Homework #2: Due at the beginning of class on Wednesday, 6 June 2012.

1. Decommissioning costs for the Vermont Yankee nuclear power plant were estimated to be $900 million, to be paid twenty years after the plant was built. Calculate the present discounted value of the decommissioning costs, assuming a discount rate of 10% ($r = 0.1$).

2. Depending on regulatory decisions affecting the future of Vermont Yankee, the plant may operate as long as eighty years. Repeat problem 6, but assume that the $900 million is paid eighty years after the plant was built. You should get a smaller number than in Question 1 – in a sentence or two, explain why.

3. In class, we discussed two types of depreciation allowances: straight-line and so-called “accelerated” depreciation (sum-of-years is one type of accelerated depreciation). Which method do you think would utility consumers prefer, and why? Which method would the utility itself prefer, and why? (Assume that the utility in this case is a for-profit entity.)

4. Imagine that you are a regulator for a utility that owns a small coal-fired generator. This generator emits sulfur dioxide (SO$_2$) and oxides of nitrogen (NO$_x$), both of which are regulated under the clean air act. Suppose that the utility planned to install pollution control devices on their power plant to reduce SO$_2$ and NO$_x$ emissions. They would like to roll the cost of these devices into the rate base (and thus earn a regulated rate of return on the pollution control devices). Would you agree to their request? Why or why not?

5. Suppose that instead the utility purchases permits to emit SO$_2$ and NO$_x$ instead of investing in pollution control technologies. The utility asks you to allow them to roll the cost of the pollution permits into the rate base (and thus earn a regulated rate of return on the costs associated with purchasing emissions permits). Would you agree to their request? Why or why not?

6. Chapter 4 of the Alt book discusses using the so-called “Capital Asset Pricing Model” (CAPM) to set the rate of return for a regulated utility. Basically, this method amounts to setting the utility's rate of return based on market conditions and the stock price of the utility. This method is generally regarded by economists as inappropriate; an economist would argue that it relies on circular logic to value the electric utility. In a paragraph or two, explain the circular logic and why the CAPM method might be inappropriate for rate-of-return setting.