

## Net Present Value Example

This NPV example examines the economic feasibility of buying a solvent recovery system for pollution prevention.

### Required information:

- Total capital outlay for the system is \$8000.  $C_0 = \$8000$
- The system will last for 5 years, then will be discarded as scrap.  $t = 5 \text{ years}$
- The total ongoing average annual operating costs is \$600.  $C_{1-5} = \$600/\text{yr}$
- The company's minimum attractive rate of return is 10%.  $\text{MARR} = 0.10$
- The total estimated average annual savings will be \$3200 in avoided waste disposal and reduced raw material costs.  $S = \$3200/\text{yr}$

### Calculations:

$$\text{NPV} = (S - C_i) / (1 + \text{MARR})^t \quad \text{where } i \text{ and } t = \text{years } 0 - 5$$

NPV when the system is bought:	$[0 - 8000] / (1 + 0.10)^0 =$	- \$8000
NPV after first year of operation:	$[3200 - 600] / (1 + 0.10)^1 =$	+ \$2364
NPV after second year of operation:	$[3200 - 600] / (1 + 0.10)^2 =$	+ \$2149
NPV after third year of operation:	$[3200 - 600] / (1 + 0.10)^3 =$	+ \$1953
NPV after fourth year of operation:	$[3200 - 600] / (1 + 0.10)^4 =$	+ \$1776
NPV after fifth year of operation:	$[3200 - 600] / (1 + 0.10)^5 =$	+ <u>\$1614</u>

**Total Project NPV = \$1856**

Therefore, it is economically feasible to purchase the solvent recovery system since the Total Project NPV is  $> 0$ .

You would **NOT** purchase the system if the Total Project NPV was  $< 0$ .