SB 167

<TARGET><BILL>SB 167</BILL><SUBJECT>SB 167</SUBJECT><COMM>SFIN27</COMM></TARGET>

ALASKA STATE LEGISLATURE

SENATE FINANCE COMMITTEE

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SPONSOR STATEMENT
SB 167 – Separate Oil and Gas Production Tax

SB 167 separates oil and natural gas for the purpose of calculating their respective production tax value under AS 43.55.

Under this bill the progressivity surcharges for oil, Cook Inlet gas, and in-state gas would be calculated together, but separately from export gas, instead of the current practice on all oil and gas combined. The progressivity structure itself would be unchanged, based on 0.4% of the production value that exceeds $30 per barrel for oil, and $30 per BTU barrel of oil equivalent for gas. The base tax rate is unchanged at 25% of production tax value.

Under current law the tax rate is based on the combined BTU value of oil and gas. However, oil and gas can have vastly different values on a BTU basis. Currently a BTU of oil is worth much more than a BTU of gas. Accordingly, once a major gas sale starts, overlaying the existing oil production, the BTU value of the combined oil and gas would be much lower than it was for oil alone. This has been referred to as the dilution effect and could cause a significant reduction in oil taxes as a result of a major gas sale. The existing tax structure, in conjunction with the inherent uncertainty of future oil and gas prices, exposes the state to significant financial risk were a major gas sale to occur. The structure also creates economic instability for entities looking to participate in the development and financing of a natural gas pipeline project in Alaska. SB 167 removes the dilution effect by having the production tax calculated distinctly for oil and gas. This will result in no reduction in oil taxes from a major gas sale.

FISCAL NOTE

STATE OF ALASKA
2012 LEGISLATIVE SESSION

Bill Version **SB 167**
Fiscal Note Number
() Publish Date

Identifier (file name) SB167-DOR-TAX-01-25-12
Title Separate Oil and Gas Production Tax/Deductions
Sponsor Senate Finance Committee
Requester Senate Finance Committee

Dept. Affected Revenue
Appropriation Taxation and Treasury
Allocation Tax Division
OMB Component Number 2476

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	FY13 Appropriation Requested	Included in Governor's FY13 Request	Out-Year Cost Estimates				
OPERATING EXPENDITURES	**FY13**	**FY13**	**FY14**	**FY15**	**FY16**	**FY17**	**FY18**
Personal Services							
Travel							
Services	330.0						
Commodities							
Capital Outlay							
Grants, Benefits							
Miscellaneous							
TOTAL OPERATING	**330.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

FUND SOURCE (Thousands of Dollars)								
1002	Federal Receipts							
1003	GF Match							
1004	GF	330.0						
1005	GF/Prgm (DGF)							
1037	GF/MH (UGF)							
1178	temp code (UGF)							
TOTAL		**330.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

POSITIONS							
Full-time	**0**	0	0	0	0	0	0
Part-time							
Temporary							

CHANGE IN REVENUES	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Estimated SUPPLEMENTAL (FY12) operating costs _____ *(separate supplemental appropriation required)*
(discuss reasons and fund source(s) in analysis section)

Estimated CAPITAL (FY13) costs _____ *(separate capital appropriation required)*
(discuss reasons and fund source(s) in analysis section)

Why this fiscal note differs from previous version (if initial version, please note as such)

This is the initial version of the bill.

Prepared by Cherie Nienhuis, Commercial Analyst and Dan Stickel, Economist — Phone 907-269-1019
Division Tax Division — Date/Time 01/25/12 11am
Approved by Jerry Burnett, Director of Administrative Services — Date 1/25/2012
Department of Revenue

(Revised 1/17/2012 OMB)

FISCAL NOTE

STATE OF ALASKA **BILL NO.** SB 167
2012 LEGISLATIVE SESSION

Analysis

This bill separates some oil and natural gas for purposes of calculating the progressivity portion of the production tax under AS 43.55 (also known as "decoupling"). Currently, all oil and gas are combined for purposes of calculating a single progressivity rate. Under this bill, two progressivity rates would be calculated. The first progressivity surcharge would be based on oil, Cook Inlet gas, and gas used in state. The second progressivity surcharge would be calculated based on gas other than Cook Inlet gas and gas used in state. The bill instructs the Department of Revenue , to the extent possible, to provide for the allocation of lease expenditures in proportion to the gross value at the point of production for the oil and gas produced.

For purposes of the tax calculation, exploration expenditures and development expenditures for non-producing leases or units would be allocated within geographic areas based on the gross value at the point of production of existing oil and gas production.

The base tax rate remains unchanged at 25% and the progressivity structure remains unchanged at 0.4% per $1 of production tax value over $30 per BTU-equivalent barrel, then 0.1% per $1 of production tax value over $92.50 up to a maximum total base plus progressivity rate of 75%.

Revenue Impact
There would be no revenue impact during the time period included in this fiscal note as gas that is produced in Cook Inlet or used in state is not impacted by this bill.

Under the current ACES system without the separate progressivity calculations, the state may receive less revenue with oil production and major gas sales, compared to oil production alone. This effect is due primarily to lower value gas diluting the progressivity surcharge on higher value oil under a combined tax. Under this bill, once major North Slope gas sales begin, exported gas will be subject to the separate progressivity calculation. Our modeling suggests that under this bill, and with addition of major gas sales to oil production, state revenue would be equal to or higher than revenue with oil only.

Additionally, this bill would generally increase revenue to the state, due to the increased taxes on oil, compared to the current tax system with a combined progressivity calculation, from major gas sales along with oil production. The amount of revenue increase is primarily dependent on oil and gas price and volume assumptions, along with some minor assumptions regarding expenditures and tariffs, but could be in excess of $1 billion per year.

Costs to Implement
With the change in tax structure, the department will need to develop comprehensive regulations, requiring an additional $330,000 for regulatory work and public participation in regulations. With passage of this bill in the 2012 legislative session, the workshop and public forum process would likely begin in the summer or fall of 2012, and the majority of the regulation costs would be incurred in FY 13. Aside from these one-time costs, the provisions of this bill can be implemented using existing staff and resources. Specific costs include the following:
$50,000 for contracted professional services for regulation consulting
$180,000 for regulations costs including Department of Law, public notice and registry
$100,000 for public forums for education of taxpayers and public participation, including preparation materials and legal support, and possibly travel.

LEGAL SERVICES

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MEMORANDUM January 20, 2012

SUBJECT: Sectional Summary for SB 167 (Work Order No. 27-LS1182\A)

TO: Senator Bert Stedman
Co-Chair of the Senate Finance Committee
Attn: Darwin Peterson

FROM: Emily Nauman EN
Legislative Counsel

You have requested a sectional summary of the above-described bill.

As a preliminary matter, note that a sectional summary of a bill should not be considered an authoritative interpretation of the bill and the bill itself is the best statement of its contents. If you would like an interpretation of the bill as it may apply to a particular set of circumstances, please advise.

Section 1 amends AS 29.60.850(b) to reference the new separate progressive tax on gas as a source of money that may be appropriated to the community revenue sharing fund. (The "community revenue sharing fund" was established in AS 29.60.850(a) "for the purpose of making community revenue sharing payments to municipalities, reserves, and communities for any public purpose.")

Section 2 amends AS 43.55.011(e) to make separate references to the monthly progressive taxes on oil and gas. (The progressive tax on oil, gas produced in Cook Inlet, and gas produced elsewhere and used in the state is in AS 43.55.011(g). The progressive tax on other gas is in AS 43.55.011(p).)

Section 3 amends AS 43.55.011(g) to have the tax rate determined using the production tax values of oil and the production tax values on a BTU equivalent basis of gas produced in Cook Inlet and gas produced elsewhere and used in the state. Applies the tax rate only to that oil and gas production. Makes no change in the tax rates or the range of production tax values within which the two tax rates apply.

Section 4 adds new subsection (p) to AS 43.55.011. Provides for a progressive tax applicable to gas production that is not included in AS 43.55.011(g) as amended in sec. 3 of the bill. Provides that the tax rate is applied to the production tax value of a BTU equivalent of gas. Uses the same tax rates and ranges of production tax values as AS 43.55.011(g) under current law.

Section 5 repeals and reenacts AS 43.55.020(a) and describes the determination of the amount of a monthly installment payment for production taxes when the progressive tax

on oil, Cook Inlet gas, and other gas used in the state, and the progressive tax applicable to other gas are determined separately.

Section 6 amends AS 43.55.020(d), relating to a settlement with the royalty owner, by adding references to the progressive tax on the gas to which AS 43.55.011(p) is applicable.

Section 7 amends AS 43.55.160(a), relating to the determination of the production tax value of oil and gas, by providing the means for determining the production tax value of oil and the production tax value of gas separately. Reorders the subparagraphs so that the subparagraphs related to the production tax value of gas produced outside of Cook Inlet and other gas not used in the state are at the end.

Section 8 adds new subsections (f), (g), and (h) to AS 43.55.160. AS 43.55.160(f) defines producer's lease expenditures, for purposes of (g). AS 43.55.160(g) directs producer's lease expenditures to be allocated between the production of oil and the production of gas as directed by regulation established by the department. AS 43.55.160(h) breaks out and defines areas of the state for the purposes of (f) and (g).

Section 9 amends AS 43.55.165(h), relating to the requirement that the Department of Revenue adopt regulations for allocating lease expenditures, by requiring that the Department of Revenue consider allocating lease expenditures in proportion to the gross value at the point of production of oil produced and gas produced from each lease or property.

Section 10 adds new subsection AS 43.55.170(d), which is similar to the amendment to AS 43.55.165(h) in sec. 8 but is applicable to allocating adjustments to lease expenditures. Directs the Department of Revenue to consider allocating adjustments in proportion to the lease expenditures allocated to the production of oil and the production of gas under regulations adopted by the department under AS 43.55.165(h).

Section 11 requires a producer that underpays an installment payment after December 31, 2011 and before the effective date because of the retroactive application of the new progressive tax section to pay the amount of the underpayment on the date the first installment payment is due after the effective date of the bill.

Section 12 makes regulations related to the progressive tax provisions of the bill -- secs. 2 - 5, 7 and 8 -- retroactive to January 1, 2012.

Section 13 makes the progressive tax provisions of the bill -- secs. 2 - 5, 7 and 8 -- retroactive to January 1, 2012.

Section 14 makes the bill take effect immediately.

ELN:ljw
12-029.ljw

"Decoupling" of Oil and Gas for Production Tax Purposes

Presentation to the
Senate Finance Committee
January 27, 2012
Alaska Department of Revenue

Overview

- How Alaska's production tax works
- What is "decoupling"
- Why decouple?
- Decoupling Issues
- History: SB 305 in 2010

How Alaska's Production Tax Works

- Company specific tax
- Based on Production Tax Value (PTV)
  - Market price – Transportation Costs = Gross Value at Point of Production (GVPP)
  - GVPP – Lease Expenditures = Production Tax Value (PTV)
- Tax Rate
  - Base tax rate of 25% of "production tax value"
  - Progressivity applies when PTV is over $30 / BOE, and increases rate by 0.4% for each $1 of PTV over $30 / BOE
  - Example: At $50 / BOE PTV, tax rate is 33% *(25% + 0.4% * $20)*
  - At $92.50 / BOE progressivity changes to 0.1% per $1 of PTV

FY 11 Production Tax Calculation

	Per Barrel	Barrels	Value ($ million)
Avg ANS Oil Price ($/bbl) & Daily Production (bbls)	$94.49	602,723	$56.9 / day
Annual Production (bbl)			
Total Annual Production/Value		**219,993,895**	**$20,786.7**
Royalty and Federal barrels		(29,505,505)	($2,787.9)
Taxable barrels		**190,488,390**	**$17,998.8**
Downstream (Transportation) Costs ($/bbl)			
ANS Marine Transportation	($2.45)		
TAPS Tariff	($4.02)		
Other	($0.70)		
Total Transportation Costs	**($7.17)**	**190,488,390**	**($1,365.8)**
Lease Expenditures			
Deductible Operating Expenditures	($13.22)		($2,517.4)
Deductible Capital Expenditures	($8.52)		($1,622.9)
Total Lease Expenditures	**($21.74)**	**190,488,390**	**($4,140.3)**
Production Tax Value (PTV)			**$12,492.6**
Production Tax			
Base Tax (25%*PTV)			$3,123.3
Production Tax Value per barrel	$65.58		
Progressive Tax = (14.2% * PTV)			$1,778.1
Total Tax Due before credits			**$4,901.2**
Credits Applied Against Taxes			($400.0)
Total Tax after credits			**$4,501.28**

Source: Department of Revenue Fall 2011 Revenue Sources Book, Appendix D

This simple model assumes constant production, price, and expenditures for the entire year; results will differ from our larger model and forecast.

The per-barrel expenditures shown are per taxable barrel and do not reflect expenditures per all barrels produced.

