Lecture - 17

Energy Resources, Economics and Environment

Financing Energy Projects - Tutorial

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Tutorial

1. An infrastructure company is planning to invest in a Wind farm of rating 56 MW – capital cost Rs 340 crores. The preferential tariff for wind based electricity is Rs 4.50 /kWh. The annual O&M cost is Rs 0.45/kWh (based on the annual generation).

   Assuming a life of 25 years and a capacity factor of 30%, calculate the internal rate of return. If debt is available at 11% interest and a tenor of 10 years, calculate the internal rate of return IRR on equity for a debt: equity ratio of 50: 50 and 70:30. How should the company finance the plant?

Tutorial

2. An independent power plant (IPP) is proposing a 250 MW gas based combined cycle power plant in Maharashtra. The direct capital cost is Rs 880 crores (including interest during construction and escalation). The net heat rate for the plant is 2000 kcal/kg. The average calorific value of natural gas used is 8500 kcal/sm3 and the price of NGas is Rs 8/sm3. The fixed operating and maintenance (O&M) cost is Rs 2 crores and the variable O& M cost is Rs 0.05/kWh. Assuming a life of 25 years for a PLF of 70%,for a Power Purchase agreement at Rs 3.50 /kWh, calculate the Internal rate of return. If debt is available at 12% interest and a tenor of 10 years, calculate the IRR on equity for a debt: equity ratio of 50: 50 and 70:30. How should the IPP finance the plant?

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