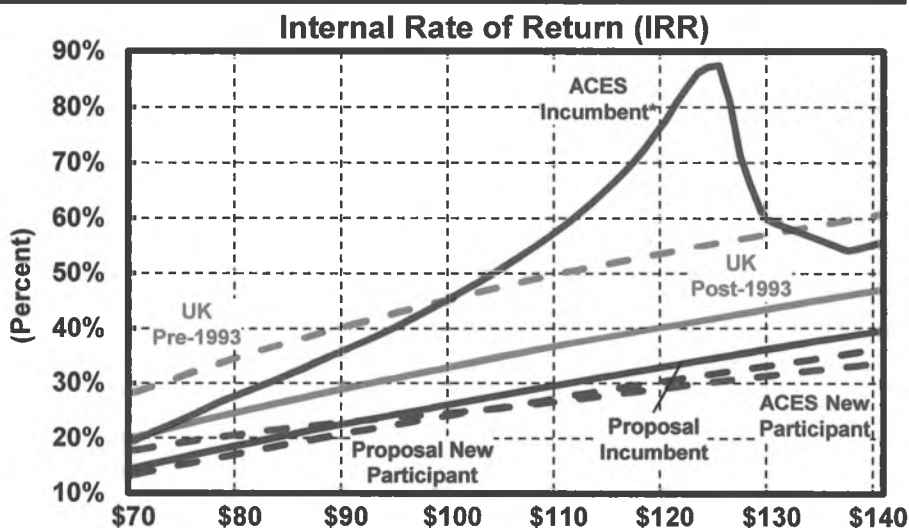
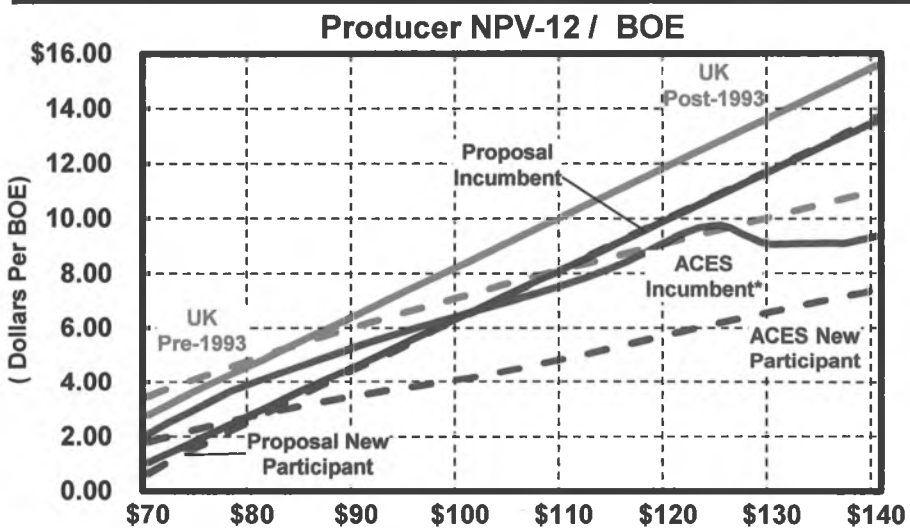
Investment Measures Conventional Oil Alaska Development v. Unconventional Lower-48



* Analysis of incumbent production includes "buy-down" impact for reduced taxes on existing production.

