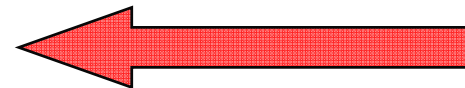

ACES, Progressivity and Natural Gas Development

**Senate Resources Committee
11 March 2009**

Goals for Fiscal Design from the ACES Special Session Nov 2007

- Based on comments during the ACES special session GCA saw the State trying to achieve the following:
 1. Fields with larger **profitability** should be paying **more** taxes
 2. Encourage investment in existing units
 - Reinvestment in producing assets
 - Investment in new developments
 - ❖ Conventional
 - ❖ Unconventional (i.e. heavy oil)
 - ❖ **Gas**
 3. Encourage new investment outside legacy units
 - Level playing field for incumbents and new entrants
 4. Durability
 - Don't want to be back 'fixing' things
 5. Build on prior tax dialogue



ACES Tutorial - Oil

- **ACES** is a production tax on producer cash flow
 - Market Price (e.g. ANS WC)
 - Less Transportation (TAPS & Shipping)
 - Unit value
 - Less Royalty
 - Less Operating Expense
 - Less Capital Expense
 - Producer Cash Flow
 - Less production tax (**ACES**)
 - Less income tax (State and Federal)
 - Producer Profit

ACES Tutorial - Gas

- **ACES** is a production tax on producer cash flow
 - Market Price (*e.g. AECO Hub or US City Gate*)
 - Less Transportation (*Processing & Pipelines*)
 - Unit value
 - Less Royalty
 - Less Operating Expense
 - Less Capital Expense
 - Producer Cash Flow
 - Less production tax (**ACES**)
 - Less income tax (State and Federal)
 - Producer Profit

