

Assignment: 6

1. Write a short note on solar saving.
2. Define (1) Payback time (2) Return on investment (3) Life cycle cost
3. List the need for economic analysis of renewable energy system.
4. State the objectives of clean development mechanism. Explain clean development mechanism project cycle with flow diagram.

EXAMPLES

1. For an 11,00,000/- investment in solar energy equipment which meets 56% of annual load of 156GJ. If first year fuel cost is Rs. 800 per GJ and expected to increase at 10% per year. Calculate (1) undiscounted payback time (2) Discounted payback time if discount future cost at rate 8%.
2. For a non-solar process, using fuel only, calculate the present worth of fuel cost over 20 years if 1st year's cost is Rs. 125500/-. The market discount rate is 8% per year and fuel cost inflation rate is 10% per year.
3. What is the annual payment and present worth of all interest payment on mortgage, if solar system is installed having worth Rs. 11,00,000/- which is to be financed by a 10% down payment with the balance borrowed at an annual interest rate of 9% for 20 years? The payments are to be made at the end of the year. The market discount rate is 8%.
4. A proposed insulation system for a house to be heated is expected to save fuel cost of Rs. 2000 in first year. The fuel prices are expected to increase by Rs. 20% per year and best alternative investment with yield 10% per year. Find the total saving from this proposed system expressed in current value. Take life of the system is 15 years.
5. A solar PV system consisting with two lamps, a battery and other associated components cost Rs. 55000. The cost of conventional energy saved due to its installation is Rs. 4000 in the first year and this cost inflates at the rate of 5% per year. Assume discounting rate is 9%. Calculate the payback period of the system with and without discounting.