What is "decoupling"

- **Under current law, gas production from major gas sales would be converted to "barrel of oil equivalent" and taxed in the same calculation as oil***
- **"Decoupling" would calculate oil and gas tax for major gas sales separately.**

***special provisions exist currently that extend special tax rates to Cook Inlet Gas, and gas for in-state use, until 2022. However these types of production are still included in the statewide "progressivity" calculation**

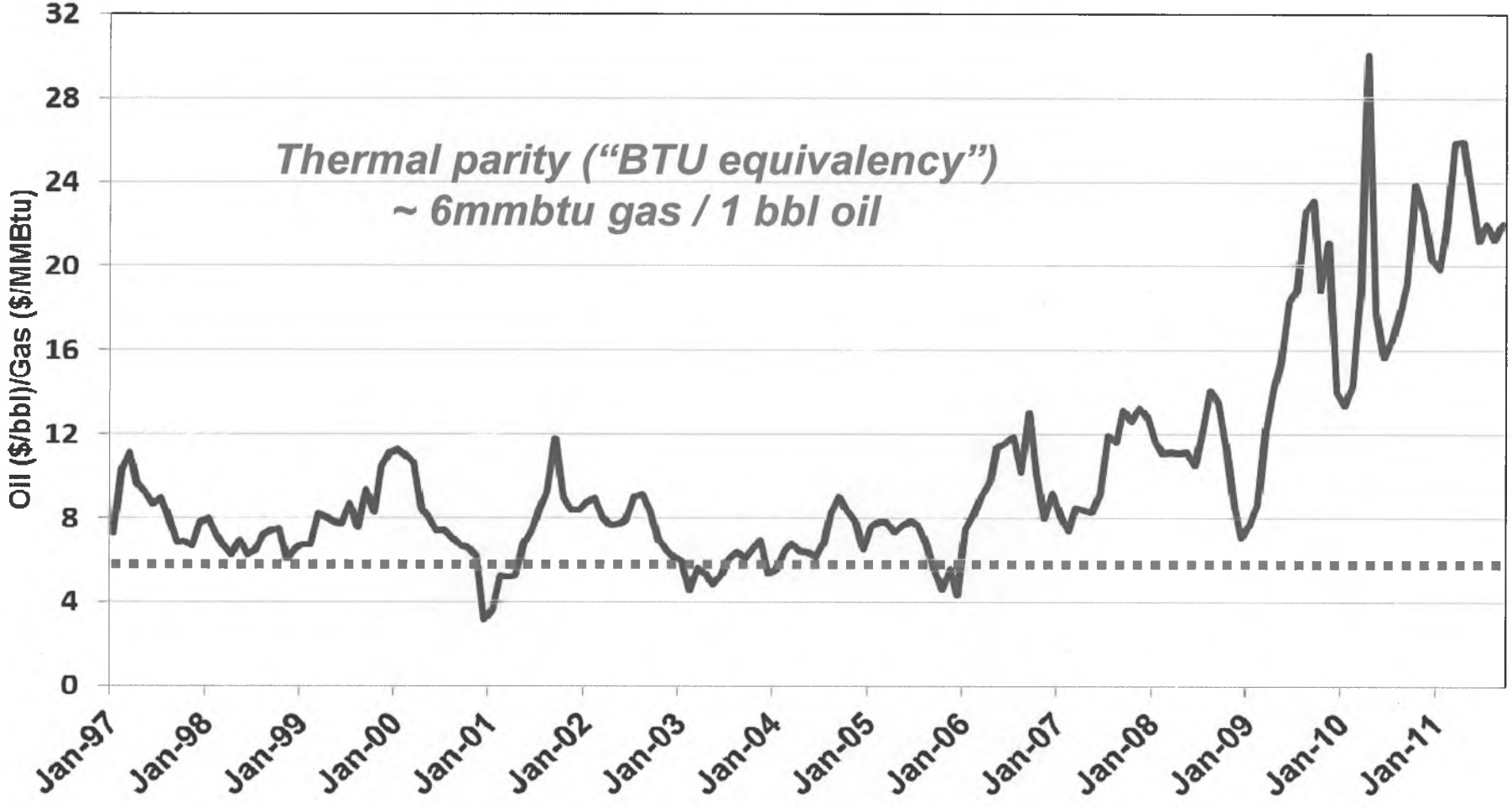
Conceptually, decoupling is simple…

Coupled	Decoupled	
Oil & Gas Destination Value	Oil Destination Value	Gas Destination Value
- Oil & Gas transportation costs	- Oil transportation costs	- Gas transportation costs
= Oil & Gas GVPP	= Oil GVPP	= Gas GVPP
- Oil & Gas Upstream Expenditures	- Oil Upstream Expenditures	- Gas Upstream Expenditures
= Oil & Gas Production Tax Value	= Oil Production Tax Value	= Gas Production Tax Value
X Tax Rate	X Tax Rate	X Tax Rate
= Oil & Gas Tax Liability	**= Oil Tax Liability**	**= Gas Tax Liability**

Why decouple?

- Oil is different than gas (different uses, different resource endowments, different substitutes)
- Decoupling allows tax policy to be crafted specific to oil or gas production
- Oil is currently worth more than gas (per unit of energy)
- Gas value relative to oil varies greatly over time

Oil price ≠ 6 * gas price



Why decouple?

- Including lower value gas in the same tax calculation as higher value oil reduces the average value per BOE and therefore reduces the progressive tax rate on oil
- By taxing oil and gas together, gas production reduces oil taxes even though oil operations are unaffected
- This has been called the "flip the switch" problem… as soon as major gas sales begin, state tax revenue could drop significantly, under certain price scenarios (including current prices!)

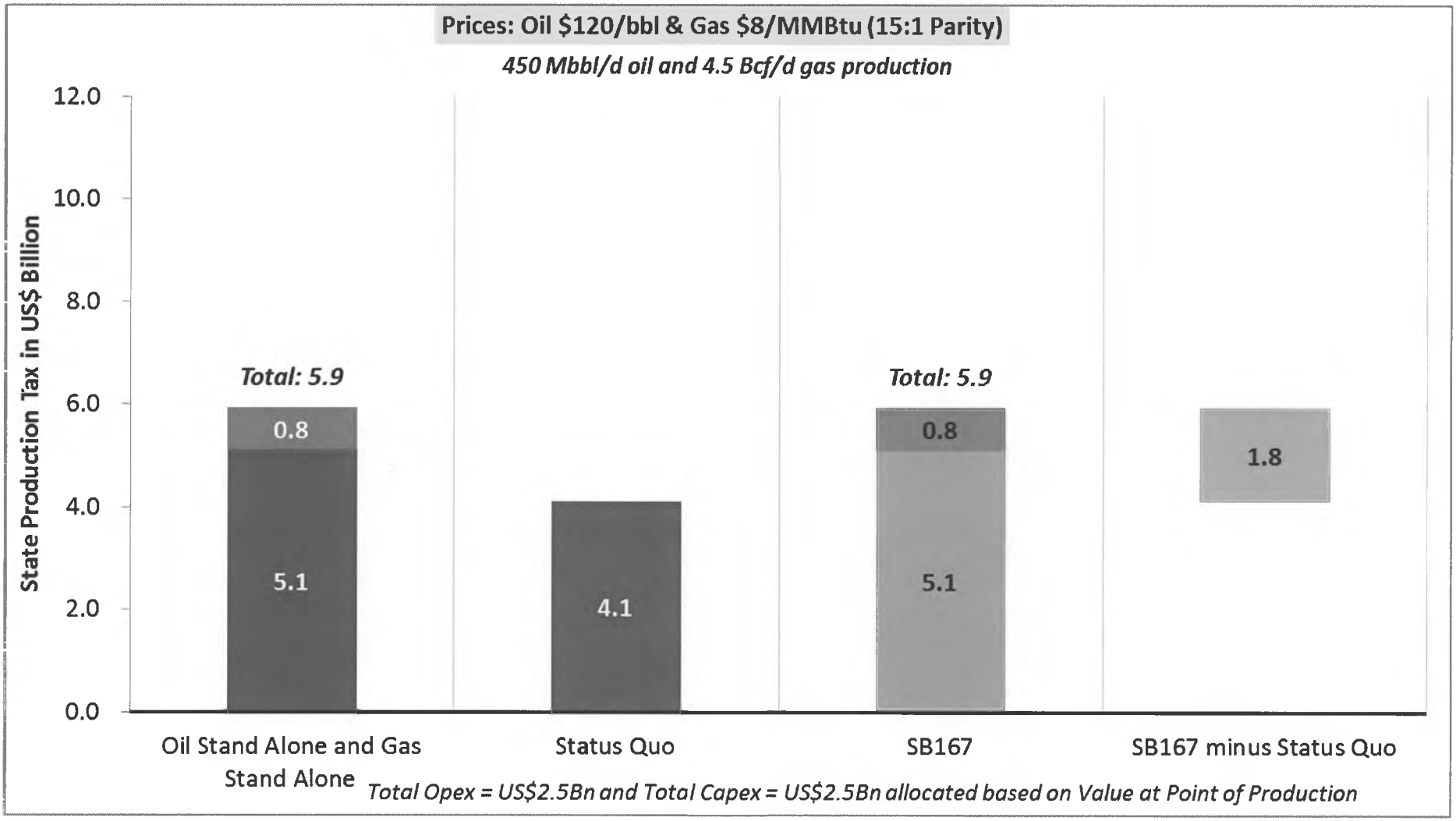
Numerical Examples : Assumptions

- One Year "Income Statement" model
- DOR 2012 Profiles
  - Oil: 450 Mbbl/d
  - Gas: 4.5 Bcf/d
- Conversion
  6 Mcf = 1 boe

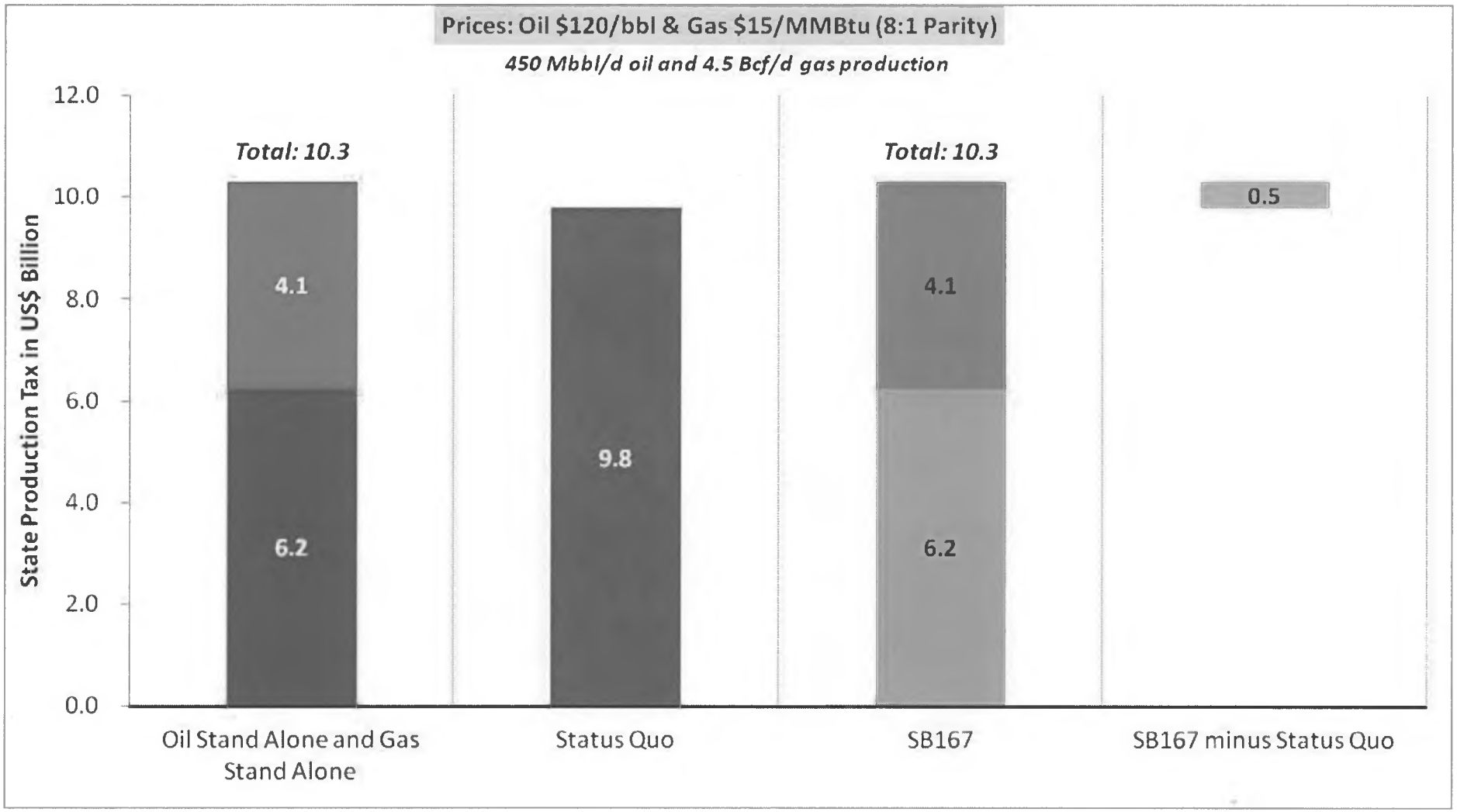
bbl/d: Barrels of oil per day
Mbbl/d: Thousand barrels of oil per day
boe: Barrel of oil equivalent
Bcf/d: Billion cubic feet per day
Mcf: Thousand cubic feet
MMBtu: Million British thermal units

- Costs allocation
  - Opex: $2,500,000,000
  - Capex: $2,500,000,000
  - Costs split on the basis of gross value at the Point of Production (PoP)
- Transportation
  - Oil: $11.00/bbl
  - Gas: $4.5/MMBtu