ACES Tutorial – Tax Rate

- **Producer Cash Flow**

- **Base Rate**

- For Cash Flow > \$0/bbl, base rate is 25%

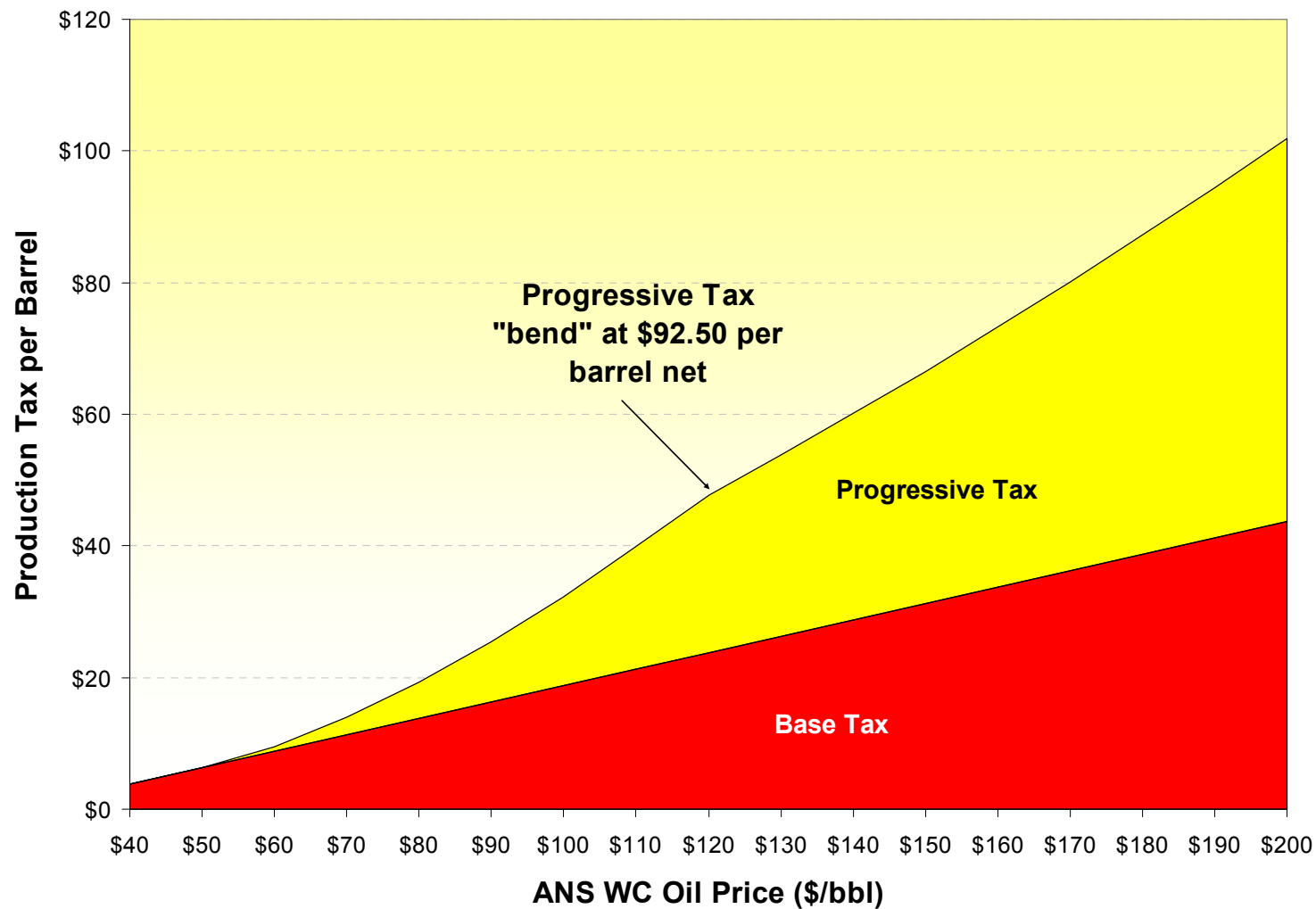
- **1st Progressivity**

- For Cash Flow > \$30/bbl but < \$92.5/bbl the progressivity tax is 0.4% for every \$1/bbl above \$30/bbl
 - At \$92.5/bbl total production tax is 50%