Investment Metrics

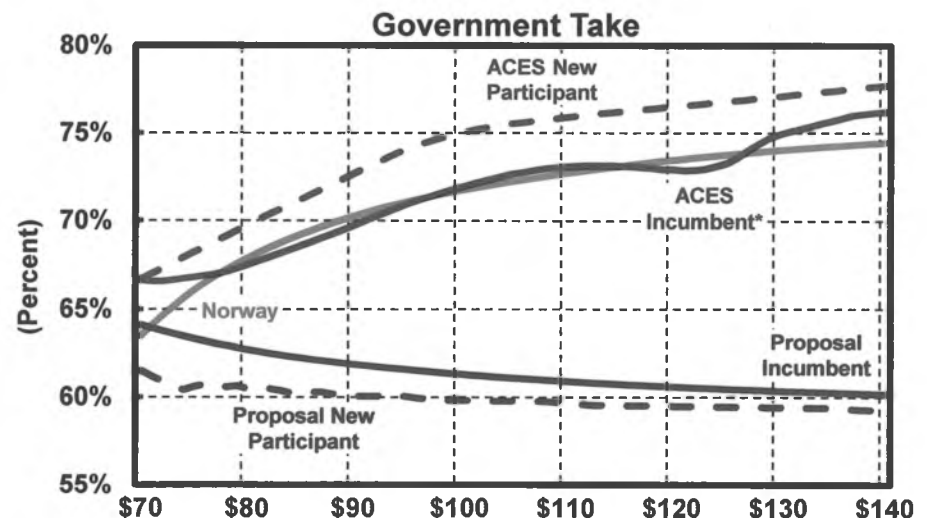
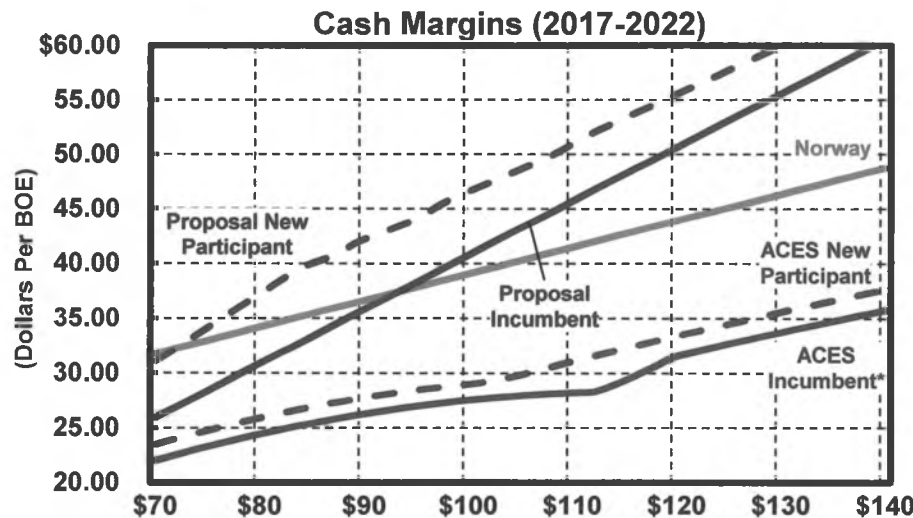
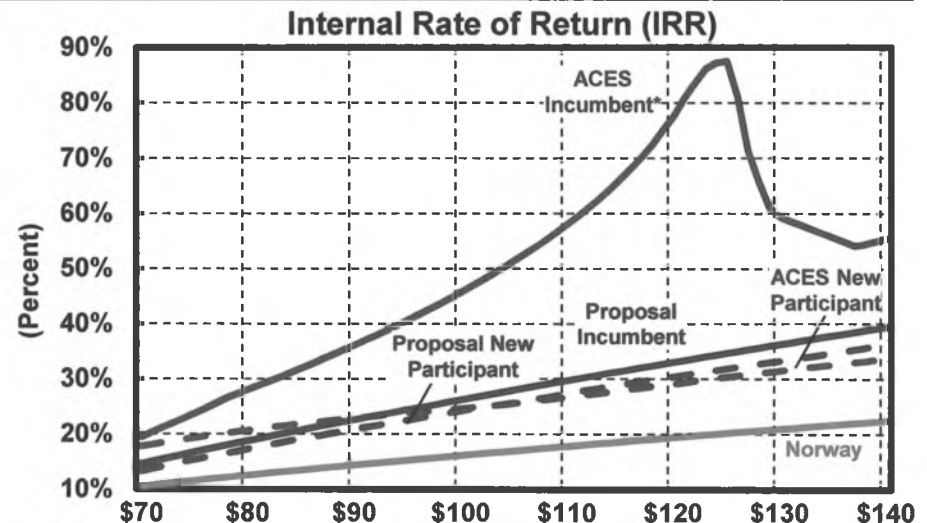
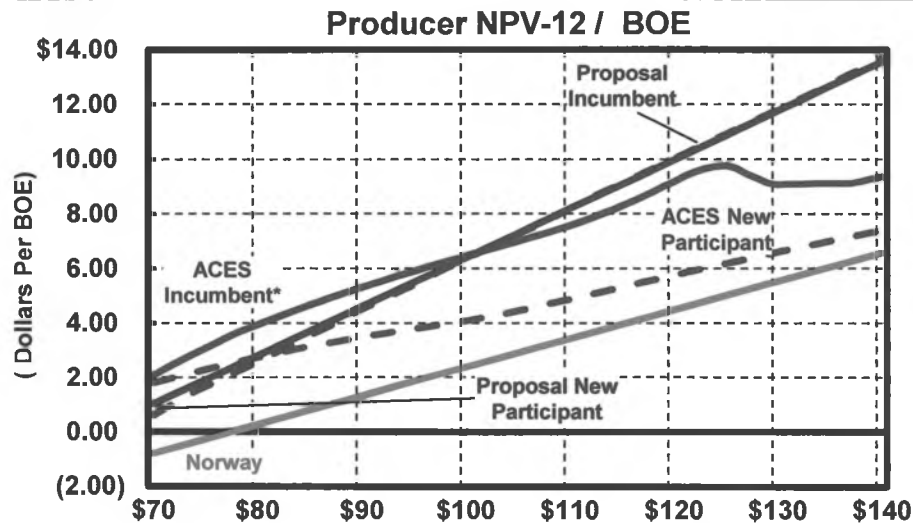
Conventional Oil Alaska Development v. North Sea (United Kingdom with Brownfield Allowance)



