

COMMENTS TO LEGISLATURE
on GAS CONTRACT and FISCAL INTEREST FINDINGS
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Risk Analysis of Alaska Gasline Project

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Project Risks Identified in Fiscal Interest Findings

Risks	Variable
Economic	
Market Risk	Modeled in this report
Cost Overruns	Modeled in this report
Completion Risk	
Resource Risk	Not significant
Political/Regulatory Risk	
Force Majeure Risk	

Fiscal Interest Findings Assessment of Project Risk

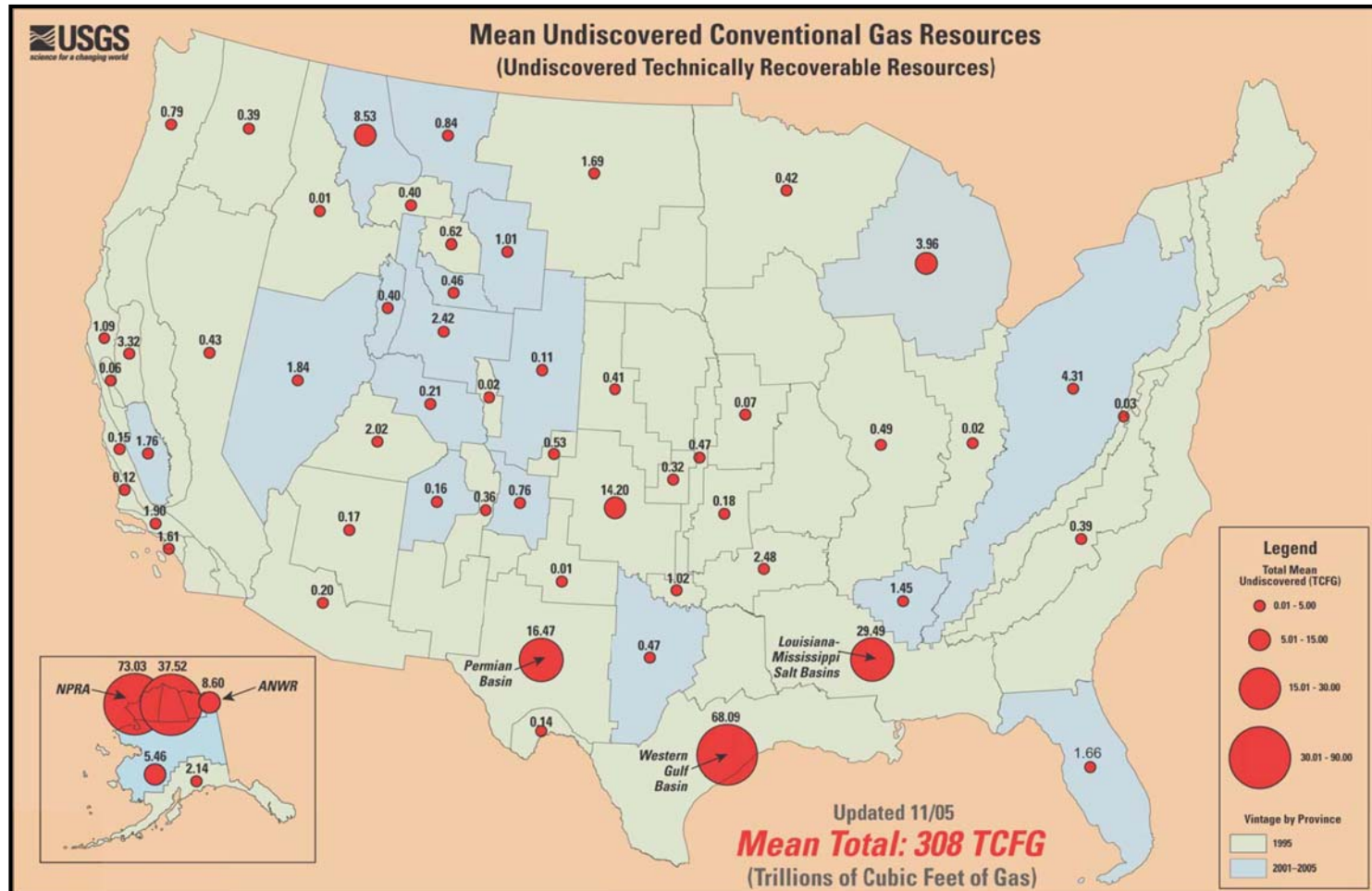
- “The combination of **cost overrun risk and price risk** make it actually possible than even with a stranded gas contract, this gasline will not be built in the next decade. There is a rather significant probability that it will not be built this decade because cost overruns are too high and prices too low. I think there is a least a **20 percent chance, even 30**, that this project will not be built with a stranded gas contract.” Dr. P. Van Meurs testimony, May 10, 2006.
- Econ One quantified these risks using gas price scenarios from P. Van Meurs, EIA, Lukens, and the Econ One Base Case, as well as a distribution of cost overruns described in the Fiscal Interest Findings. The probability of having an uneconomic project is **far smaller** than stated above under these price and cost run views.

