Chapter 6

6.5 S = $12,756

6.8 AW = $-26,741per year

6.10 (a) CR = $-47,590 per year
At revenue of $52,000 per year, yes, he did
(b) AW = $- 9,175 per year
AW was negative

6.13 AW_X = $-53,721
AW_Y = $-64,072
Use Method X

6.17 (a) AW_{Solar} = $-6779 per year
AW_{Line} = $-9178 per year
Use the solar cells
(b) P_{line} = $21,906

6.28 (a) AW_X = $-74,075
AW_Y = $-83,531
AW_Z = $-83,020
Select Alternative X
(b) P_Y = $-341,912; P_Z = $-560,564

6.30 Annual LCC = $-14,319,988 per year

CHAPTER 7

7.7 i = 4.9%

7.11 i = 12.2%

7.18 i = 40.6%

7.25 (a) Four (b) One (c) Seven

7.48 P = $59,845

7.54 i = 2.7% per six months

CHAPTER 8

8.6 Cannot determine which one should be selected because even though it is known that the ROR on the increment of investment is less than 22% per year, it is not known if it is equal to or greater than the company's MARR of 19%. An incremental ROR analysis must be conducted.

8.16 (a) $\Delta i^* = 21.9\%$ per year
(b) select Alternative P3

8.18 By interpolation, $\Delta i^* = 45.6\%$ per year
By IRR function, $\Delta i^* = 45.2\%$ per year

8.25 $\Delta i^* = 8.0\%$ (by spreadsheet)
$\Delta i^* < MARR = 18\%$; select DBB valves

8.29 $\Delta i^* = 10.7\%$ per year
$\Delta i^* > MARR = 10\%$; select 88 Mbps

CHAPTER 11

11.12 $AW_1 = -65{,}000(A/P,10\%,1) - 50{,}000 + 30{,}000(A/F,10\%,1) = \$-91{,}500$
$AW_2 = -65{,}000(A/P,10\%,2) - [50{,}000 + 10{,}000(A/G,10\%,2)] + 30{,}000(A/F,10\%,2)$
$= \mathbf{\$-77{,}929}$
$AW_3 = -65{,}000(A/P,10\%,3) - [50{,}000 + 10{,}000(A/G,10\%,3)] + 20{,}000(A/F,10\%,3)$
$= \$-79{,}461$
$AW_4 = -65{,}000(A/P,10\%,4) - [50{,}000 + 10{,}000(A/G,10\%,4)] + 20{,}000(A/F,10\%,4)$
$= \$-80{,}008$
$AW_5 = -65{,}000(A/P,10\%,5) - [50{,}000 + 10{,}000(A/G,10\%,5)] + 20{,}000(A/F,10\%,5)$
$= \$-81{,}972$
$AW_6 = -65{,}000(A/P,10\%,6) - [50{,}000 + 10{,}000(A/G,10\%,6)] + 20{,}000(A/F,10\%,6)$
$= \$-84{,}568$
$AW_7 = -65{,}000(A/P,10\%,7) - [50{,}000 + 10{,}000(A/G,10\%,7)] + 20{,}000(A/F,10\%,7)$
$= \$-87{,}459$
ESL is 2 years with AW = \$-77,929
[REMEMBER: You will compare this AW to the AW of the challenger, if there is one, at its ESL.]

11.24 $AW_D = -25{,}000(A/P,15\%,5) - 180{,}000 = \$-187{,}458$
$AW_C = -700{,}000(A/P,15\%,10) - 70{,}000 + 50{,}000(A/F,15\%,10) = \$-207{,}014$
Select the defender; retain the current process
[NOTE: Because the annual operating costs don't change and we have no information about salvage values prior to the end of each process's life, the ESL will be the full life of each process.]