



บริษัท โรงไฟฟ้าน้ำตาลขอนแก่น จำกัด

KHON KAEN SUGAR POWER PLANT CO.,LTD

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REQUEST FOR REVIEW

Khon Kaen Sugar Power Plant project Project 1036

The request for review highlighted 2 points that required further information, namely:

1. Further information is required on effects of the project activity on the cost of self consumed electricity and the incorporation of these effects in the calculation of the IRR.
2. Evidence should be provided to support the equity benchmark rate of 15% employed by the project participant in the calculation of the WACC.

Responses

1. Further information is required on effects of the project activity on the cost of self consumed electricity and the incorporation of these effects in the calculation of the IRR.

If the cost of self consumed electricity refers to the electricity consumption of the adjacent sugar plant then this is incorporated through the determination of the baseline¹. The baseline is that the sugar factory remains self sufficient in power therefore the financial analysis only incorporates revenues from the sale of electricity to the grid (the provision of steam and electricity to the sugar factory are in the baseline) and likewise the costs do not include any biomass fuel costs (as all the biomass would be combusted under the baseline). Given this baseline there is no cost saving on “self consumed electricity” as the project activity has only been installed to benefit from the sale of electricity to the grid.

2. Evidence should be provided to support the equity benchmark rate of 15% employed by the project participant in the calculation of the WACC.

The attached excel file demonstrates that the equity benchmark for the project is 15%. This has been calculated through the use of the Capital Asset Pricing Model (CAPM) using returns from the SET (Thai stock exchange), government bonds and the correlation of the KSL stock with that of the SET (β). The CAPM model derives the return on equity by:

$$ROE = r_{rf} + \beta(r_m - r_{rf})$$

¹ If the self consumed electricity by the project activity refers to the auxiliary consumption this has been incorporated into the analysis through only calculating the revenues on the basis of the power supplied to the grid. Whilst self consumption is a cost that could be incorporated through the biomass required to generate these auxiliaries, as the baseline is that the biomass would be consumed in the existing power plant this has been neglected. This approach is conservative as our analysis of the costs of generation is lower than if the cost of self consumed electricity was included.



Where:

ROE is the return on equity

r_{rf} is the risk free interest rate

β is the volatility of the individual stock relative to the market

r_m is the market return

The risk free interest rates is determined from 10 year Thai government bonds, β is taken from Bloomberg (a leading provider of stock market data) and r_m is taken from the market returns of the SET over the last 5 years. The data underlying this calculation is clearly shown in the attached spreadsheet and maybe verified from the Stock Exchange of Thailand (www.set.or.th) and the Bank of Thailand (www.bot.or.th), the data on beta has been taken from Bloomberg and a copy of the price screen has been provided to the DOE.

It should also be noted that the proposed CDM projects - 1024 Phu Khieo Bio-enehy Cogeneration project and 1020 Dan Chang Bio-energy Cogeneration project – which are being implemented by a similar sugar company, Mitr Phol, have used a weighted average costs of capital of 12% (very similar to 11.7% used by the project activity).

