

CASE STUDY

ASSIGNMENT

04

WIND ENERGY PROJECT

GRID-CONNECTED WINDFARM / ANDHRA PRADESH, INDIA

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DESCRIPTION OF ASSIGNMENT

An Independent Power Producer (IPP) has assigned you the responsibility to assess the feasibility of developing a large windfarm in Andhra Pradesh, India. The windfarm will sell the power to the local utility at a pre-determined tariff that is designed to encourage windfarm developments.

SITE INFORMATION

The site is located on the 20 km-long Kadavakallu ridge in southern Andhra Pradesh at latitude of 17°N. It has a good wind resource potential which averages 6.2 m/s at 30 m height, as per on-site measurements. The nearest weather station is at Hyderabad. The windfarm developer plans to build a 20 MW windfarm using Lagerwey wind turbines on 36 m towers (manufactured locally). Smaller turbines of less than 300 kW are believed to be more appropriate as this would simplify the transportation and installation of the machines on the ridge.

For the greenhouse gas analysis, the conventional generation fuel mix that the wind energy project would displace is approximately as follows: 50% coal and 50% large hydro.

FINANCIAL INFORMATION

You can assume an inflation rate of 2.5%, discount rate of 12% and a project life of 25 years. The assured energy buy-back price is INR4.16/kWh and escalates at 5% annually.

Debt financing is available to cover 75% of project cost at an interest rate of 14% for a term of 7 years. Equity will be provided by the client. Since the client is a for-profit company, the corporate tax rate of 35% that is prevalent in India is applicable. Accelerated 100% depreciation on the electromechanical and electrical equipment is available as a tax incentive for the project.

Prepare a RETScreen study, documenting any assumptions that you are required to make, and report on the significant conclusions from this analysis.