Probability Reminder

- **Avoid “perfect storm” analysis**
- **If you examine two low chance events, the chance of both events happening at the same time is SIGNIFICANTLY smaller than either event happening by itself.**
 - **If two events are independent and the chance of the first event is 1-in-10 (10%) and the second is 1-in-5 (20%), then the chance of both happening is $.1 \text{ times } .2 = .02$ (1-in-50 or 2%).**
 - **If the two events are not independent, then the chance of both of them happening is still small, depending on the correlation of the two events.**

Resource Risk - National Supply Picture

Alaska Contains Approximately 40% of Estimated Undiscovered U.S. Reserves



Source: USGS.

Resource Risk - Alaska North Slope Resource Potential (Conventional Gas Reserves)

		<u>Years at 4.5 Bcf/d</u>	<u>Years at 6.0 Bcf/d</u>
Known Reserves	~ 35 Tcf	21	16
Estimated Undiscovered Reserves	~ 120 Tcf	73	54
Total Conventional	~ 155 Tcf	94	70

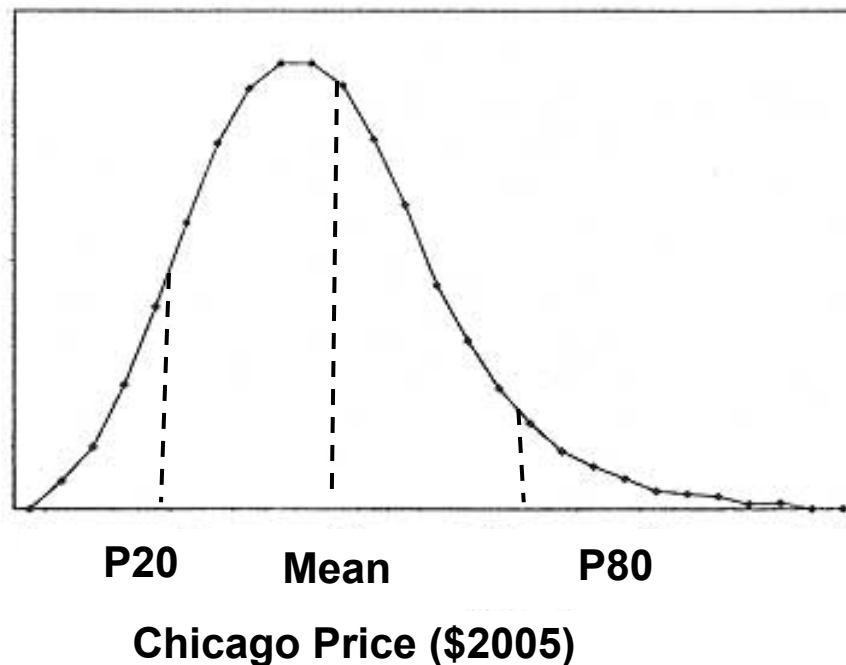
Price and Cost Overrun Risk

- **Monte Carlo technique allows us to analyze the price and cost overrun risk in a statistical manner, rather than create a “perfect storm” analysis which provided no estimate of the likelihood associated with its occurrence.**
- **Three price distributions, EIA, PVM, and Econ One were used in the price risk assessment. (The Econ One and Lukens price scenarios are sufficiently close not to include the Lukens case.)**
- **One cost overrun risk distribution was used.**