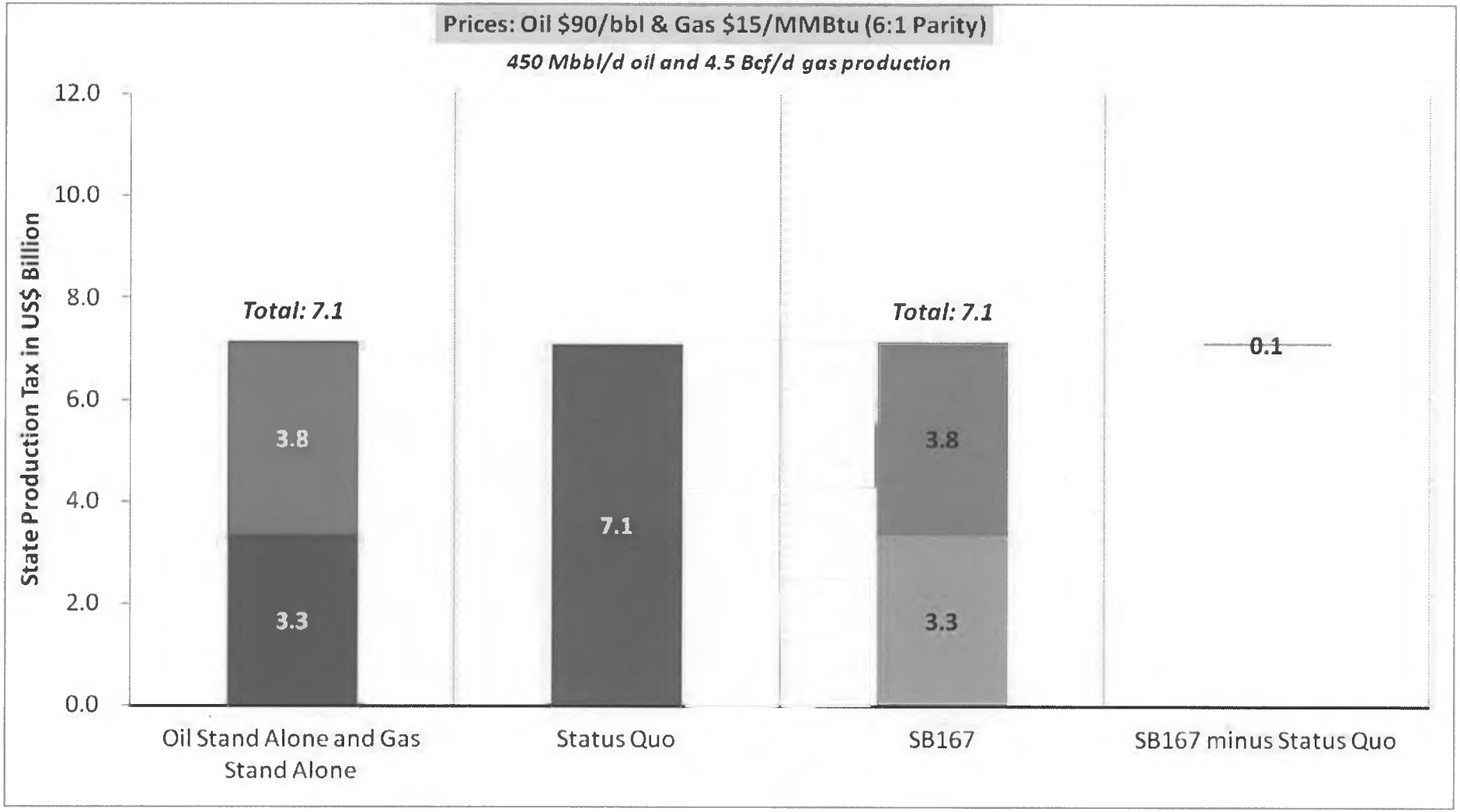
At high parity, SB 167 > Status Quo



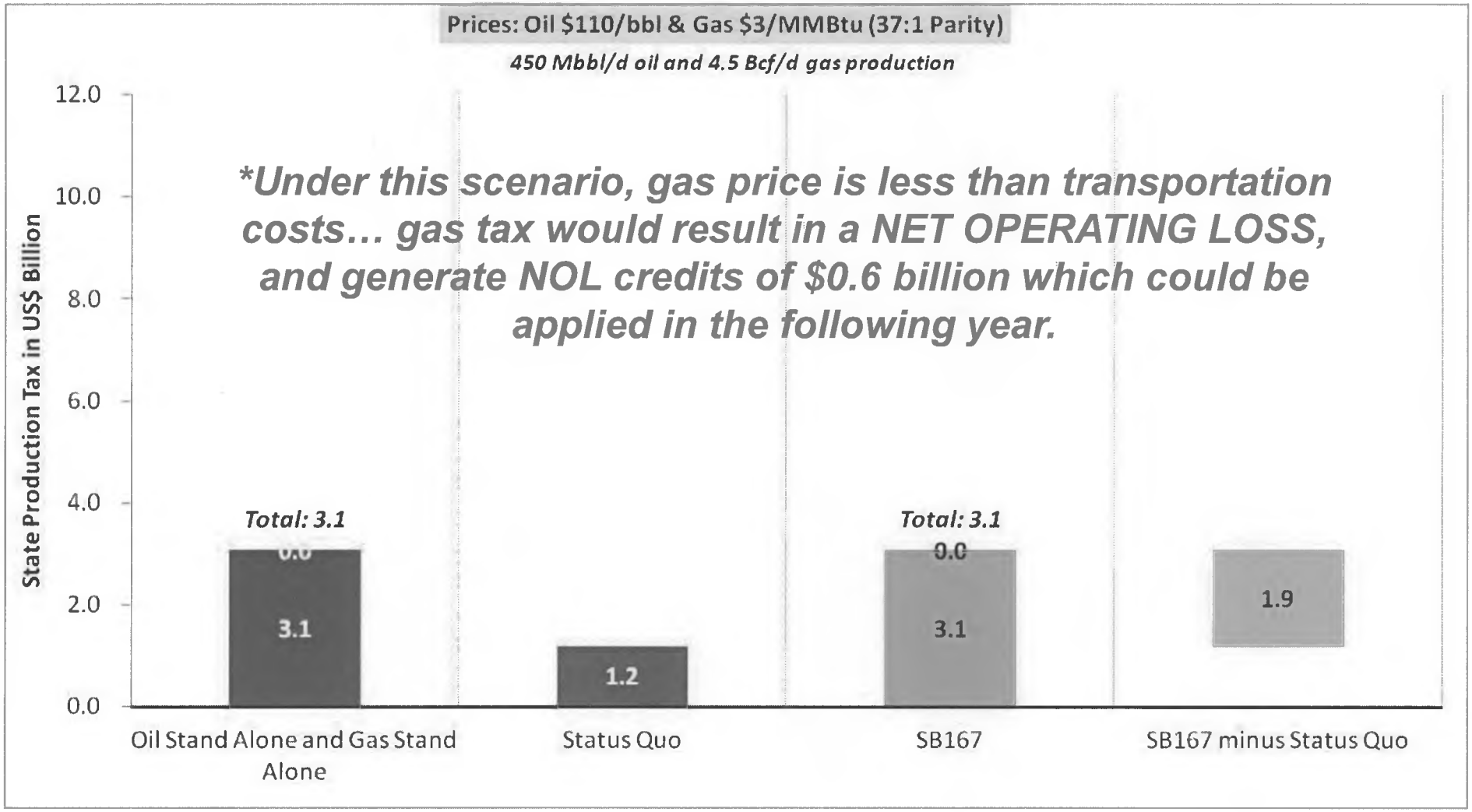
At lower parity, SB 167 > Status Quo



At 6:1 parity, SB 167 ≈ Status Quo



At today's prices…



Observations

- SB167 provides for a state share similar to the status quo when gas prices are relatively high (less dilution of progressivity under status quo).
- SB167 imposes a higher state share compared to the status quo when gas prices are relatively low.
- SB167 generates revenue equal to or greater than "oil stand alone" revenue in all cases
  - But at very low gas prices NOL credits are generated which can be applied against oil tax liabilities in the following year…

Decoupling Issues: Cost Allocation

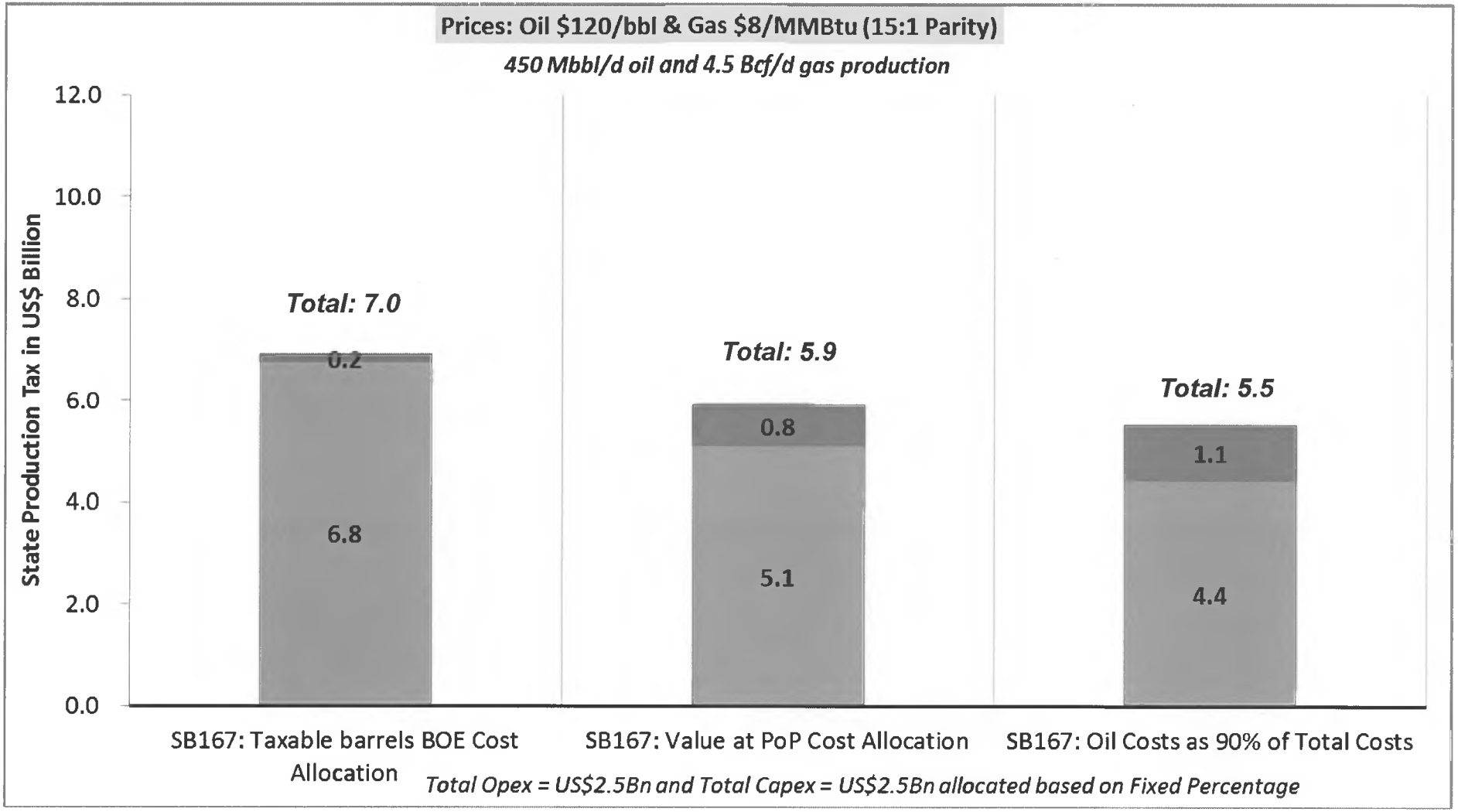
- How costs are allocated between oil and gas has a significant impact on overall taxes owed
- Because oil and gas are generally produced together, it is not easy or straight forward to determine the costs "applicable to the gas [or oil] produced"
- The cost allocation method could result in uncertainty, disputes, and delays
- Cost allocation should be specified in the statute, and is a very important policy decision

Cost Allocation Examples

	Oil	Gas	Total
Production (Mmboe)	164	274	438
Gross Value at PoP (US$MM) - $120 and 15:1	17,903	5,749	23,652
Split Based on BOE (%)	38%	63%	100%
Cost Allocation (US$MM)	1,875	3,125	5,000
Split Based on Gross Value at Pop (%)	76%	24%	100%
Costs Allocation (US$MM)	3,785	1,215	5,000
Split Based on assumed "Actual" (%)	90%	10%	100%
Cost Allocation (US$MM)	4,500	500	5,000

- Assumes $120 / Bbl oil and $8 / MMBtu gas

Impact of Allocation Methods on SB167 Revenue



Some Other Decoupling Issues to Consider

- "Lock in" for gas committed at first open season
- Potential impact on current gas production
  - Cook Inlet gas
  - Gas used in state
  - Small quantities of other gas production (OCS)
- Complexity of administration for state, taxpayers
- Specify gas tax now or save for another session?
- Balance between desire for revenue and making a major gas project attractive
- Treatment of Net Operating Loss for gas

History: SB 305 in 2010

- Decoupled oil and gas for purposes of a major gas sale (solving the "flip the switch" problem)
- Held harmless most current gas production
- Provided one tax calculation for oil, Cook Inlet gas, and gas used in-state
- Provided a separate tax calculation for non-Cook Inlet gas that is exported out of state
- Specified GVPP cost allocation "to the extend possible"

- Extensive analysis by Legislature, administration, consultants
- Numerous technical issues raised and addressed
- Final bill is the basis of this year's SB 167

History: SB 305 in 2010

- Passed Senate and House, vetoed by Governor
- 3 reasons cited in veto message:
  1. Decoupling, on its own, represents an overall tax increase
  2. Changing the tax during the pipeline open seasons (AGIA, Denali) creates uncertainty
  3. Change not needed at this time because Legislature retains ability to make changes to tax laws… any tax locked in for firm commitments at the first AGIA open season only applies to gas, not oil.

- 2 years later…
  - The AGIA first open season is complete, the Denali project has been suspended
  - Decoupling has now been "on the table" for two years
  - Opportunity to reconsider decoupling in context of the broader discussion of increasing oil and gas production

State of Alaska
Department of Revenue

Commissioner Bryan Butcher

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The Honorable Lyman Hoffman
The Honorable Bert Stedman
Co-Chairs, Senate Finance Committee
Alaska State Senate
Juneau, Alaska 99801

February 15, 2012

RE: Follow up questions from January 27, 2012 SB 167 Presentation

Dear Senators Stedman and Hoffman:

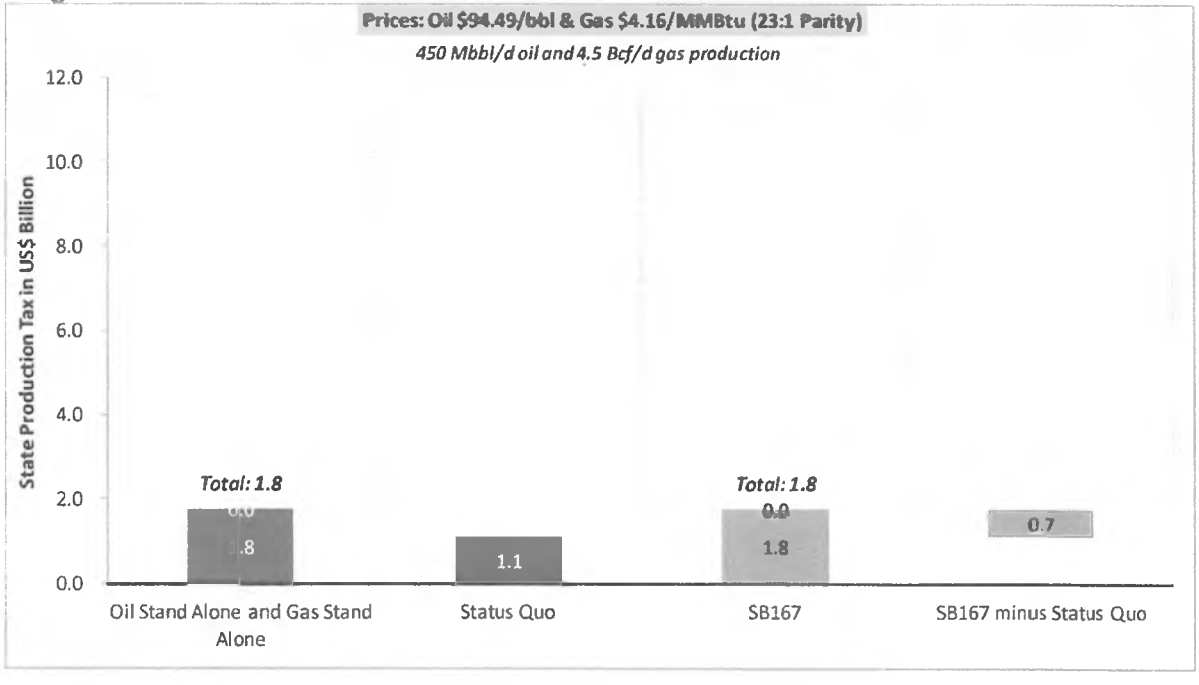
The purpose of this correspondence is to respond to questions raised during our January 27, 2012 presentation to the Senate Finance Committee regarding Senate Bill 167. The three follow-up questions and our responses follow.

