

IEMS 326, Homework 3, Due 2/2/2011

1. (From GRIN-ESW) At the start of 2011, Northwestern University installed a 5kW solar photovoltaic system on the Ford Design Center. The initial cost of the system was \$30,000. Each year, the system generates 6,500kWh of electricity. The price of electricity is \$0.10 per kWh. The system will last for 30 years. Assume a MARR of 7%.

a) Calculate the net present value of the solar photovoltaic system.

b) Now, say the state of Illinois provided a 60% rebate on the initial cost of the system. Calculate the new present value of the system.

c) Keep the assumptions from part b. Now, say a carbon cap and trade law is passed at the beginning of 2013, raising electricity prices. How much must the new price be for the system to be profitable.

2. Newnan et al., Chapter 6 Problem 27 (p. 204). You don't need to use an annual cash-flow analysis if you don't wish to.

3. Newnan et al., Chapter 6 Problem 46 (p. 207).

4. Newnan et al., Chapter 9 Problem 66 (p. 316).

5. Newnan et al., Chapter 5 Problem 29 (p. 175).