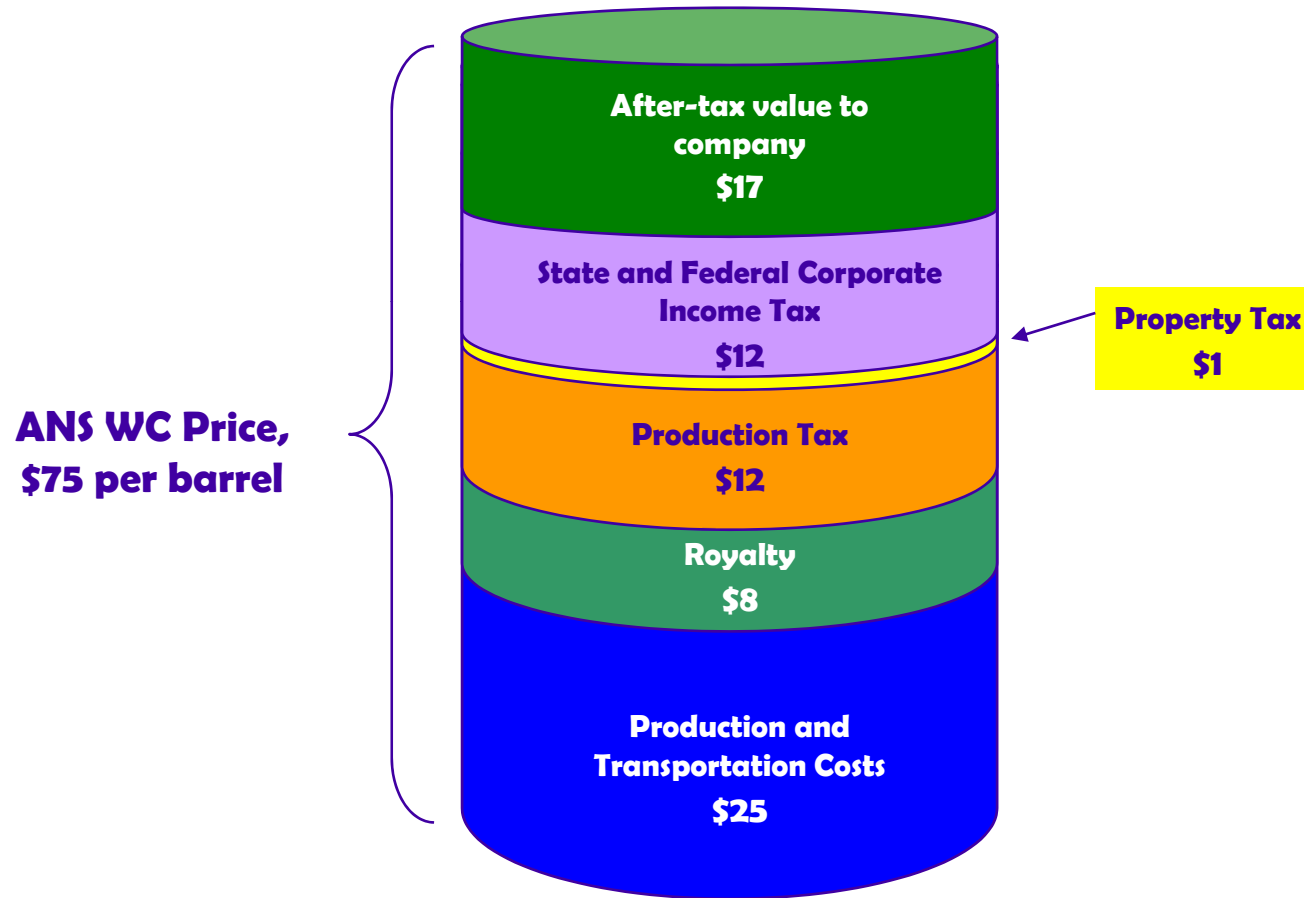
- **2nd Progressivity**

- For Cash Flow > \$92.5/bbl the progressivity tax is 0.1% for every \$1/bbl above \$92.5/bbl