1) **Provide information about other jurisdictions that tax oil and gas together.**

The discussion of decoupling oil and gas for taxation purposes becomes an issue primarily under fiscal regimes that tax net profits of oil and gas production. Further, the decoupling of oil and gas for taxation purposes is exacerbated when production tax *rate* is predicated on profit per btu-equivalent barrel. Alaska has a net profits production tax with a tax rate that is dependent on profit btu-equivalent barrel. Among a group of international peers to Alaska that have tax and royalty fiscal regimes, three countries have been identified as having a tax on net profits of production – Australia, Norway, and the United Kingdom. Of these three, all of them tax oil and natural gas together under the same fiscal terms. None of them, however, have a tax rate that is dependent on the profit per btu-equivalent barrel, such as Alaska does. Therefore, any additional profit, whether it be on oil or gas, is taxed at the tax rate determined for the country. For example, Norway assesses its hydrocarbon tax of 50% on the net profit of all oil and gas produced, regardless of the level of profit.
Based on our review of comparable jurisdictions, we did not identify any with similar oil and gas decoupling issues.

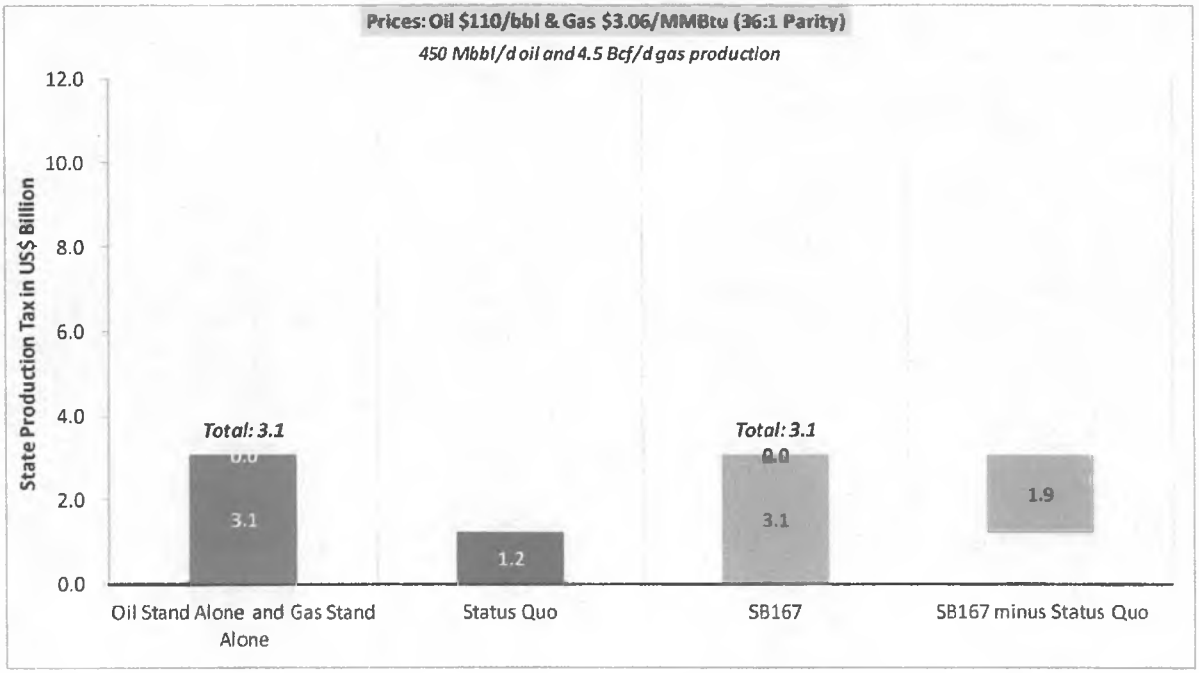
2) **Using the scenario laid out on slide 10 of the presentation, show what state revenue would have been under status quo and SB 167 using actual FY 2011 prices.**

For the following analysis we used the average FY 2011 Henry Hub gas price of $4.16 per million Btu and the average FY 2011 ANS oil price of $94.49. Similar to slide 14, as corrected, this scenario assumes a gas price that is lower than the transportation cost for the gas.



3) **Show three years of revenue estimates for slide 14.**

This question was posed as a way to clarify the treatment of the loss to the producers in a situation where gas destination value is lower than transportation costs. With the correction to slide 14 mentioned above, there is no longer a timing issue between years, and the revenue impact would be the same for all three years if prices of $110 per barrel for oil and $3 per million Btu for gas existed for all three years. The chart is shown below and would be the same for all three years.

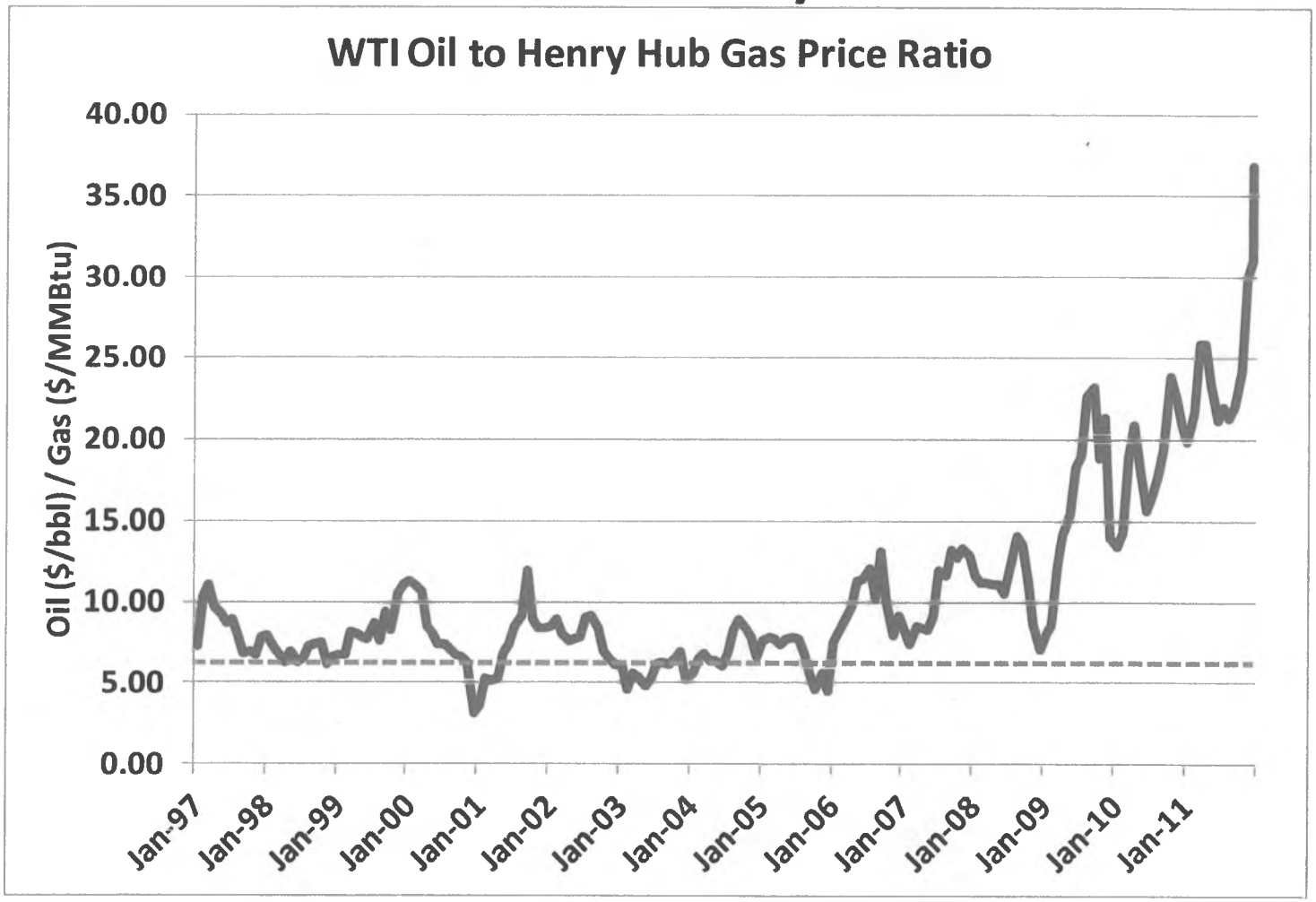


I hope these answers fully address your questions.

Sincerely,

Bruce Tangeman
Deputy Commissioner

Oil / Gas parity
WTI / Henry Hub



Based on monthly average prices through January 2012

State of Alaska
Department of Revenue

Commissioner Bryan Butcher

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February 13, 2012

The Honorable Lyman Hoffman
The Honorable Bert Stedman
Co-Chairs, Senate Finance Committee
Alaska State Senate
Juneau, Alaska 99801

RE: Corrected Version of January 27, 2012 SB 167 Presentation

Dear Senators Stedman and Hoffman:

The purpose of this correspondence is to issue a corrected version of our January 27, 2012 presentation to the Senate Finance Committee regarding Senate Bill 167.

This corrected presentation removes narrative on slide 14 and slide 15 regarding treatment of losses for natural gas under SB 167 that are due entirely to transportation costs exceeding the destination value of the gas.

Slide 14 presented estimates of state revenue under status quo and SB 167, assuming a major gas sale with oil and gas prices around current prices of $110 / barrel and $3 / mmBTU, respectively. We assumed a gas tariff of $4.50 / mmBTU, and gas sales of 4.5 Bcf / day. Transportation costs (the lower of actual or reasonable) are subtracted from the destination value (netted out) to calculate the Gross Value at the Point of Production (GVPP). Under this scenario, gas does not have a positive GVPP value. The producers would realize a loss on the gas of approximately $2.46 billion, due entirely to transportation costs exceeding the destination value of the gas. Our presentation had assumed that the negative GVPP could be converted to a 25% Net Operating Loss credit under AS 43.55.023(b). However that assumption was not correct because the NOL credit under AS 43.55.023(b) is applicable only to "the amount of a producer's or explorer's adjusted lease expenditures under AS 43.55.165 and AS 43.55.170 for a previous calendar year that was not deductible in calculating production tax values for that calendar year."

We are forwarding a corrected presentation that revises slide 14 and related narrative on slide 15. This is just one example of the many technical issues that can arise when "decoupling" some oil

and gas for production tax purposes. Decoupling is a complex subject and we look forward to continued dialogue and public process on this topic.

Sincerely,

Bryan Butcher
Commissioner

Attachment: Revised SB 167 presentation from January 27, 2012

Presentation to the
Senate Finance Committee
January 27, 2012
Alaska Department of Revenue

Revised February 2, 2012 - with corrected Slide 14 and 15

Overview

- How Alaska's production tax works
- What is "decoupling"
- Why decouple?
- Decoupling Issues
- History: SB 305 in 2010

How Alaska's Production Tax Works

- Company specific tax
- Based on Production Tax Value (PTV)
  - Market price – Transportation Costs = Gross Value at Point of Production (GVPP)
  - GVPP – Lease Expenditures = Production Tax Value (PTV)
- Tax Rate
  - Base tax rate of 25% of "production tax value"
  - Progressivity applies when PTV is over $30 / BOE, and increases rate by 0.4% for each $1 of PTV over $30 / BOE
  - Example: At $50 / BOE PTV, tax rate is 33% *(25% + 0.4% * $20)*
  - At $92.50 / BOE progressivity changes to 0.1% per $1 of PTV

FY 11 Production Tax Calculation

	Per Barrel	Barrels	Value ($ million)
Avg ANS Oil Price ($/bbl) & Daily Production (bbls)	$94.49	602,723	$56.9 / day
Annual Production (bbl)			
Total Annual Production/Value		**219,993,895**	**$20,786.7**
Royalty and Federal barrels		(29,505,505)	($2,787.9)
Taxable barrels		**190,488,390**	**$17,998.8**
Downstream (Transportation) Costs ($/bbl)			
ANS Marine Transportation	($2.45)		
TAPS Tariff	($4.02)		
Other	($0.70)		
Total Transportation Costs	**($7.17)**	**190,488,390**	**($1,365.8)**
Lease Expenditures			
Deductible Operating Expenditures	($13.22)		($2,517.4)
Deductible Capital Expenditures	($8.52)		($1,622.9)
Total Lease Expenditures	**($21.74)**	**190,488,390**	**($4,140.3)**
Production Tax Value (PTV)			**$12,492.6**
Production Tax			
Base Tax (25%*PTV)			$3,123.3
Production Tax Value per barrel	$65.58		
Progressive Tax = (14.2% * PTV)			$1,778.1
Total Tax Due before credits			**$4,901.2**
Credits Applied Against Taxes			($400.0)
Total Tax after credits			**$4,501.28**

Source: Department of Revenue Fall 2011 Revenue Sources Book, Appendix D
This simple model assumes constant production, price, and expenditures for the entire year; results will differ from our larger model and forecast.
The per-barrel expenditures shown are per taxable barrel and do not reflect expenditures per all barrels produced.

