

Final Exam Review

**The Final Exam is scheduled for December 10 at 10:30 AM – 1:00 PM.**

Definitions and Terminology

This section will be presented in the same format as the mid-term.

- |  |                          |
|--|--------------------------|
| 1. Petroleum-initially-in-place (PIIP) | 11. Discounted cash flow |
| 2. Estimated Ultimate Recovery (EUR)   | 12. Cap-and-trade        |
| 3. Proved reserves                     | 13. Zone pricing         |
| 4. Probable reserves                   | 14. Vertical Integration |
| 5. Possible reserves                   | 15. EIA                  |
| 6. Contingent resources                | 16. NPV                  |
| 7. Prospective resources               | 17. OPEC                 |
| 8. Economic limit                      | 18. SO <sub>2</sub>      |
| 9. Discount rate                       | 19. CO <sub>2</sub>      |
| 10. Monte Carlo analysis               | 20. NOx                  |

Project Analysis

You should expect to see a discounted cash flow analysis problem or two similar to the mid-term format. I may ask for a short answer and an explanatory sentence, rather than just the short answer.

Discussion Topics

Current energy market trends – ANSWER ALL THREE QUESTIONS:

- Recently the members of OPEC have met to discuss the prospect of stabilizing crude oil prices at about \$75 a barrel. Would a price of \$75 a barrel be higher or lower than the prices that have prevailed over the last 30 years? Drawing upon class discussions and the reading done for the class, what effects will OPEC's actions have on world crude production and prices?
- As recently as a year or two ago it was widely believed that LNG imports into the United States would become a significant source of natural gas supply. This year, however, the situation seems to have changed, and at least one LNG terminal operator is contemplating using facilities to export rather than import LNG. What U.S. and international developments in natural gas appear likely to be the cause of this change of market conditions?
- Why were the effects of Hurricane Ike on retail gasoline prices more significant in Atlanta, Georgia and Charlotte, North Carolina -- larger price increases, lasted weeks longer -- than in Dallas, Texas and Baltimore, Maryland?

Discussion Topics - Readings

Readings group 1 – ANSWER ONE OF THE FOLLOWING THREE QUESTIONS

- Discounted Cash Flow analysis William Bailey et al., say that discounted cash flow analysis is “the most widely used investment appraisal tool in the oil industry,” but they explain that it is limited in some respects. Smith, in “Petroleum Project Evaluation,” describes discounted cash flow analysis as “versatile but not without limitations.” What are some of the limitations of discounted cash flow analysis, and what can be done about these limits?
- Hahn and Passell, “The Economics of Allowing More Domestic Oil Drilling” This past summer, many people said that there was little reason to expand off-shore drilling for oil, or open ANWR, because the likely effect on consumer prices would be very small. Hahn and Passell agree, but said the “central question ... should be whether the benefits are likely to exceed the costs,” not just consumer price effects. Do they think the benefits are likely to exceed the costs? Why?
- Smith, “Petroleum project evaluation” Smith observes that when you have several related properties to explore, you may be able to increase the value of the properties by exploring them in sequence rather than all at once. Why? Illustrate Smith’s point with a simple example.

Readings group 2 – ANSWER ONE OF THE FOLLOWING FIVE QUESTIONS

- Stavins, “Lessons Learned from SO<sub>2</sub> Allowance Trading” Stavins reports that the SO<sub>2</sub> allowance trading program has been a success. What evidence does Stavins rely upon to conclude the program has been a success? What factors have been key to bringing about this result?
- Burtraw and Evans “Tradable Rights to Emit Air Pollution” Burtraw and Evans wrote: “Incentive-based approaches, such as cap-and-trade, work by providing the regulated entity with incentives to change behavior, but leaving it up to the entity to decide how, where, and when to do so. These approaches contrast with prescriptive regulations, which ... direct regulated parties to take specific actions.” Describe reasons why incentive-based approaches should be expected to reduce the costs of meeting environmental goals.
- Trench, “How pipelines make the oil market work” Explain what Trench means when she writes about a petroleum product pipeline “operating in fungible mode.” How does operating in fungible mode help the pipeline lower costs? Environmental regulations have led to an increasing variety of regional gasoline formulas being used. What effect has the increased variety of fuels had on pipeline costs? Why?
- FTC, “Gasoline Price Changes: The Dynamic of Supply, Demand, and Competition” According to the FTC report, “Gasoline Price Changes,” what has been the effect on retail prices and typical retailer price-cost margins of the increasing numbers of “hypermarkets” (i.e. big box retailers like Wal-Mart) selling gasoline? Do you expect the share of the retail market held by hypermarkets to continue to go, or remain at current levels? Why?
- Deck and Wilson, “Economics at the Pump” What is “zone pricing”? Why do Deck and Wilson believe that banning zone pricing will tend to increase prices overall (that is to say, believe it will increase prices in previously low-priced areas more than lower prices in previously high-priced areas)?