ACES Production Tax

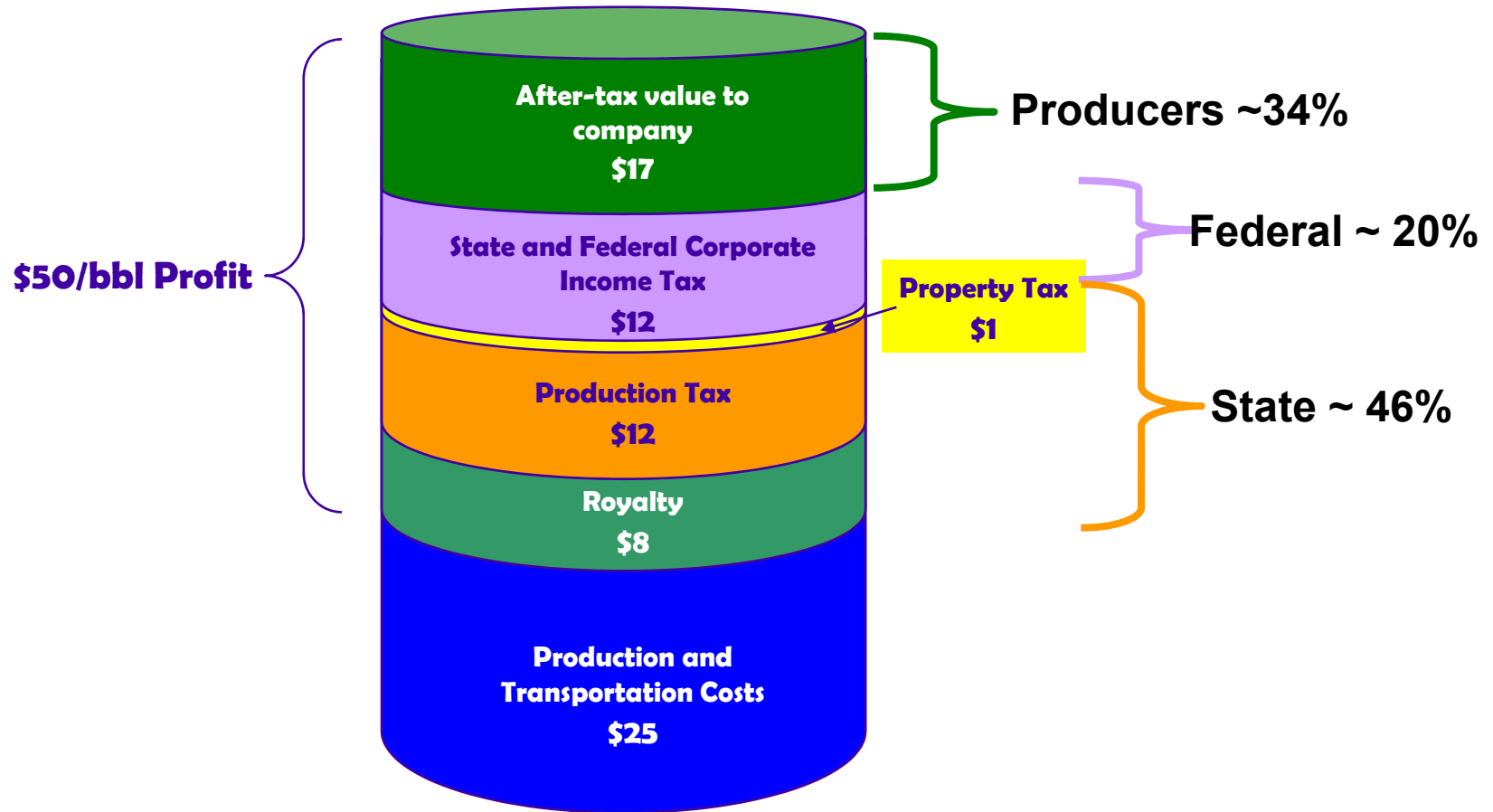


How a \$75 Barrel of Alaska North Slope Oil is Allocated*



*This graphic assumes average transportation and production costs and royalty and tax rates, and is not intended to represent the allocation of every barrel produced on the North Slope.

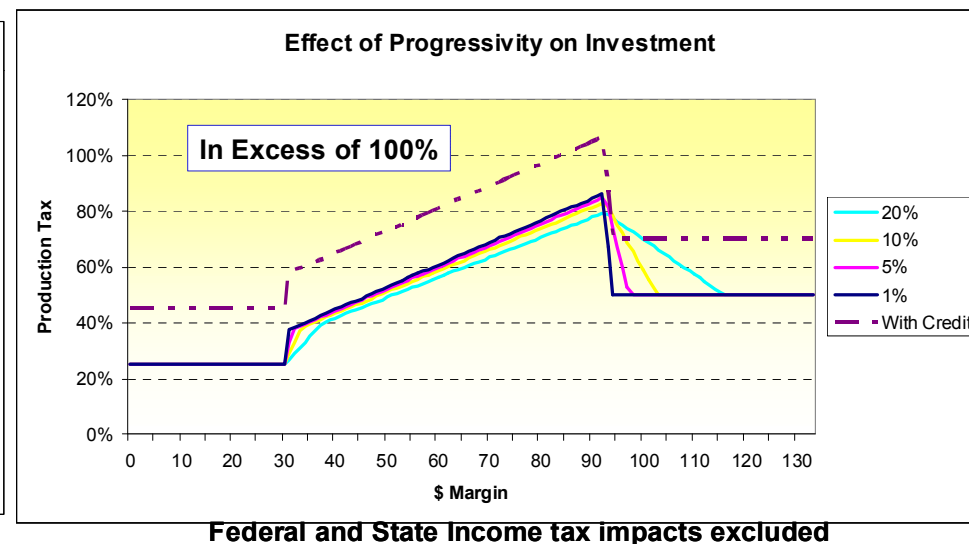
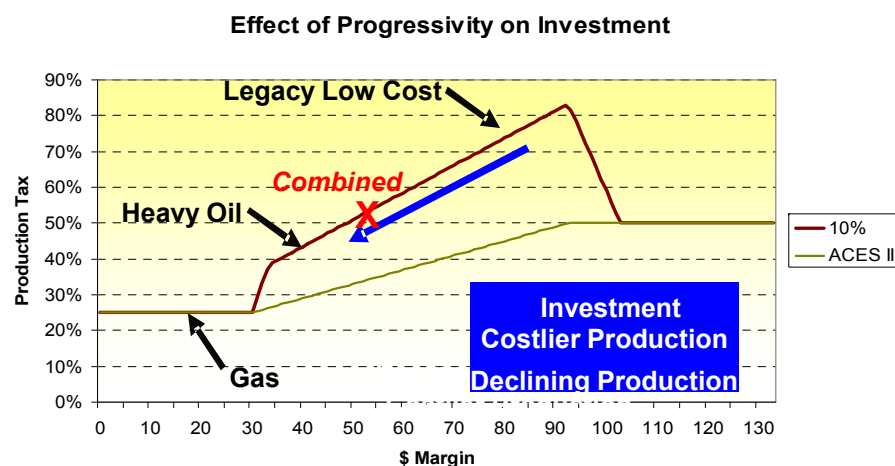
How a \$75 Barrel of Alaska North Slope Oil is Allocated*