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Investment Metrics

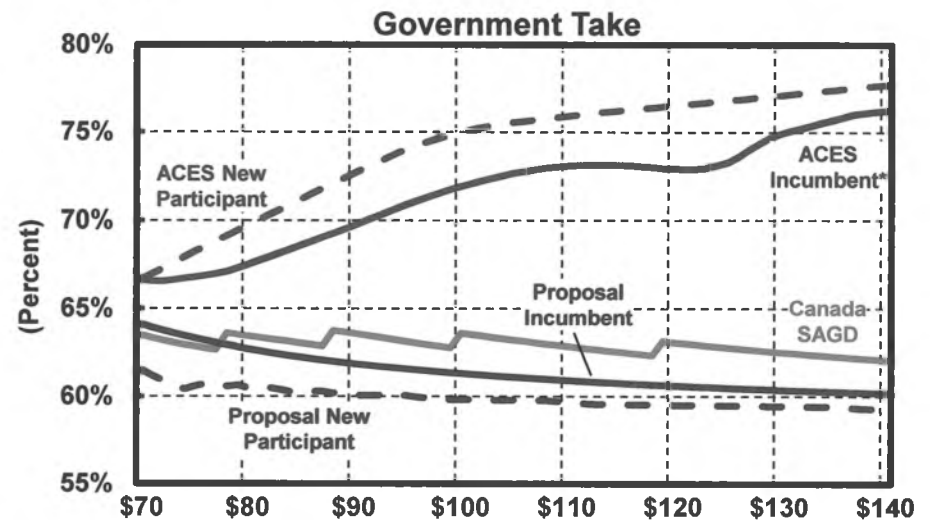
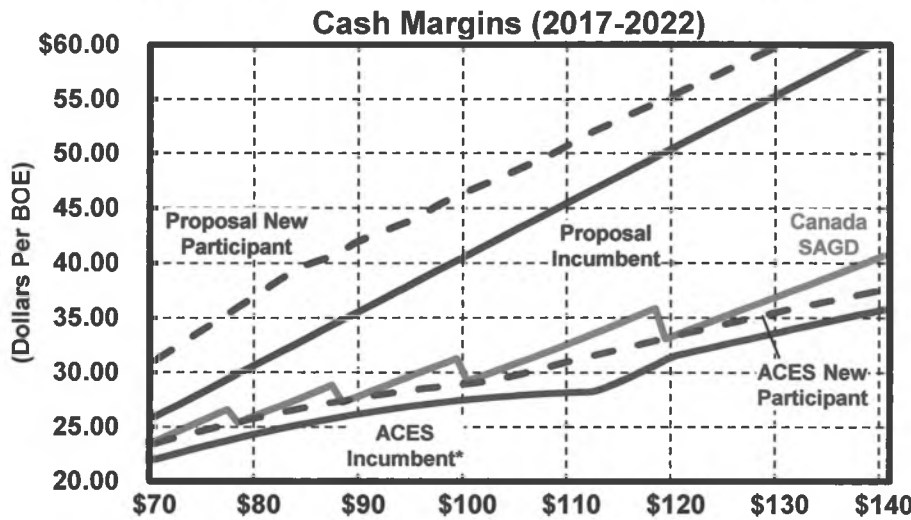
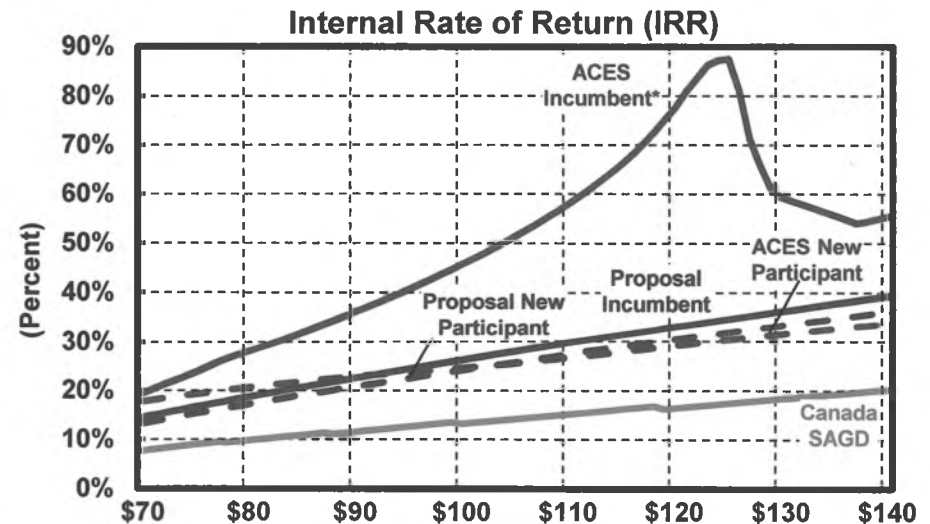
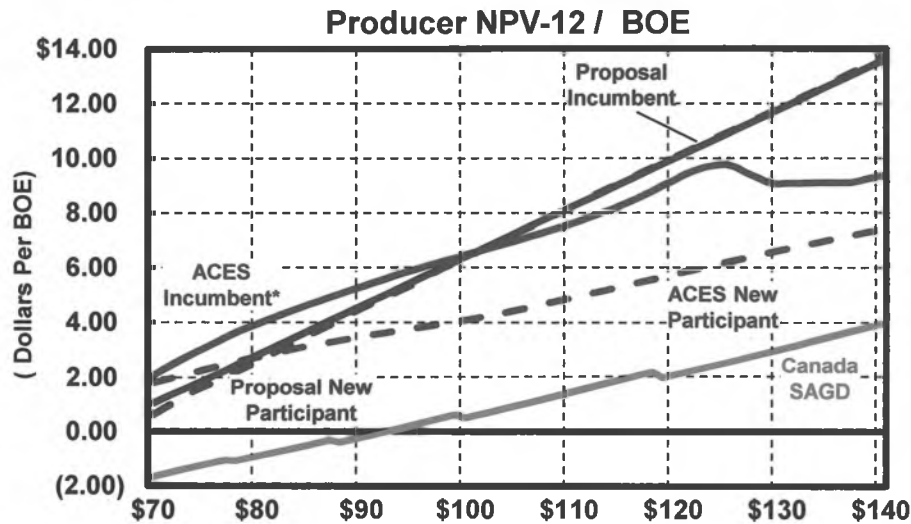
Conventional Oil Alaska Development v. North Sea (Norway)