What is "decoupling"

- **Under current law, gas production from major gas sales would be converted to "barrel of oil equivalent" and taxed in the same calculation as oil***
- **"Decoupling" would calculate oil and gas tax for major gas sales separately.**

***special provisions exist currently that extend special tax rates to Cook Inlet Gas, and gas for in-state use, until 2022. However these types of production are still included in the statewide "progressivity" calculation**

Conceptually, decoupling is simple…

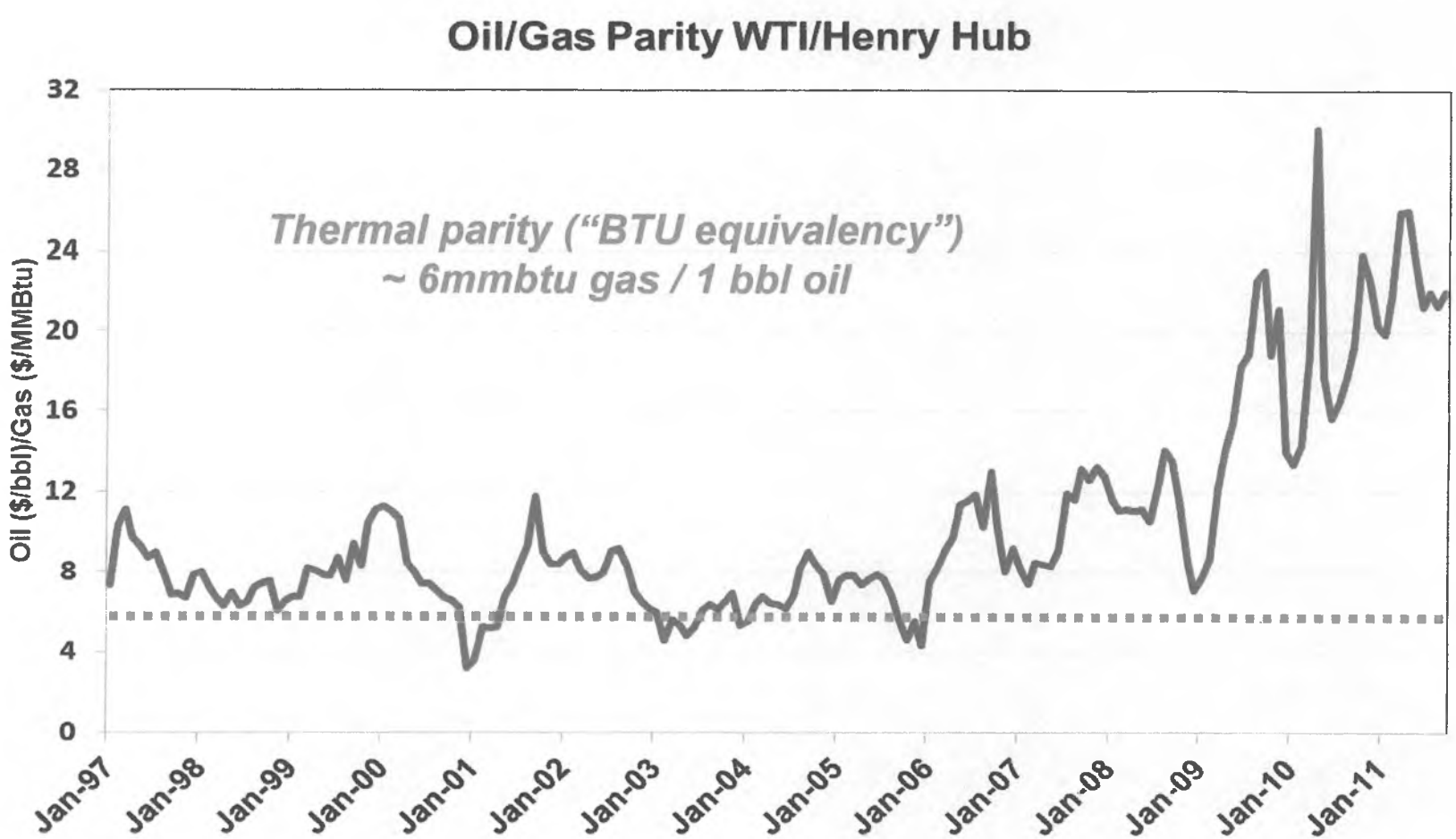
Coupled	Decoupled	
Oil & Gas Destination Value	Oil Destination Value	Gas Destination Value
- Oil & Gas transportation costs	- Oil transportation costs	- Gas transportation costs
= Oil & Gas GVPP	= Oil GVPP	= Gas GVPP
- Oil & Gas Upstream Expenditures	- Oil Upstream Expenditures	- Gas Upstream Expenditures
= Oil & Gas Production Tax Value	= Oil Production Tax Value	= Gas Production Tax Value
X Tax Rate	X Tax Rate	X Tax Rate
= Oil & Gas Tax Liability	**= Oil Tax Liability**	**= Gas Tax Liability**

Why decouple?

- **Oil is different than gas (different uses, different resource endowments, different substitutes)**
- **Decoupling allows tax policy to be crafted specific to oil or gas production**

- **Oil is currently worth more than gas (per unit of energy)**
- **Gas value relative to oil varies greatly over time**

Oil price ≠ 6 * gas price



Why decouple?

- Including lower value gas in the same tax calculation as higher value oil reduces the average value per BOE and therefore reduces the progressive tax rate on oil
- By taxing oil and gas together, gas production reduces oil taxes even though oil operations are unaffected
- This has been called the "flip the switch" problem… as soon as major gas sales begin, state tax revenue could drop significantly, under certain price scenarios (including current prices!)

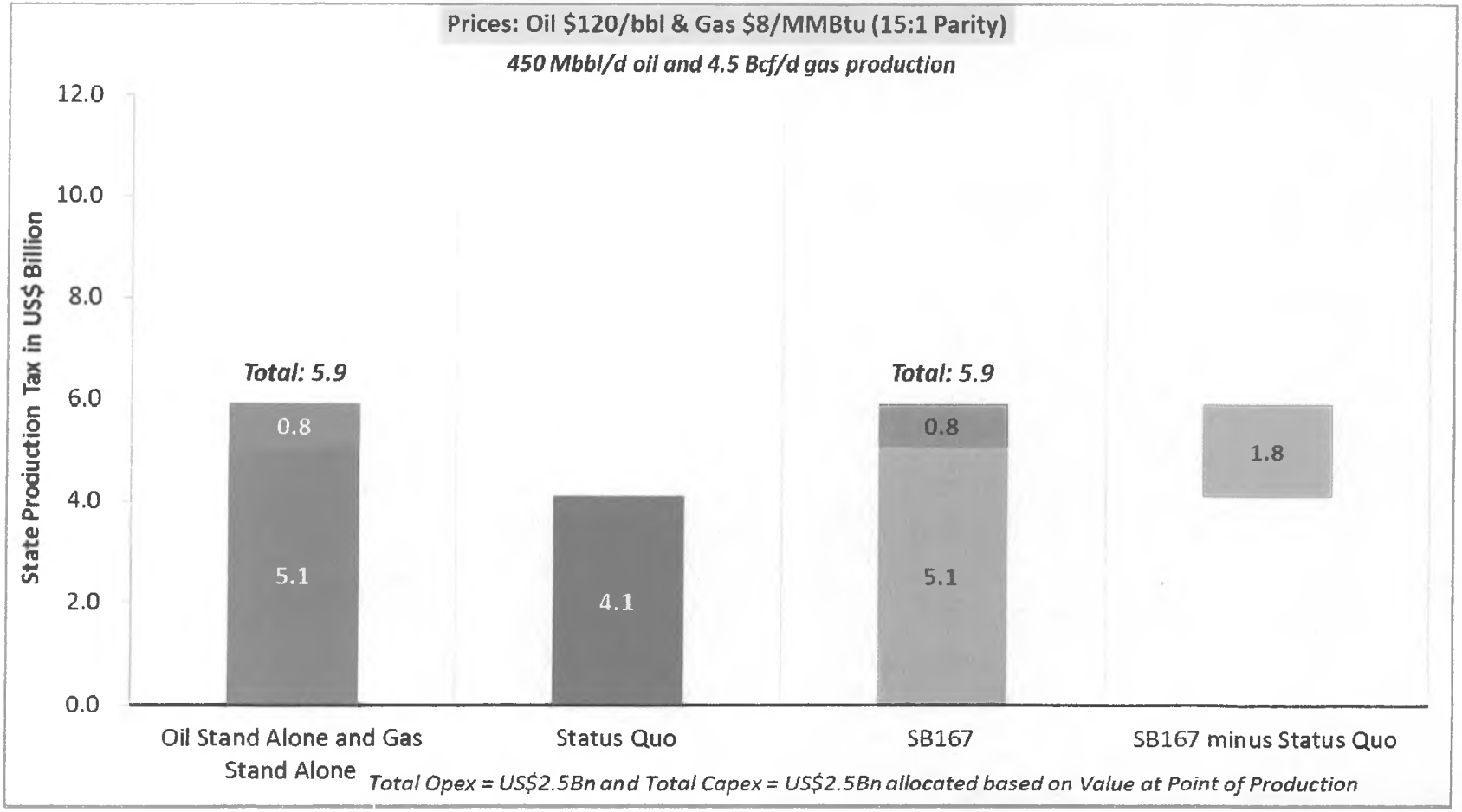
Numerical Examples : Assumptions

- **One Year "Income Statement" model**
- **DOR 2012 Profiles**
  - **Oil: 450 Mbbl/d**
  - **Gas: 4.5 Bcf/d**
- **Conversion**
  6 Mcf = 1 boe

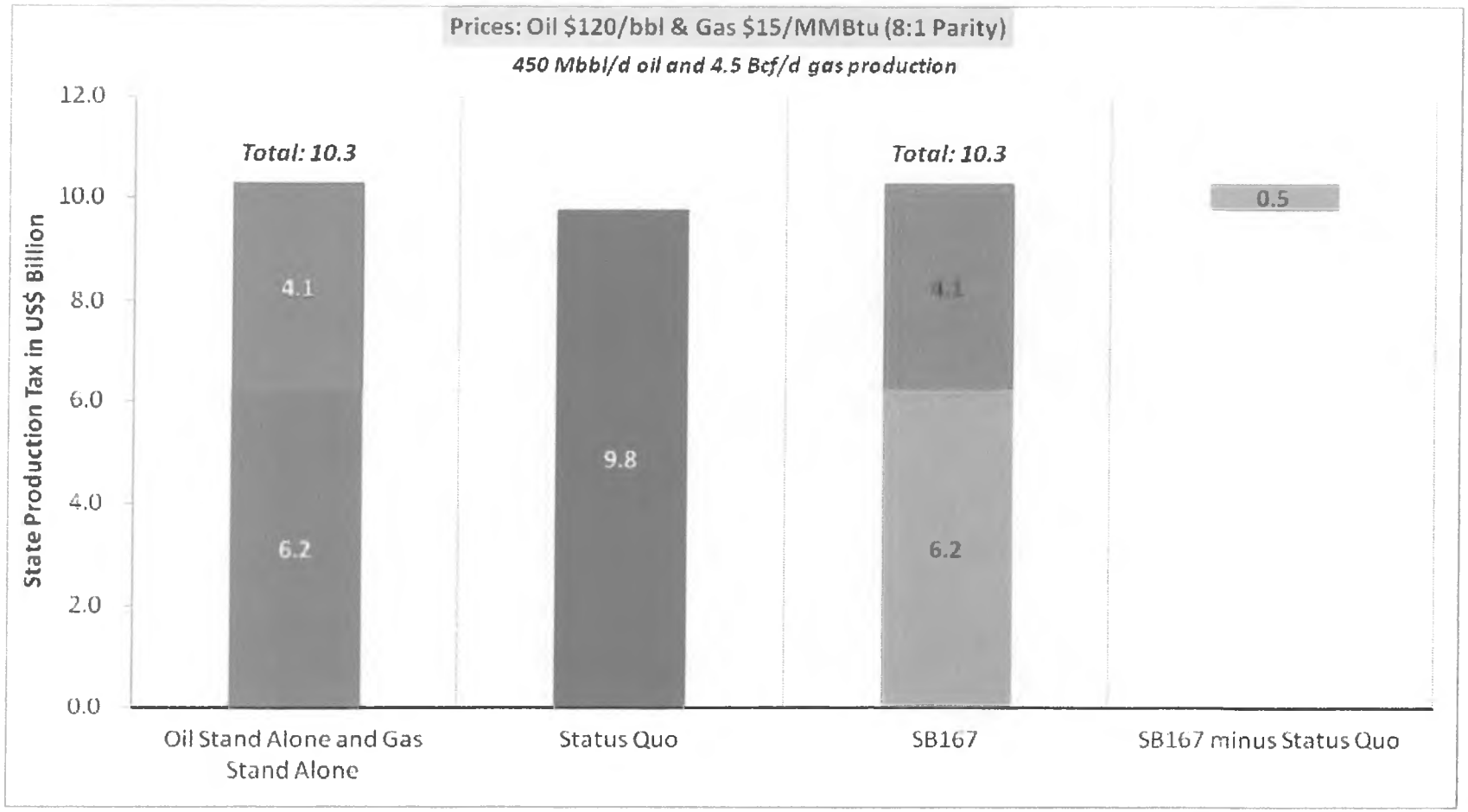
bbl/d: Barrels of oil per day
Mbbl/d: Thousand barrels of oil per day
boe: Barrel of oil equivalent
Bcf/d: Billion cubic feet per day
Mcf: Thousand cubic feet
MMBtu: Million British thermal units

- **Costs allocation**
  - **Opex: $2,500,000,000**
  - **Capex: $2,500,000,000**
  - **Costs split on the basis of gross value at the Point of Production (PoP)**
- **Transportation**
  - **Oil: $11.00/bbl**
  - **Gas: $4.5/MMBtu**