Lognormal Distribution Used For Price Scenarios

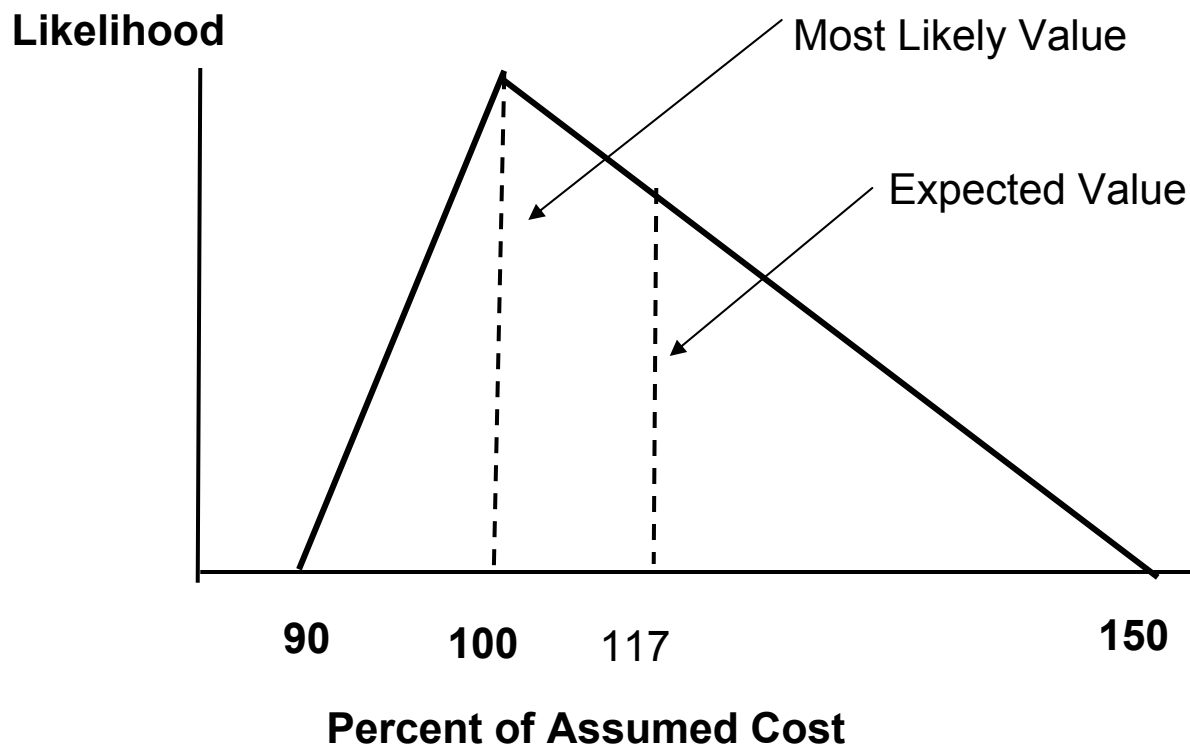
- Lognormal Distribution, commonly used in cost overrun analysis
- Provide P20, mean, and P80 points
- Reflects asymmetric risk of higher prices