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Encourage Investment in Existing Units

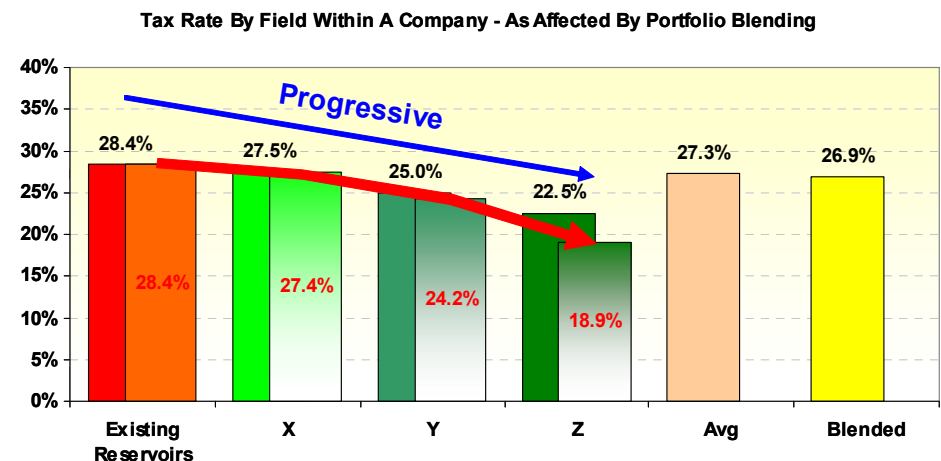
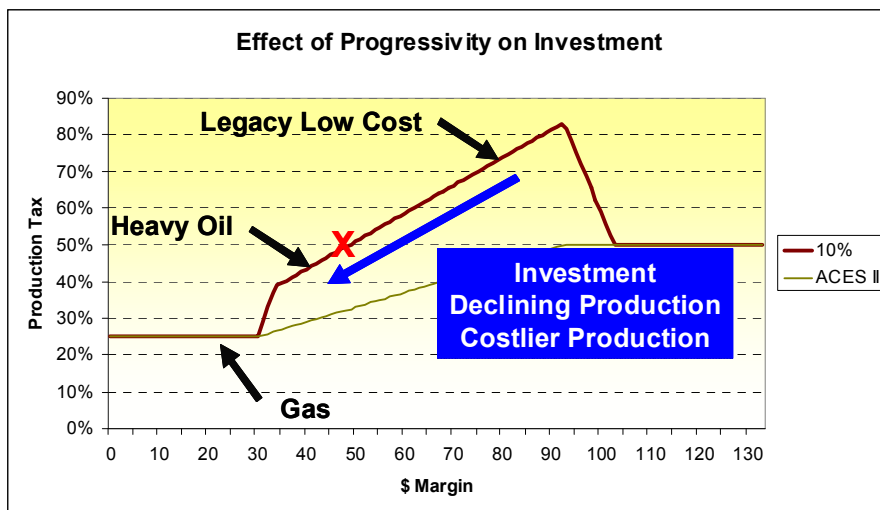
- The effective “marginal” rate being greater than the “absolute” rate was evaluated and presented to several committees



