

Engineering Economy
Chapter 5 Present Worth Analysis

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Chapter 5: Present worth analysis

- Methods of comparing economic alternatives
 - Chap 5: Present worth
 - Chap 6: Cash flow
 - Chap 7: Rate of return
- All methods are equivalent, but easier to apply to different situations

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NPW

Net Present Worth, NPW, may be used to establish the current market value of projected future benefits and costs associated with an investment opportunity. (examples include real property and bond valuations.)

$NPW = PW \text{ of Benefits} - PW \text{ of Costs} = PWB - PWC$

For a project to be acceptable, the NPW must usually be > 0 .

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Example 5-2

Two stage vs. Single Stage Construction,
 $i=6\%$

Two stage: \$300m now; \$350m in 25 yrs
Single Stage: \$400m now
Determine PW of cost for each.

What other factors should you consider in practice?

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Example 5-4

	Cost	UAB	Salvage
Atlas	2000	450	100
T.T.	3000	600	700

6 year analysis period, 8% interest
Calculate NPW (=PWB - PWC) for each

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Different Lives

- Need to compare like with like -- therefore use same time period.
- If A has life of 5 years and B 10 years, then can purchase another A in 5 years and compute PW over 10 years.
- Example p172-173

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Infinite Analysis Period

- Used for e.g. roads, dams, airports.
- Use Capitalized Cost P
- $A=iP$
- Example 5-5. \$50 per year maintenance.
How much should be set aside to produce
this at $i=4\%$?

$$A=iP$$

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Chapter 5: Present worth analysis

- Equalize analysis period
 - Least common multiple
 - Terminal value
 - Capitalized cost ($A=iP$)
- Considerations and assumptions
 - Viewpoint
 - Separate analysis of financing and investing
 - Inflation =0, Taxes not considered
 - Sunk costs should be ignored

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