Likelihood



Triangular Distribution Used For Cost Overruns

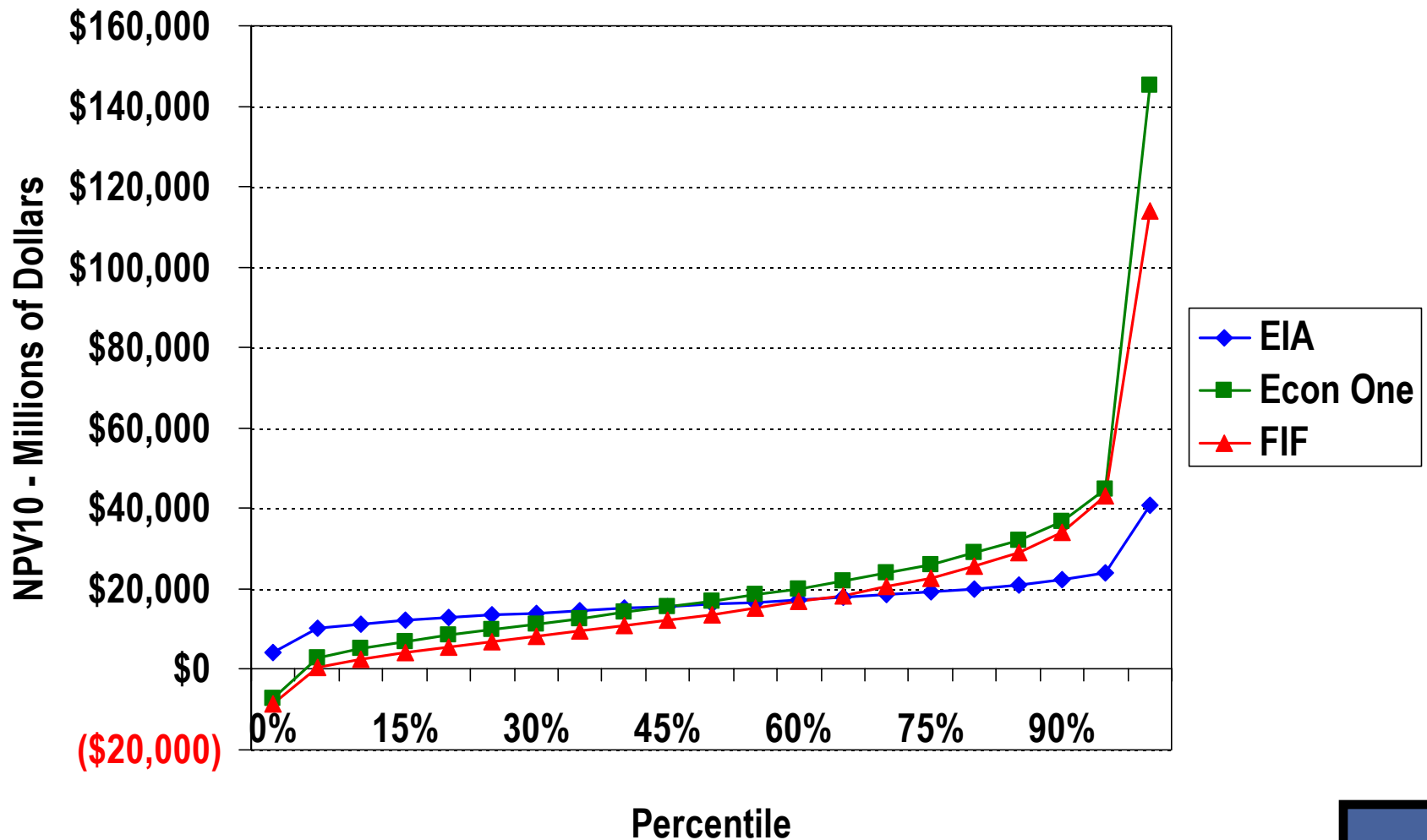
- **Triangular Distribution, commonly used in cost overrun analysis**
- **Provide minimum, maximum, and likeliest points**
- **Reflects asymmetric risk on upside**
- **Expected value is “higher” than likeliest**