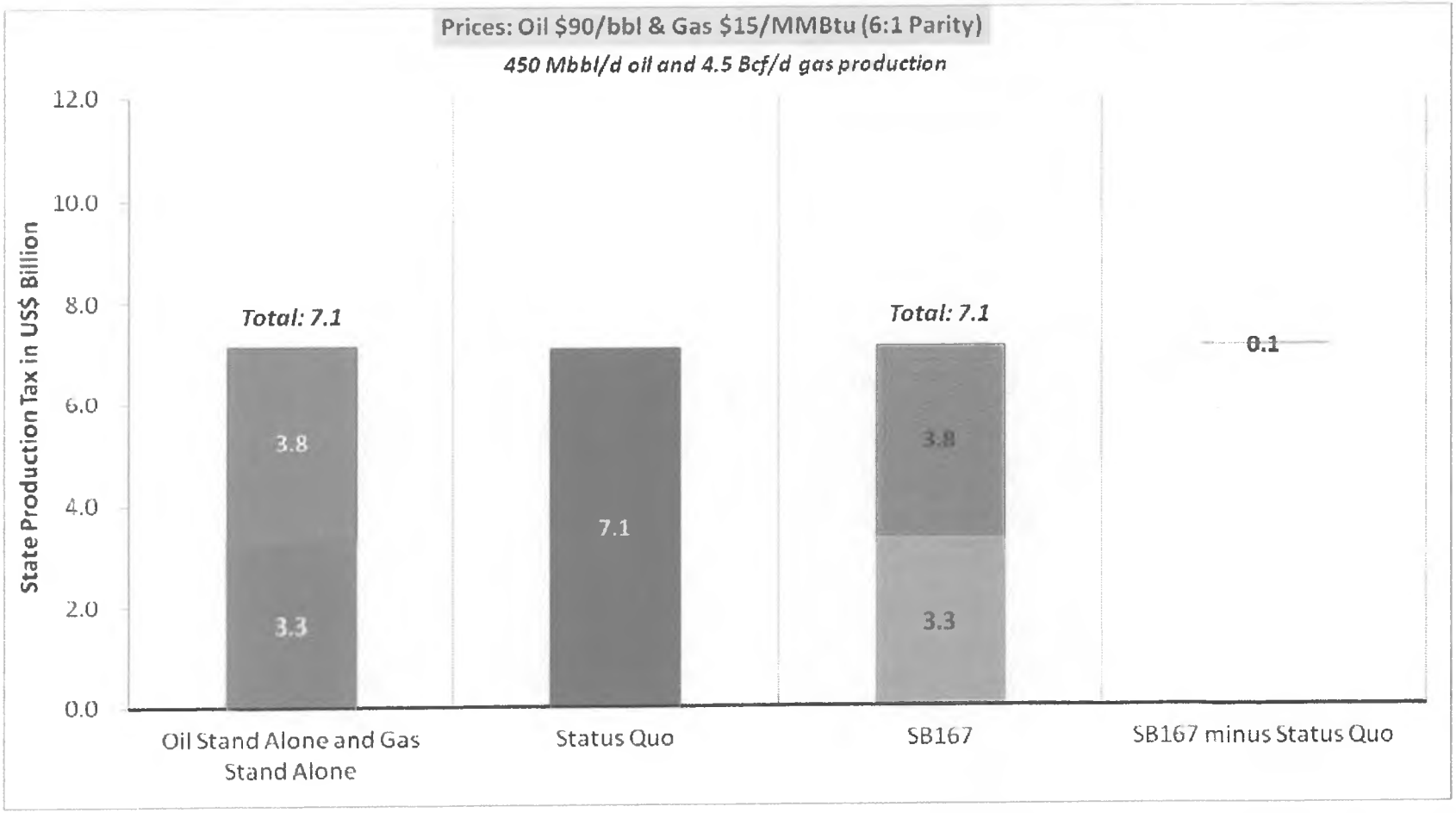
At high parity, SB 167 > Status Quo



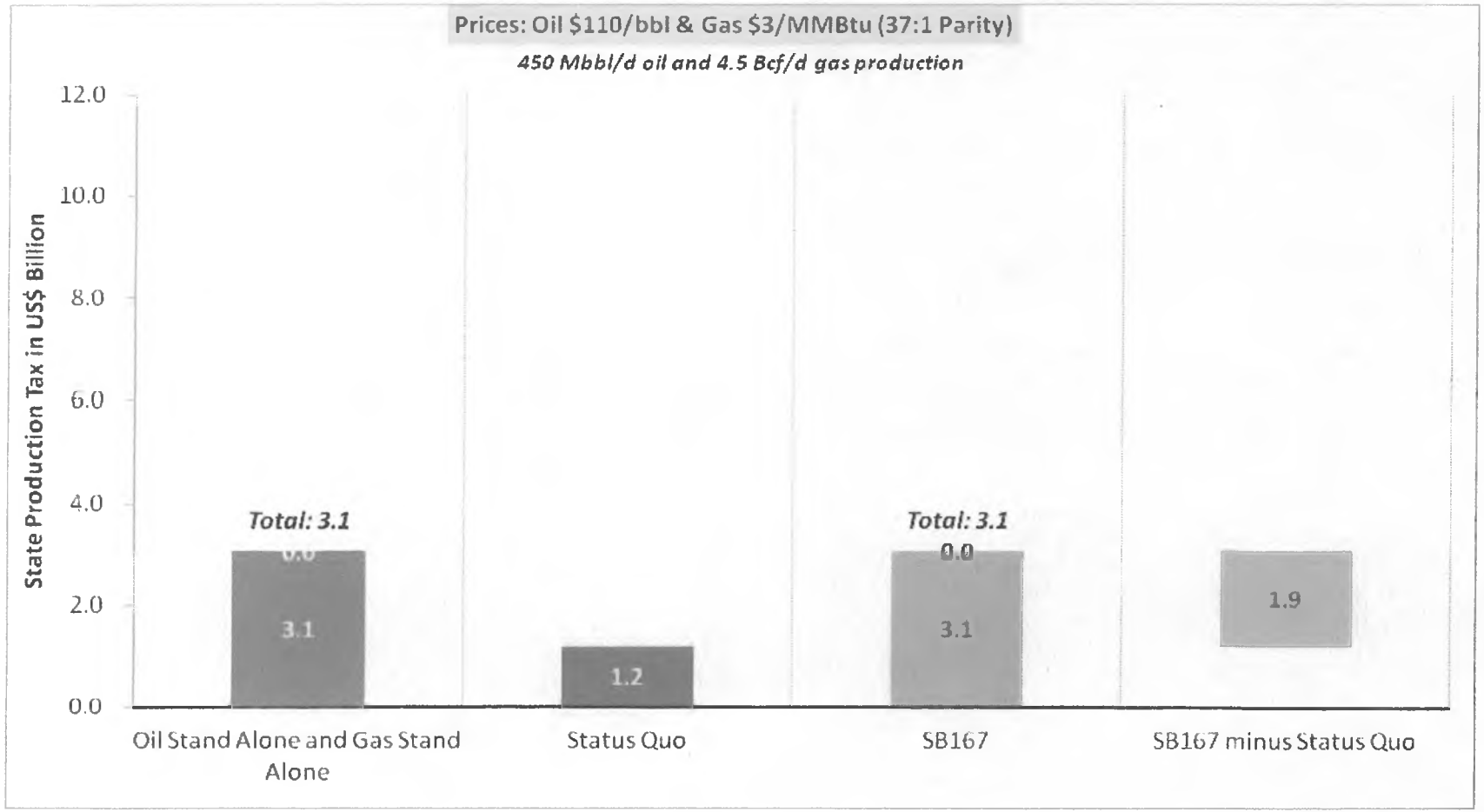
At lower parity, SB 167 > Status Quo



At 6:1 parity, SB 167 ≈ Status Quo



At today's prices…



Observations

- **SB167 provides for a state share similar to the status quo when gas prices are relatively high (less dilution of progressivity under status quo).**
- **SB167 imposes a higher state share compared to the status quo when gas prices are relatively low.**
- **SB167 generates revenue equal to or greater than "oil stand alone" revenue in all cases.**

Decoupling Issues: Cost Allocation

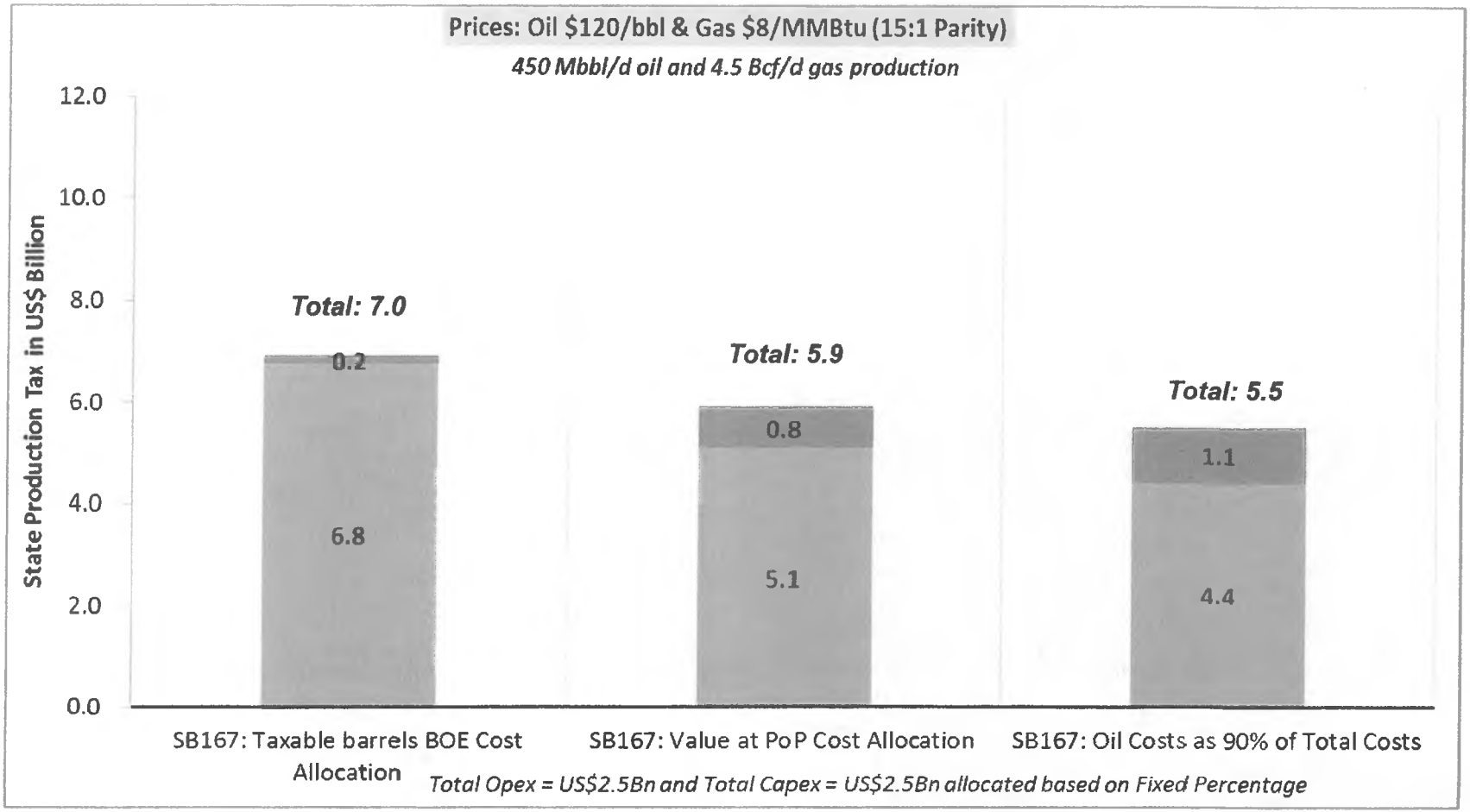
- How costs are allocated between oil and gas has a significant impact on overall taxes owed
- Because oil and gas are generally produced together, it is not easy or straight forward to determine the costs "applicable to the gas [or oil] produced"
- The cost allocation method could result in uncertainty, disputes, and delays
- Cost allocation should be specified in the statute, and is a very important policy decision

Cost Allocation Examples

	Oil	Gas	Total
Production (Mmboe)	164	274	438
Gross Value at PoP (US$MM) - $120 and 15:1	17,903	5,749	23,652
Split Based on BOE (%)	38%	63%	100%
Cost Allocation (US$MM)	1,875	3,125	5,000
Split Based on Gross Value at Pop (%)	76%	24%	100%
Costs Allocation (US$MM)	3,785	1,215	5,000
Split Based on assumed "Actual" (%)	90%	10%	100%
Cost Allocation (US$MM)	4,500	500	5,000

- Assumes $120 / Bbl oil and $8 / MMBtu gas

Impact of Allocation Methods on SB167 Revenue



Some Other Decoupling Issues to Consider

- **"Lock in" for gas committed at first open season**
- **Potential impact on current gas production**
  - **Cook Inlet gas**
  - **Gas used in state**
  - **Small quantities of other gas production (OCS)**
- **Complexity of administration for state, taxpayers**
- **Specify gas tax now or save for another session?**
- **Balance between desire for revenue and making a major gas project attractive**
- **Treatment of Net Operating Loss for gas**

History: SB 305 in 2010

- Decoupled oil and gas for purposes of a major gas sale (solving the "flip the switch" problem)
- Held harmless most current gas production
- Provided one tax calculation for oil, Cook Inlet gas, and gas used in-state
- Provided a separate tax calculation for non-Cook Inlet gas that is exported out of state
- Specified GVPP cost allocation "to the extend possible"

- Extensive analysis by Legislature, administration, consultants
- Numerous technical issues raised and addressed
- Final bill is the basis of this year's SB 167

History: SB 305 in 2010

- **Passed Senate and House, vetoed by Governor**
- **3 reasons cited in veto message:**
  1. **Decoupling, on its own, represents an overall tax increase**
  2. **Changing the tax during the pipeline open seasons (AGIA, Denali) creates uncertainty**
  3. **Change not needed at this time because Legislature retains ability to make changes to tax laws… any tax locked in for firm commitments at the first AGIA open season only applies to gas, not oil.**
- **2 years later…**
  - **The AGIA first open season is complete, the Denali project has been suspended**
  - **Decoupling has now been "on the table" for two years**
  - **Opportunity to reconsider decoupling in context of the broader discussion of increasing oil and gas production**

2 March 2010

To: Senate Finance Committee

Attn: Senator Bert Stedman, Co-Chairman

From: David Wood

Date: 2 March, 2010

Re: Answer to Question & Request Raised by Senator Thomas during My Testimony (25 February 2010) – Fiscal Years 2008 and 2009

The very pertinent and perceptive question asked earlier today by Senator Thomas sought information with respect to how might the gas dilution / cross subsidy effect identified in Alaska's current production tax rules have impacted the production taxes actually paid in recent periods had a gas line been in operation at the time?

