NDU

Instructor : MONA FAYAD

Problem1 _50%_

The local Electric Company has a deteriorated substation within its system. It was faced with two options. (Interest is taken to be $12\%/yr$.)

Option 1: Build substation A.

Initial cost =4 M\$ with only 1.7 M\$ available and the rest i.e. 2.3 M\$ taken from a bank loan of 16%per year to be repaid in 6 yearly installments. Operation and maintenance cost=0.02 M\$ with a gradient of 0.001M\$ starting at EOY7. Salvage value at EOY24=0.3 M\$

Option 2: Build substation B.

Initial cost=1.8 M\$. Operation and maintenanceCOST = 0.01M\$ with an arithmetic gradient of 0.005 M\$ per year. Salvage value at EOY12=0.03

1- Suppose that the savings of the company are the same in both options, what is the best alternative using NPW Method?

2- What is the annual saving for option 2 for this option to break even . Find this value from Pw value in 1-

Problem2 _50%_   No1 An oil company wants to build a drilling platform by three different methods in the Middle East Area.

Choice 1: Initial cost: 9 millions, Life: 6 years, Savings: 1.6 millions/year increasing by 0.1 millions per year.

Choice 2: Initial Cost: 10 millions, Life: 18 years, Savings: 1.7 millions/year with major maintenance starting EOY3 (every 3 years) at 0.03millions per year every 3 years.

Choice 3: Initial cost: 6 millions, Life: 3 years, Savings: 1.3 millions/year increasing by 0.1 millions per year.

Use rate of return method to decide which of those mutually exclusive alternatives is the best to choose knowing that the MARR is 12%!

GOOD LUCK