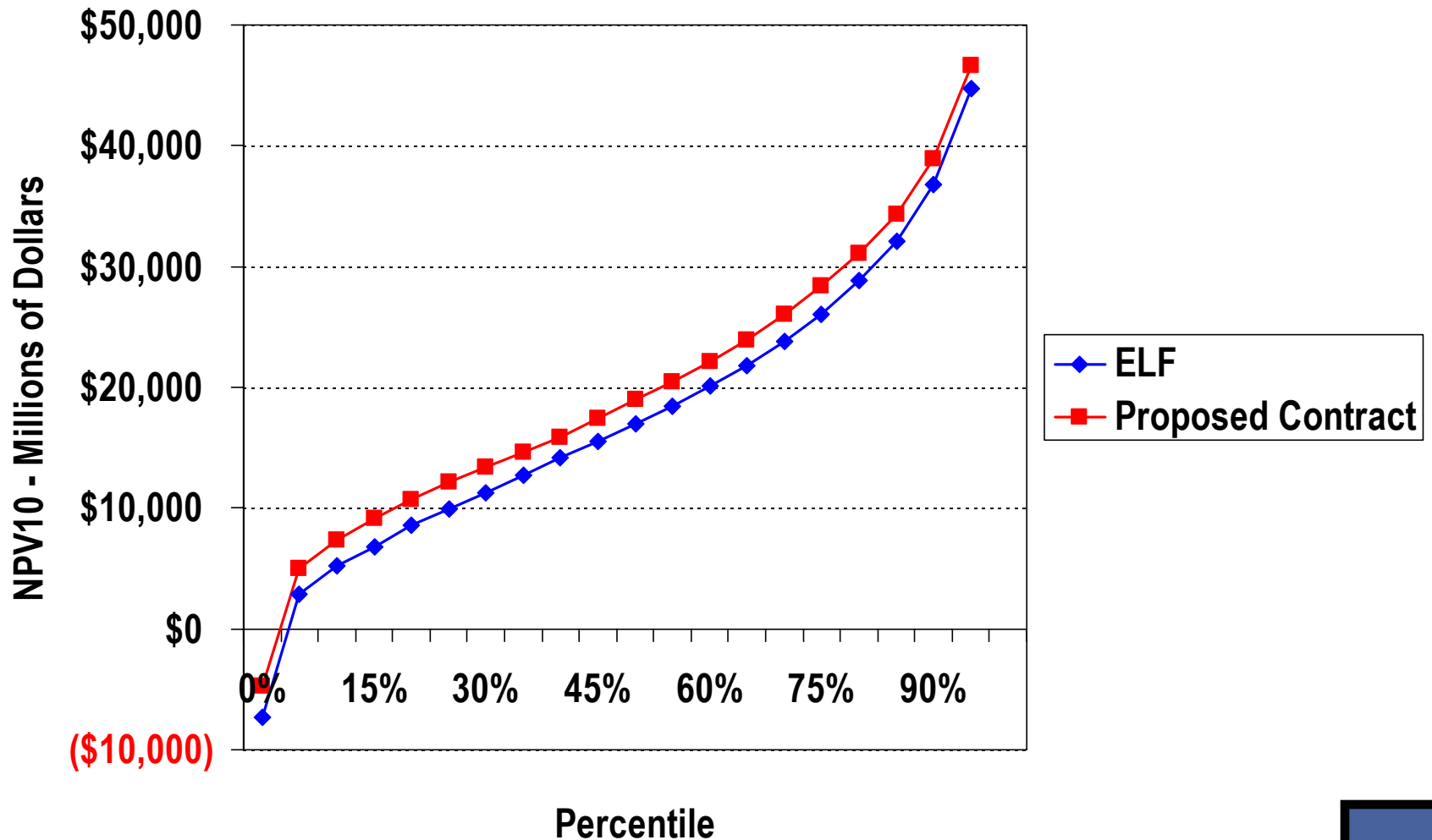
Price and Cost Overrun Risk (cd)

- **The two risks were modeled jointly**
 - **The analysis assumed that the two risks are correlated, that is high capital costs are more likely when prices are high due to increased competition for materials**
 - **An alternative assumption, that the two risks are independent, as assumed by Dr. P. Van Meurs, was also run**
- **The distribution of IRRs was calculated to indicate the viability of the project from the producer's point of view.**
- **The distribution of State Revenue was calculated to indicate the risk to the State of Alaska from the Proposed Contract**