In order to provide an indicative answer to this question I have taken the data for price, volume and costs (excluding Cook Inlet Gas) for fiscal years 2008 and 2009 (i.e. July 2007 to June 2008 and July 2008 to June 2009), which are available from the Alaska Department of Revenue (DOR), Fall 2008 and 2009 Revenues Sources Books (RSB), (Dec 2008and Dec 2009). These two periods encompass the wide range of oil prices that prevailed since the ACES rules were in place. The six tables attached (three for each fiscal period) to this document provide the necessary data and calculations to establish the impact of the cross subsidy effect.

Note that in this calculation the annual figures for production volumes and costs are distributed pro rata according to days / month across each month of the year. This assumption was necessary as DOR do not publish a monthly breakdown of the production tax calculation. This approximation is responsible for the small difference between the actual production tax paid and that calculated in the tables that follow. For fiscal year 2008 the calculated production tax shown in Table 1 is 2.7% higher than the actual production tax paid ($6867.3 million). For fiscal year 2009 the calculated production tax shown in Table 1 is 4.5% higher than the actual production tax paid ($3112.0 million). These slight differences are not considered significant in the context of the purpose of this analysis.

Fiscal Year 2008

Table 1 calculates the production tax for oil based on actual data showing the components of that calculation. As no gas is exported the calculations are based upon oil barrels only. This results in total production tax of **$ 7.462 billion** which is reduced by investment credits of $411.5 million to $ 7.050 billion. The calculation shown essentially reproduces the figures from the RSB (2.7% difference attributed to monthly pro rata production and cost allocations).

Table 2 assumes a 4.5 bcf/day gas line and calculates production tax for this hypothetical gas stream on a stand-alone basis (i.e. not combined with oil). The calculation uses the U.S. wellhead natural gas prices from the EIA's records for the months in question. There would be some small differentials between these prices and AECO prices in Alberta, but I believe they are close enough for the purpose. I have also assumed gas transportation costs of $4.5/mcf ($27/boe) and field costs (capital costs plus operating costs) of $400 million ($1.46/ boe) which are those used by Commissioner Galvin in the examples he provided from the DOR in his testimony of 24 February 2010. This data computes a total production tax of **$ 1.140 billion** to which no investment credits are applied.

By adding the computed production taxes in tables 1 and 2 the stand-alone oil and gas production tax for this FY 2008 (assuming 4.5 bcf /day) would be **$8.599 billion** (reduced to $8.187 billion by the deduction of $411.5 million investment credits).

Table 3 calculates the production tax by combining the revenue cost and volume streams from tables 1 and 2 to provide a combined oil and gas production tax calculation of **$6.776 billion** (reduced to $6.365 billion by the deduction of $411.5 million investment credits).

For this period the loss to the State in production tax revenue caused by the cross subsidy effect of combining oil and gas in the production tax calculation would have amounted to:

$6.776 billion less $8.599 billion = -$1.822 billion.

This calculation is in line with the figures of potential loss in fiscal revenue discussed during the testimonies.

Fiscal Year 2009

Table 4 calculates the production tax for oil based on actual data showing the components of that calculation. As no gas is exported the calculations are based upon oil barrels only. This results in total production tax of **$ 3.601 billion** which is reduced by investment credits of $350 million to $ 3.251 billion. The calculation shown essentially reproduces the figures from the RSB (4.5% difference attributed to monthly pro rata production and cost allocations).

Table 5 assumes a 4.5 bcf/day gas line and calculates production tax for this hypothetical gas stream on a stand-alone basis (i.e. not combined with oil). The calculation uses the U.S. wellhead natural gas prices from the EIA's records for the months in question. There would be some small differentials between these prices and AECO prices in Alberta, but I believe they are close enough for the purpose. I have also assumed gas transportation costs of $4.5/mcf ($27/boe) and field costs (capital costs plus operating costs) of $400 million ($1.46/ boe) which are those used by Commissioner Galvin in the examples he provided from the DOR in his testimony of 24 February 2010. This data computes a total production tax of **$ 0.583 billion** to which no investment credits are applied.

By adding the computed production taxes in tables 1 and 2 the stand-alone oil and gas production tax for this FY 2009 (assuming 4.5 bcf /day) would be **$4.185 billion** (reduced to $3.835 billion by the deduction of $350 million investment credits).

Table 6 calculates the production tax by combining the revenue cost and volume streams from tables 4 and 5 to provide a combined oil and gas production tax calculation of **$3.381 billion** (reduced to $3.031 billion by the deduction of $350 million investment credits).

For this period the loss to the State in production tax revenue caused by the cross subsidy effect of combining oil and gas in the production tax calculation would have amounted to:

$3.381 billion less $4.185 billion = -$0.804 billion.

This calculation indicates a lower potential loss in fiscal revenue for fiscal year 2009 compared to fiscal year 2008. This is due to the lower prices and value of oil and gas revenue streams in fiscal year 2009. However, $0.8 billion remains a substantial potential loss in a relative low price / value environment.

Sincerely,

David Wood

dw@dwasolutions.com

Table 1. Oil Stand-alone Production Tax Calculation (July 2007 to June 2008)

FY 2008 Production Tax Revenues: Actual Versus Potential Under Alternative Mechanisms

(Analysis Based on Actual US West Coast Prices and Cost Data)

Month	US West Coast Oil Price	Per Barrel Total Costs	Per Barrel Production Tax Value	Progressivity Threshold	PTV less Progressivity Threshold	PTV Rate per Dollar of Adjusted PTV	Incremental Progressivity Rate	Volume (Millions barrels)	Combined Progressivity Tax (CPT)	Base Production Tax (BPT) Rate	Base Production Tax (BPT) Value	CPT + BPT Value	CPT + BPT less Investment Credits	
	$/barrel	$/barrel	PTV $/barrel	$/barrel	$/barrel	%	%	millions barrels	$ millions	%	$ millions	$ millions	$ millions	
A	B	C	D= (B + C)	E	F= (D + E)>=0	G	H= (F * G)	I	J= (D * H * I)	K	L= (D * I * K)	M= (J + L)	N= (M - P)	
Monthly Analysis, $30 PTV $/boe threshold and 0.004% progressivity parameter under Current Law as enacted in 2007														
Jul	75.93	-22.88	53.05	-30	23.05	0.40%	9.22%	19.4	95.0	25.00%	257.5	352.5		
Aug	73.83	-22.88	50.95	-30	20.95	0.40%	8.38%	19.4	82.9	25.00%	247.4	330.3		
Sep	79.92	-22.88	57.04	-30	27.04	0.40%	10.81%	18.8	115.9	25.00%	268.0	383.9		
Oct	84.77	-22.88	61.89	-30	31.89	0.40%	12.75%	19.4	153.3	25.00%	300.5	453.8		
Nov	92.98	-22.88	70.10	-30	40.10	0.40%	16.04%	18.8	211.3	25.00%	329.3	540.6		
Dec	88.64	-22.88	65.76	-30	35.76	0.40%	14.30%	19.4	182.7	25.00%	319.3	501.9		
Jan	91.16	-22.88	68.28	-30	38.28	0.40%	15.31%	19.4	203.0	25.00%	331.5	534.5		
Feb	94.42	-22.88	71.54	-30	41.54	0.40%	16.61%	18.2	215.9	25.00%	324.9	540.8		
Mar	105.06	-22.88	82.18	-30	52.18	0.40%	20.87%	19.4	333.1	25.00%	399.0	732.1		
Apr	112.37	-22.88	89.49	-30	59.49	0.40%	23.79%	18.8	400.2	25.00%	420.4	820.6		
May	125.41	-22.88	102.53	-30	72.53	0.40%	29.01%	19.4	577.6	25.00%	497.8	1075.4		
Jun	133.78	-22.88	110.90	-30	80.90	0.40%	32.36%	18.8	674.4	25.00%	521.0	1195.5		
							Totals:	229.3	3245.3	25.00%	4216.6	7461.9	7050.4	
Data Source: Alaska Department of Revenue (DOR), Fall 2008 Revenues Sources Book (RSB), (Dec 2008)														P
FY2008 Taxable North Slope barrels /day: 626,456				229.3	millions barrels in FY2008		Lease Expenditures ($/bbl):		16.78	TT&T ($/bbl):		6.10	Capex Credits ($ millions):		411.5

Table 2. Gas Stand-alone Production Tax Calculation (July 2007 to June 2008) [Assuming Gas Line Operational]

FY 2008 Production Tax Revenues: 4.5 bcf /day Hypothetical Gas Sales (Standalone Production Tax Calculation)
(US Gas Price Data from EIA)

	EIA U.S. Wellhead Price	Per BOE Total Costs for Gas	Per Barrel Production Tax Value	Progressivity Threshold	PTV less Progressivity Threshold	PTV Rate per Dollar of Adjusted PTV	Incremental Progressivity Rate	Volume (Millions boe)	Progressivity Tax (Gas Calculated Separately)	Base Production Tax (BPT) Rate	Base Production Tax (BPT) Value	Total Production Tax (BPT + Progressivity) Value	CPT + BPT less Investment Credits
Month	$/mcf	$/boe	PTV $/boe	$/boe	$/boe	%	%	millions boe	$ millions	%	$ millions	$ millions	$ millions
A	B	C	D=	E	F=	G	H=	I	J=	K	L=	M=	N=
2007/2008			(B + C)		(D + E)>=0		(F * G)		(D * H * I)		(D * I * K)	(J + L)	(M - P)
Monthly Analysis, $30 PTV $/boe threshold and 0.004% progressivity parameter under Current Law as enacted in 2007													
Jul	6.32	-28.46	9.46	-30	0.00	0.40%	0.00%	23.3	0.0	25.00%	55.0	55.0	
Aug	5.87	-28.46	6.76	-30	0.00	0.40%	0.00%	23.3	0.0	25.00%	39.3	39.3	
Sep	5.42	-28.46	4.06	-30	0.00	0.40%	0.00%	22.5	0.0	25.00%	22.9	22.9	
Oct	5.90	-28.46	6.94	-30	0.00	0.40%	0.00%	23.3	0.0	25.00%	40.4	40.4	
Nov	6.58	-28.46	11.02	-30	0.00	0.40%	0.00%	22.5	0.0	25.00%	62.0	62.0	
Dec	6.97	-28.46	13.36	-30	0.00	0.40%	0.00%	23.3	0.0	25.00%	77.7	77.7	
Jan	6.99	-28.46	13.48	-30	0.00	0.40%	0.00%	23.3	0.0	25.00%	78.4	78.4	
Feb	7.55	-28.46	16.84	-30	0.00	0.40%	0.00%	21.8	0.0	25.00%	91.6	91.6	
Mar	8.29	-28.46	21.28	-30	0.00	0.40%	0.00%	23.3	0.0	25.00%	123.7	123.7	
Apr	8.94	-28.46	25.18	-30	0.00	0.40%	0.00%	22.5	0.0	25.00%	141.7	141.7	
May	9.81	-28.46	30.40	-30	0.40	0.40%	0.16%	23.3	1.1	25.00%	176.7	177.9	
Jun	10.82	-28.46	36.46	-30	6.46	0.40%	2.59%	22.5	21.2	25.00%	205.1	226.3	
							Totals:	274.5	22.3	25.00%	1114.3	1136.7	1136.7
Data Source: EIA for gas price										TT&T ($/mcf):	4.5		
Hypothetical gas production (bcf/day)			4.5	274.5 millions boe in FY2008			Lease Expenditures ($/boe)		1.46	TT&T ($/boe):	27.00	Capex Credits ($ millions):	0.0
										Combined Production Tax Calculated on an oil + gas stand-alone calculation:		8598.5	8187.0

Table 3. Oil & Gas Combined Production Tax Calculation (July 2007 to June 2008)

FY 2008 Production Tax Revenues: Oil plus Gas Combined
(Analysis Assumes Actual Oil Plus Hypothetical Gas)

	Oil + Gas Effective BOE Price	Oil + Gas Effective Per BOE Total Costs	Per Barrel Production Tax Value	Progressivity Threshold	PTV less Progressivity Threshold	PTV Rate per Dollar of Adjusted PTV	Incremental Progressivity Rate	Oil + Gas Volume (Millions boe)	Combined Progressivity Tax (CPT)	Base Production Tax (BPT) Rate	Base Production Tax (BPT) Value	CPT + BPT Value	CPT + BPT less $400 in credits	
Month	$/boe	$/boe	PTV $/boe	$/boe	$/boe	%	%	millions boe	$ millions	%	$ millions	$ millions	$ millions	
A	B	C	D= (B + C)	E	F= (D + E)>=0	G	H= (F * G)	I	J= (D * H * I)	K	L= (D * I * K)	M= (J + L)	N= (M - P)	
Monthly Analysis, $30 PTV $/boe threshold and 0.004% progressivity parameter under Current Law as enacted in 2007														
Jul	55.22	-25.92	29.30	-30	0.00	0.40%	0.00%	42.7	0.0	25.00%	312.5	312.5		
Aug	52.79	-25.92	26.87	-30	0.00	0.40%	0.00%	42.7	0.0	25.00%	286.7	286.7		
Sep	54.09	-25.92	28.17	-30	0.00	0.40%	0.00%	41.3	0.0	25.00%	290.8	290.8		
Oct	57.87	-25.92	31.95	-30	1.95	0.40%	0.78%	42.7	10.6	25.00%	340.8	351.4		
Nov	63.83	-25.92	37.91	-30	7.91	0.40%	3.16%	41.3	49.5	25.00%	391.3	440.9		
Dec	63.13	-25.92	37.21	-30	7.21	0.40%	2.88%	42.7	45.8	25.00%	396.9	442.7		
Jan	64.34	-25.92	38.42	-30	8.42	0.40%	3.37%	42.7	55.2	25.00%	409.9	465.1		
Feb	67.66	-25.92	41.74	-30	11.74	0.40%	4.69%	39.9	78.2	25.00%	416.5	494.7		
Mar	74.92	-25.92	49.00	-30	19.00	0.40%	7.60%	42.7	158.9	25.00%	522.7	681.6		
Apr	80.37	-25.92	54.45	-30	24.45	0.40%	9.78%	41.3	219.9	25.00%	562.1	782.0		
May	89.15	-25.92	63.23	-30	33.23	0.40%	13.29%	42.7	358.6	25.00%	674.5	1033.1		
Jun	96.26	-25.92	70.34	-30	40.34	0.40%	16.14%	41.3	468.7	25.00%	726.1	1194.8		
							Totals:	503.8	1445.4	25.00%	5330.9	6776.3	6364.8	
Difference Between Production Tax Calculated on a combined Oil & Gas Basis Minus Standalone Oil and Gas Basis:												-1822.3	-1822.3	P
												Capex Credits ($ millions):		411.5