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Investment Metrics

Conventional Oil Alaska Development v. Canada Oil Sands (SAGD)



* Analysis of incumbent production includes "buy-down" impact for reduced taxes on existing production.



Summary of Investment Measures for New Participant Conventional Oil Alaska Development ACES and Proposal v. Benchmark Areas

West Coast ANS Price	Proposal			Unconventional Lower-48	Canada Oil Sands SAGD	Norway	U.K. Development & Fiscal System			
	ACES	With GRE	Without GRE				Pre-1993 w/ Brownfield Allowance*	Post-1993	Post-1993 w/ Brownfield Allowance*	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Producer NPV-12 / BOE (Dollars Per BOE)										
\$80	\$2.73	\$2.60	\$1.98	\$2.14	(\$0.93)	\$0.24	\$1.20	\$4.81	\$2.41	\$4.62
\$100	\$4.07	\$6.35	\$5.49	\$5.52	\$0.46	\$2.34	\$3.02	\$7.09	\$6.04	\$8.25
\$120	\$5.74	\$10.01	\$8.95	\$10.17	\$2.01	\$4.44	\$4.83	\$9.09	\$9.67	\$11.88
Profitability Index-12										
\$80	1.21	1.20	1.15	1.15	0.88	1.01	1.06	1.22	1.11	1.21
\$100	1.31	1.48	1.41	1.37	1.06	1.14	1.14	1.33	1.28	1.38
\$120	1.43	1.75	1.67	1.69	1.26	1.27	1.22	1.42	1.45	1.55
IRR (Percent)										
\$80	20.6%	17.2%	16.2%	21.8%	9.7%	12.4%	18.4%	34.5%	18.4%	24.7%
\$100	24.6%	24.2%	22.8%	34.5%	13.1%	16.0%	27.0%	45.2%	27.0%	32.9%
\$120	29.1%	30.3%	28.9%	55.3%	16.3%	19.3%	34.6%	53.5%	34.6%	40.2%
5-Year (2017-2021) Cash Margins (Dollars Per BOE)										
\$80	\$25.85	\$37.22	\$34.68	\$33.41	\$26.07	\$34.11	\$12.45	\$22.94	\$24.91	\$29.35
\$100	\$28.95	\$46.51	\$43.11	\$39.69	\$29.14	\$38.96	\$16.69	\$28.85	\$33.38	\$37.82
\$120	\$33.35	\$55.53	\$51.62	\$48.71	\$33.37	\$43.81	\$20.93	\$31.29	\$41.86	\$46.30
Government Take (Percent)										
\$80	69.7%	60.4%	64.8%	74.4%	63.4%	67.8%	81.0%	61.0%	62.0%	52.0%
\$100	75.0%	59.8%	63.5%	70.0%	63.5%	71.7%	81.0%	68.6%	62.0%	55.8%
\$120	76.5%	59.5%	62.8%	66.9%	63.0%	73.4%	81.0%	72.0%	62.0%	57.5%
State NPV-12/BOE (Dollars Per BOE)										
\$80	\$5.95	\$6.15	\$7.10	-	-	-	-	-	-	-
\$100	\$12.54	\$9.02	\$10.35	-	-	-	-	-	-	-
\$120	\$18.61	\$12.04	\$13.67	-	-	-	-	-	-	-