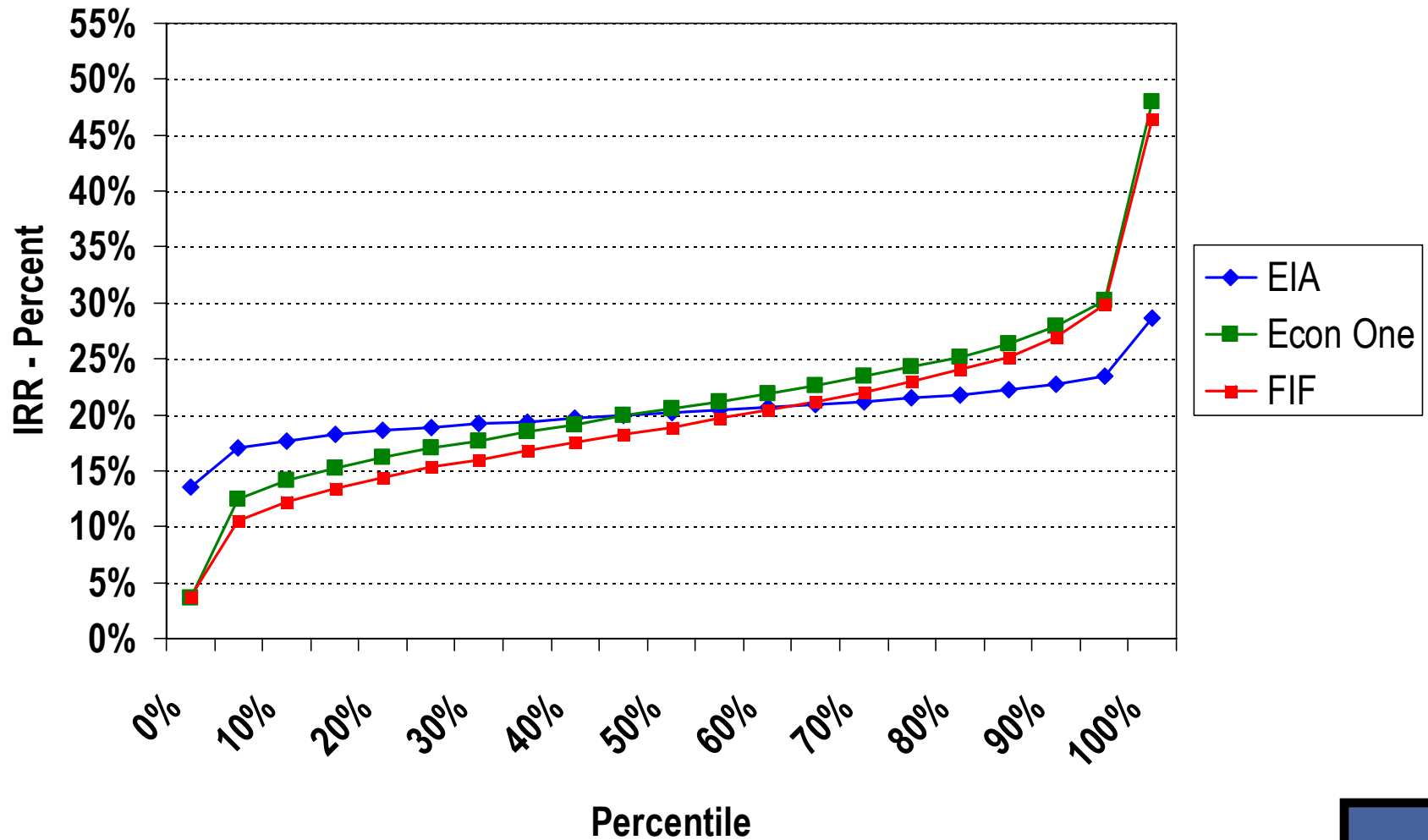
Producer Net Cash Flow (NPV10) Under Various Gas Price and Overrun Distributions