Table 4. Oil Stand-alone Production Tax Calculation (July 2008 to June 2009)

FY 2009 Production Tax Revenues: Actual Versus Potential Under Alternative Mechanisms
(Analysis Based on Actual US West Coast Prices and Cost Data)

	US West Coast Oil Price	Per Barrel Total Costs	Per Barrel Production Tax Value	Progressivity Threshold	PTV less Progressivity Threshold	PTV Rate per Dollar of Adjusted PTV	Incremental Progressivity Rate	Volume (Millions barrels)	Combined Progressivity Tax (CPT)	Base Production Tax (BPT) Rate	Base Production Tax (BPT) Value	CPT + BPT Value	CPT + BPT less Investment Credits	
Month	$/barrel	$/barrel	PTV $/barrel	$/barrel	$/barrel	%	%	millions barrels	$ millions	%	$ millions	$ millions	$ millions	
A	B	C	D= (B + C)	E	F= (D + E)>=0	G	H= (F * G)	I	J= (D * H * I)	K	L= (D * I * K)	M= (J + L)	N= (M - P)	
Monthly Analysis, $30 PTV $/boe threshold and 0.004% progressivity parameter under Current Law as enacted in 2007														
Jul	132.87	-26.15	106.72	-30	76.72	0.40%	30.69%	18.6	607.6	25.00%	495.0	1102.5		
Aug	115.98	-26.15	89.83	-30	59.83	0.40%	23.93%	18.6	398.8	25.00%	416.6	815.5		
Sep	101.86	-26.15	75.71	-30	45.71	0.40%	18.28%	18.0	248.5	25.00%	339.8	588.3		
Oct	73.65	-26.15	47.50	-30	17.50	0.40%	7.00%	18.6	61.7	25.00%	220.3	282.0		
Nov	53.94	-26.15	27.79	-30	-2.21	0.40%	-0.88%	18.0	-4.4	25.00%	124.7	120.3		
Dec	37.70	-26.15	11.55	-30	-18.45	0.40%	-7.38%	18.6	-15.8	25.00%	53.6	37.8		
Jan	39.01	-26.15	12.86	-30	-17.14	0.40%	-6.86%	18.6	-16.4	25.00%	59.6	43.3		
Feb	42.78	-26.15	16.63	-30	-13.37	0.40%	-5.35%	16.8	-14.9	25.00%	69.7	54.8		
Mar	47.75	-26.15	21.60	-30	-8.40	0.40%	-3.36%	18.6	-13.5	25.00%	100.2	86.7		
Apr	46.56	-26.15	20.41	-30	-9.59	0.40%	-3.84%	18.0	-14.1	25.00%	91.6	77.5		
May	58.23	-26.15	32.08	-30	2.08	0.40%	0.83%	18.6	4.9	25.00%	148.8	153.7		
Jun	69.80	-26.15	43.65	-30	13.65	0.40%	5.46%	18.0	42.8	25.00%	195.9	238.7		
							Totals:	218.4	1285.3	25.00%	2315.8	3601.1	3251.1	
Data Source: Alaska Department of Revenue (DOR), Fall 2009 Revenues Sources Book (RSB), (Dec 2009)														P
FY2009 Taxable North Slope barrels /day 598,463					218.4 millions barrels in FY2009		Lease Expenditures ($/bbl):		19.67	TT&T ($/bbl):		6.48	Capex Credits ($ millions):	350.0

Table 5. Gas Stand-alone Production Tax Calculation (July 2008 to June 2009) [Assuming Gas Line Operational]

FY 2009 Production Tax Revenues: 4.5 bcf /day Hypothetical Gas Sales (Standalone Production Tax Calculation)
(US Gas Price Data from EIA)

	EIA U.S. Wellhead Price	Per BOE Total Costs for Gas	Per Barrel Production Tax Value	Progressivity Threshold	PTV less Progressivity Threshold	PTV Rate per Dollar of Adjusted PTV	Incremental Progressivity Rate	Volume (Millions boe)	Progressivity Tax (Gas Calculated Separately)	Base Production Tax (BPT) Rate	Base Production Tax (BPT) Value	Total Production Tax (BPT + Progressivity) Value	CPT + BPT less Investment Credits
Month	$/mcf	$/boe	PTV $/boe	$/boe	$/boe	%	%	millions boe	$ millions	%	$ millions	$ millions	$ millions
A	B	C	D=	E	F=	G	H=	I	J=	K	L=	M=	N=
2007/2008			(B + C)		(D + E)>=0		(F * G)		(D * H * I)		(D * I * K)	(J + L)	(M - P)
Monthly Analysis, $30 PTV $/boe threshold and 0.004% progressivity parameter under Current Law as enacted in 2007													
Jul	10.62	-28.46	35.26	-30	5.26	0.40%	2.10%	23.3	17.2	25.00%	204.9	222.2	
Aug	8.32	-28.46	21.46	-30	0.00	0.40%	0.00%	23.3	0.0	25.00%	124.7	124.7	
Sep	7.27	-28.46	15.16	-30	0.00	0.40%	0.00%	22.5	0.0	25.00%	85.3	85.3	
Oct	6.36	-28.46	9.70	-30	0.00	0.40%	0.00%	23.3	0.0	25.00%	56.4	56.4	
Nov	5.97	-28.46	7.36	-30	0.00	0.40%	0.00%	22.5	0.0	25.00%	41.4	41.4	
Dec	5.87	-28.46	6.76	-30	0.00	0.40%	0.00%	23.3	0.0	25.00%	39.3	39.3	
Jan	5.15	-28.46	2.44	-30	0.00	0.40%	0.00%	23.3	0.0	25.00%	14.2	14.2	
Feb	4.19	-28.46	-3.32	-30	0.00	0.40%	0.00%	21.0	0.0	25.00%	0.0	0.0	
Mar	3.72	-28.46	-6.14	-30	0.00	0.40%	0.00%	23.3	0.0	25.00%	0.0	0.0	
Apr	3.43	-28.46	-7.88	-30	0.00	0.40%	0.00%	22.5	0.0	25.00%	0.0	0.0	
May	3.45	-28.46	-7.76	-30	0.00	0.40%	0.00%	23.3	0.0	25.00%	0.0	0.0	
Jun	3.45	-28.46	-7.76	-30	0.00	0.40%	0.00%	22.5	0.0	25.00%	0.0	0.0	
							Totals:	273.8	17.2	25.00%	566.2	583.4	583.4

Data Source: EIA for gas price						TT&T ($/mcf):	4.5	
Hypothetical gas production (bcf/day)	4.5	273.8 millions boe in FY2009	Lease Expenditures ($/boe)	1.46		TT&T ($/boe):	27.00	Capex Credits ($ millions): 0.0
					Combined Production Tax Calculated on an oil + gas stand-alone calculation:		4184.5	3834.5

Table 6. Oil & Gas Combined Production Tax Calculation (July 2008 to June 2009)

FY 2009 Production Tax Revenues: Oil plus Gas Combined

(Analysis Assumes Actual Oil Plus Hypothetical Gas)

Month	Oil + Gas Effective BOE Price $/boe	Oil + Gas Effective Per BOE Total Costs $/boe	Per Barrel Production Tax Value PTV $/boe	Progressivity Threshold $/boe	PTV less Progressivity Threshold $/boe	PTV Rate per Dollar of Adjusted PTV %	Incremental Progressivity Rate %	Oil + Gas Volume (Millions boe) millions boe	Combined Progressivity Tax (CPT) $ millions	Base Production Tax (BPT) Rate %	Base Production Tax (BPT) Value $ millions	CPT + BPT Value $ millions	CPT + BPT less $400 in credits $ millions	
A	B	C	D= (B + C)	E	F= (D + E)>=0	G	H= (F * G)	I	J= (D * H * I)	K	L= (D * I * K)	M= (J + L)	N= (M - P)	
Monthly Analysis, $30 PTV $/boe threshold and 0.004% progressivity parameter under Current Law as enacted in 2007														
Jul	94.41	-27.44	66.97	-30	36.97	0.40%	14.79%	41.8	414.1	25.00%	699.9	1114.0		
Aug	79.24	-27.44	51.80	-30	21.80	0.40%	8.72%	41.8	188.8	25.00%	541.4	730.2		
Sep	69.47	-27.44	42.03	-30	12.03	0.40%	4.81%	40.5	81.8	25.00%	425.1	506.9		
Oct	53.91	-27.44	26.47	-30	0.00	0.40%	0.00%	41.8	0.0	25.00%	276.7	276.7		
Nov	43.86	-27.44	16.43	-30	0.00	0.40%	0.00%	40.5	0.0	25.00%	166.1	166.1		
Dec	36.32	-27.44	8.88	-30	0.00	0.40%	0.00%	41.8	0.0	25.00%	92.8	92.8		
Jan	34.50	-27.44	7.06	-30	0.00	0.40%	0.00%	41.8	0.0	25.00%	73.8	73.8		
Feb	32.97	-27.44	5.53	-30	0.00	0.40%	0.00%	37.8	0.0	25.00%	52.2	52.2		
Mar	33.61	-27.44	6.17	-30	0.00	0.40%	0.00%	41.8	0.0	25.00%	64.5	64.5		
Apr	32.11	-27.44	4.67	-30	0.00	0.40%	0.00%	40.5	0.0	25.00%	47.3	47.3		
May	37.36	-27.44	9.92	-30	0.00	0.40%	0.00%	41.8	0.0	25.00%	103.7	103.7		
Jun	42.49	-27.44	15.06	-30	0.00	0.40%	0.00%	40.5	0.0	25.00%	152.3	152.3		
							Totals:	492.2	684.7	25.00%	2695.7	3380.5	3030.5	
Difference Between Production Tax Calculated on a combined Oil & Gas Basis Minus Standalone Oil and Gas Basis:												-804.1	-804.1	P
												Capex Credits ($ millions):		350.0

SB 167:

The Separation of Oil & Gas Production Taxes

Provided by Logsdon & Associates

March 9, 2010

Premise of the Bill

- Under current law oil and gas are taxed together
- Oil is worth much more than gas
- The combining mechanism materially reduces oil taxes even though oil operations are unaffected

Oil is Different than Gas

- Oil more geographically concentrated (fewer sellers: OPEC)
- Oil supplies more depleted
- Gas is more plentiful
- Oil has fewer substitutes
- Gas has more substitutes

BTU 10:1

West Coast ANS

- Market Price $80/bbl
- Less:
  - Shipping $2.07
  - TAPS $4.18
- Gross Value $73.75

North Slope Gas

- Market Price $6/mmbtu
- Less:
  - Tariff AK to AB $3.54
  - AB Hub $0.24
  - Tariff AB to L48 $0.85
- Gross Value $1.37/mmbtu
- BOE Basis (X 5.5) = $7.54
- On a straight BTU to BTU basis oil is worth nearly 10 X as much as gas

Some Things that have BTUs

- Oil
- Gas
- Coal
- Wood
- Asphalt
- Shoe Leather
- Rubber
- Coffee grounds
- Citrus rinds
- Corn cobs
- Dung

Mechanics of Current Tax

- 1) Oil gross value (market price less transport cost)
- 2) Gas gross value (market price less transport cost)
- 3) Oil + gas gross value gas = Combined gross value
- 4) Combined gross value – lease capital and operating costs = Combined oil & gas net value
- 5) Combined oil & gas net value / total oil & gas BOEs = p/BOE net value (see Slide #6)
- 6) Progressivity factor (based on per BOE net value) plus 25% base rate = tax rate
- 7) Single tax rate applied to combined oil & gas net value

Barrel of Oil Equivalents (BOEs):
Putting Oil & Gas on an Apples / Apples Basis

- 4.5 billion cubic feet per day (bcf/d) of natural gas
- A cubic foot of North Slope gas will have about 1,100 BTUs
- Natural gas is measured in millions of BTUs (mmbtu)
- 4.5 billion cubic feet per day will have 4.95 million mmbtu's (4.5 X 1,100)
- A barrel of oil has about 5,500 BTUs
- 4.5 billion cubic feet per day will have the BTU equivalence of 900,000 barrels of oil (BOEs) (4,950,000 / 5.5)
- If there are 500,000 barrels of oil, total BOEs will total 500,000 + 900,000 = 1,400,000

Progressivity Mechanics

- "Trigger" = $30 net / BOE value
- "Slope" = 0.4%*
- Progressivity surcharge = (Net per BOE value - $30) X .004
- Example: if net value = $50
  - Base tax rate = 25%
  - Progressivity = ($50 – $30) X .004 = 8%
  - Total tax of 33% on net value

* Slope changes to 0.1% after $92.50 net per BOE value

HOW GAS IMPACTS OIL TAXES

	Oil Alone (p/bbl)	Gas (p/mmbtu)	Combined Oil & Gas	
Market Price	$80.00	$6.00	Oil	
Transp cost	$5.00	$4.50	p/bbl net value	$55.00
Gross Value	$75.00	$1.50	Barrels (millions)	183
			Total oil net value ($mm)	$10,038
Costs	$20.00	$0.50	Gas	
			p/mmbtu net value	$1.00
Net (p/barrel or p/mmbtu)	$55.00	$1.00	mmbtu's (millions)	1,807
			Total gas net value ($mm)	$1,807
Base rate	25.00%			
Progressivity	10.00%		Total oil & gas net value	$11,844
Total tax rate	35.00%		Total BOEs	511
			Net value / BOE	$23.18
Daily bbls (oil) or mmbtu (gas)	500,000	4,950,000	NO PROGRESSIVITY!	
Daily BOEs	500,000	900,000		
Annual BOEs (millions)	183	329		