- It was also evaluated and reviewed for different levels of investment tax credits and different levels of cash flow reinvestment

Cross Subsidies and “Less Tax”

- The cross subsidy issue caused by progressivity was also discussed at great length and it was shown how under certain circumstances the “effective” rate of tax on a higher cost / lower profitability development (such as gas or heavy oil) could be lower than the base rate



- It was also noted that any evaluation involved many commercial and economic parameters that would need to be evaluated across a range of expected values

How big is the “Subsidy”?

- **The degree of “subsidy” is impacted by a number of variables, such as:**
 - Relative volumes of high/low value production
 - Oil/gas price parity
 - Quality adjustments
 - Any “loss” of production by lowering reservoir pressure to produce and sell gas
 - Any “gain” in production by extending the life of facilities and pipelines by bringing on new production and pushing forward in time operating economic limits
- **Single day or single year ‘snapshots’ can be misleading**

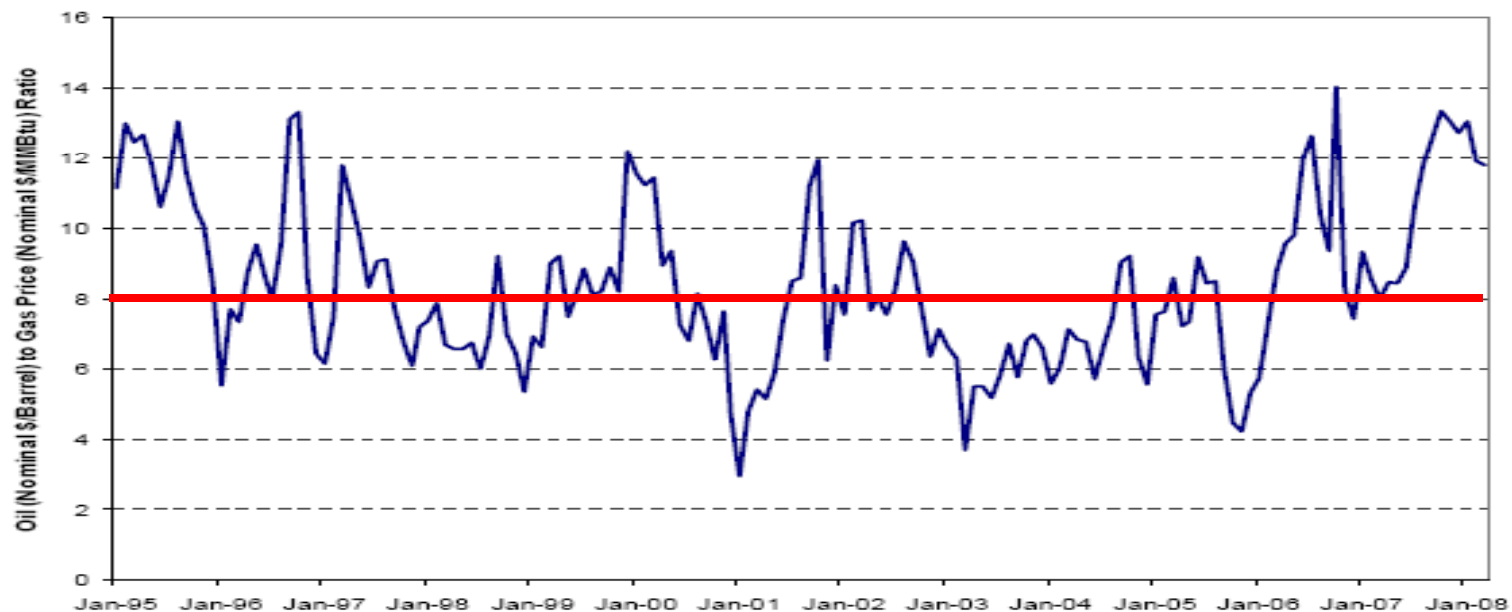
Oil/Gas Parity

- **What is meant by oil/gas parity?**
 - On average a barrel of oil contains as much energy or heating value as 6,000 cubic feet of gas.
 - Since each cubic foot of gas has about 1000 Btu/cf then a barrel of oil is equivalent to 6 million Btu or 6 MMBtu
- **If priced at parity the oil price in \$/bbl divided by 6 would equal the gas price in \$/MMBtu**
 - For example, at \$60/bbl the natural gas would be at parity if it were priced at \$10/MMBtu
 - As opposed to most of the rest of the world where gas is priced against oil, in the US gas prices fluctuate and average higher than 6:1

Pricing Parity is Key

- One way to predict the future is to look at the past
- Plot of US oil / gas price parity trading on average about 8:1

Figure 4-5. Historical Oil to Gas Price Ratio



Source: Black and Veatch 2008, Appendix G1, Section 7.15.4.3

Pricing Parity is Key

- Mr. Dickinson chose 13:1 price parity for his model
- This occurred <4% of the time in the last 14 years

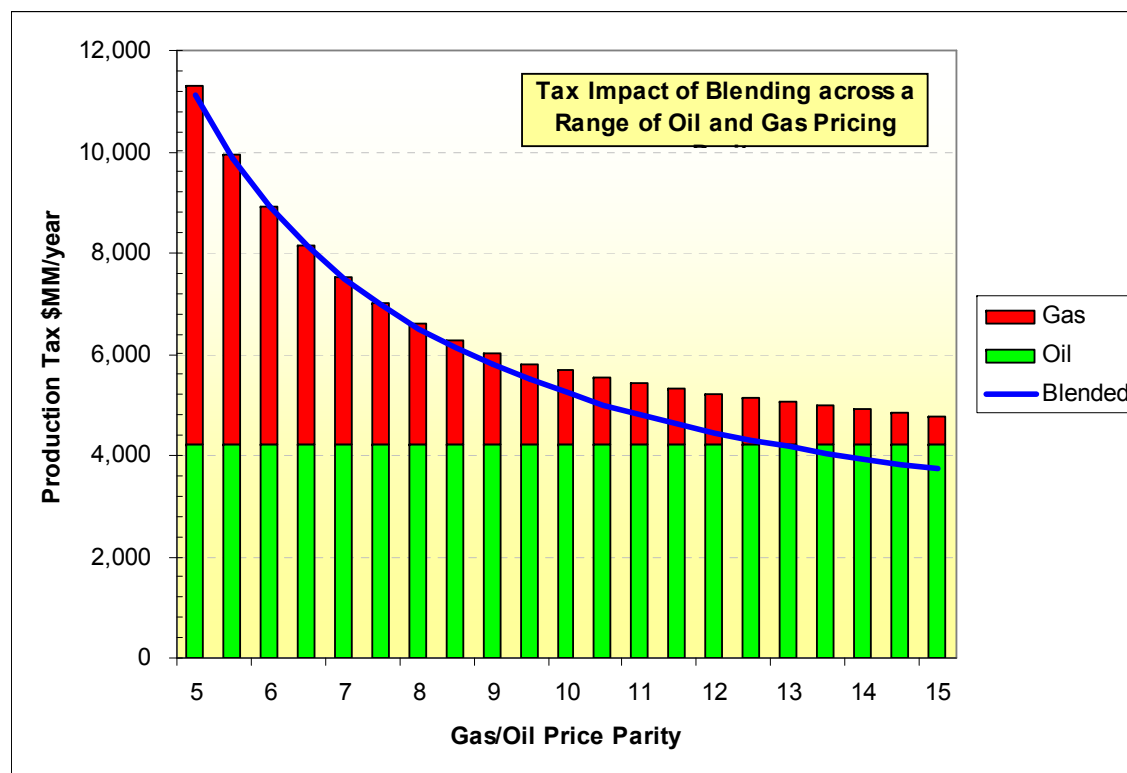
Figure 4-5. Historical Oil to Gas Price Ratio