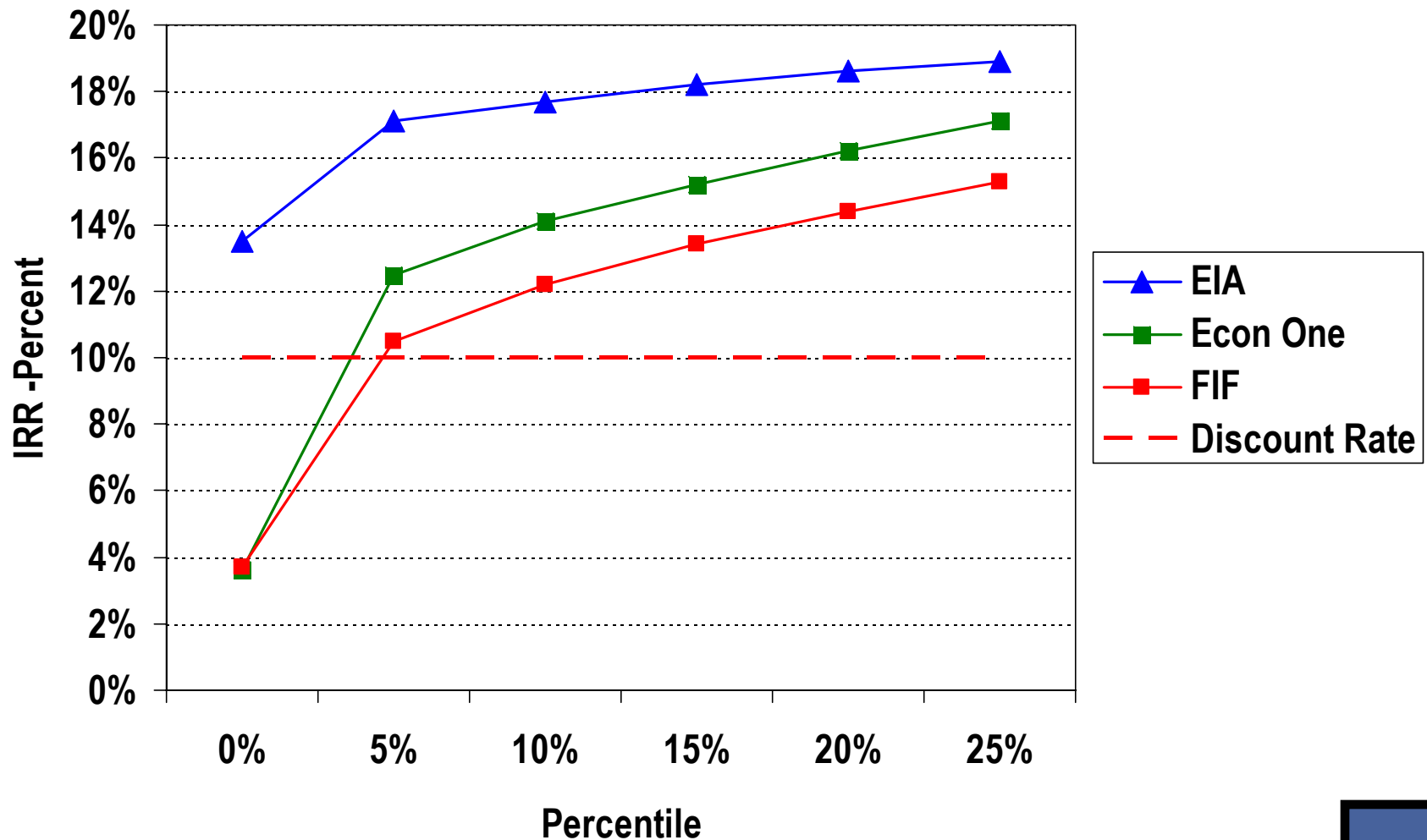
Producer Net Cash Flow (NPV10) Under Alternative Fiscal Terms



IRR Under Various Gas Price and Overrun Distributions



IRR Under Various Gas Price and Cost Overrun Distributions (Close-up Look)



Conclusions

- **It appears that the risk (20-30% chance) of an uneconomic project as presented in the Fiscal Interest Findings (FIF) is overstated, even with the price scenarios used in the FIF.**
- **Risk of having an uneconomic project (NPV<0 or IRR<cost of capital) under the various price and overrun distributions range from less than 1% (EIA scenario) to 5% (FIF scenario).**
- **If you ignore (as P. Van Meurs does) the oil effects and the positive uplift from NGL sales inherent in the project, the chance of being uneconomic rises to about 7.5% under the FIF price scenario.**