* Brownfield Allowance applied to 100 MMBOE development.

Summary of Investment Measures for Incumbent Conventional Oil Alaska Development ACES and Proposal v. Benchmark Areas

West Coast ANS Price	Proposal			Unconventional Lower-48	Canada Oil Sands SAGD	Norway	U.K. Development & Fiscal System			
	ACES	With GRE	Without GRE				Pre-1993 w/ Brownfield Allowance*	Post-1993	Post-1993 w/ Brownfield Allowance*	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Producer NPV-12 / BOE (Dollars Per BOE)										
\$80	\$3.93	\$2.80	\$2.09	\$2.14	(\$0.93)	\$0.24	\$1.20	\$4.81	\$2.41	\$4.62
\$100	\$6.45	\$6.38	\$5.46	\$5.52	\$0.46	\$2.34	\$3.02	\$7.09	\$6.04	\$8.25
\$120	\$9.17	\$9.96	\$8.83	\$10.17	\$2.01	\$4.44	\$4.83	\$9.09	\$9.67	\$11.88
Profitability Index-12										
\$80	1.30	1.21	1.16	1.15	0.88	1.01	1.06	1.22	1.11	1.21
\$100	1.49	1.48	1.41	1.37	1.06	1.14	1.14	1.33	1.28	1.38
\$120	1.69	1.75	1.67	1.69	1.26	1.27	1.22	1.42	1.45	1.55
IRR (Percent)										
\$80	27.9%	18.7%	17.1%	21.8%	9.7%	12.4%	18.4%	34.5%	18.4%	24.7%
\$100	45.7%	26.2%	24.4%	34.5%	13.1%	16.0%	27.0%	45.2%	27.0%	32.9%
\$120	77.6%	33.0%	31.0%	55.3%	16.3%	19.3%	34.6%	53.5%	34.6%	40.2%
5-Year (2017-2021) Cash Margins (Dollars Per BOE)										
\$80	\$24.38	\$30.83	\$28.72	\$33.41	\$26.07	\$34.11	\$12.45	\$22.94	\$24.91	\$29.35
\$100	\$27.48	\$40.73	\$38.00	\$39.69	\$29.14	\$38.96	\$16.69	\$28.85	\$33.38	\$37.82
\$120	\$31.50	\$50.63	\$47.28	\$48.71	\$33.37	\$43.81	\$20.93	\$31.29	\$41.86	\$46.30
Government Take (Percent)										
\$80	67.5%	62.7%	66.9%	74.4%	63.4%	67.8%	81.0%	61.0%	62.0%	52.0%
\$100	71.9%	61.3%	65.0%	70.0%	63.5%	71.7%	81.0%	68.6%	62.0%	55.8%
\$120	72.9%	60.6%	64.0%	66.9%	63.0%	73.4%	81.0%	72.0%	62.0%	57.5%
State NPV-12/BOE (Dollars Per BOE)										
\$80	\$4.10	\$5.84	\$6.94	-	-	-	-	-	-	-
\$100	\$8.88	\$8.98	\$10.40	-	-	-	-	-	-	-
\$120	\$13.34	\$12.11	\$13.85	-	-	-	-	-	-	-

* Brownfield Allowance applied to 100 MMBOE development.

Note: Analysis of incumbent production includes "buy-down" impact for reduced taxes on existing production.