Source: Black and Veatch 2008, Appendix G1, Section 7.15.4.3

“Subsidy” across range of values

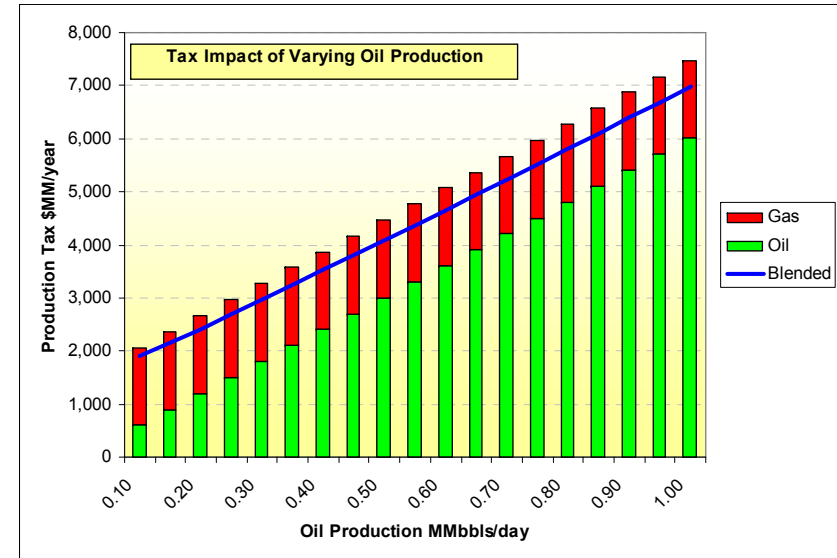
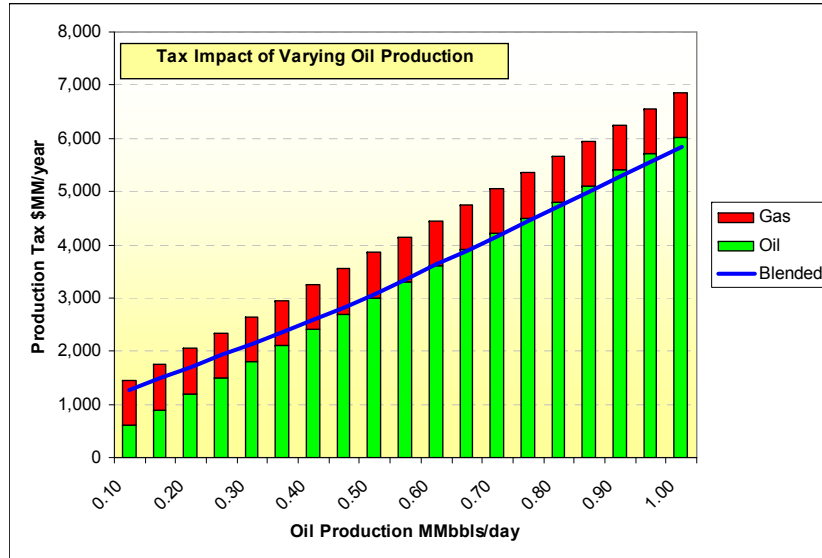
- E.G. modifying the oil/gas price parity is revealing



- **Green**
Tax paid by existing oil
- **Red**
Tax paid by standalone gas
- **Blue**
The total tax paid under ACES with the progressivity impact

Impact of Varying Production and Price Parity Ratios

- Gas at 4.2 bcf/d and Oil at \$80/bbl
- Left prices 13:1 and on the right prices 10:1



- At 10:1, the issue of pay less overall taxes goes away. At the long-range expectation of prices at 8:1, paying “less” taxes is a non-issue

Goals for Fiscal Design from the ACES Special Session Nov 2007

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 - ✓ 4. Durability
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Summary

- A range of possible outcomes “caused” by ACES’ structure was identified, reviewed and built into the final design of ACES to provide incentives to both existing SOA producers as well as new entrants
- During the AGIA special session economics showed that at the modeling parameters reasonable results could be obtained by all parties.
- Nobody has brought forth expected, likely or sustainable scenarios to show that ACES needs to be modified for gas development

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