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CDM Executive Board

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Our / Your Reference	Contact	Direct Dial	Date
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Request for Review
"Wind Electricity Generation Project" (1762)

Dear Sir/Madam,

Please find below the response of the project participant (Reliance Innoventures Limited) and the TÜV NORD JI/CDM Certification Program to the three (3) requests for review for the above mentioned project no. 1762.

If you have any questions do not hesitate to contact us.

Yours sincerely,

TÜV NORD JI/CDM Certification Program

Rainer Winter

Request for Review (1-1,1-2,1-3)	
Issue raised by EB Members / DNA	*1. The DOE/PP should further validate and justify how the CDM revenues were considered essential to overcome the investment barrier to this project activity, in particular that the benchmark represents a rate below which the investment could not be made.*
Response of project participant	As stated in the PDD, PP has chosen to use benchmark analysis, with Equity Internal Rate of Return as the benchmark, because the project has been funded entirely by equity. It has been demonstrated that the equity IRR of the project activity without CDM revenues is 11.11 % which is much lower considering the risk and alternate investment opportunity available to the PP. PP's analysis reveals that equity IRR with CDM benefits will go up to 13.04 %. This goes to prove that CDM revenues would make significant improvement in the IRR and enable the PP to improve the viability of the project activity and overcome the investment barrier. The project yields a return of only 11% on the equity, which is very low compared to the risk associated with the project, the alternate investment opportunity available to the PP. Investment in the equity capital of the wind project is a risky investment. It is therefore, imperative that the project should yield a return commensurate with the risk. Considering the risk the PP was willing to take, alternative invetment opportunities available to him were to invest in stock market. The return from the stock markets prior to the date on which the investment decision was taken are given below[1]: S&P CNX Nifty – 29.99% Sensex – 33.13% S&P CNX 500 – 35.99% Besides, BSE introduced a sectoral specific index for Power sector in 2005. The one year return of the index (from 1-12-2005 to 30-11-2006) was 48%. Secondly, the CERC assures a return of 14% on equity even in respect of less risky non-CDM projects. Considering the risk associated with renewable energy projects, particularly wind power projects, whose fortunes are inextricably interlinked to the vagaries of wind, the return has to be high. Thirdly, the return from investing in the and even the highly secured commercial lending rates was higher than the equity IRR of the project. The PP itself has contracted a term loan for one of its projects at 12.75%[2]. Finally, the PP has another company presently in operation and is engaged in generation and distribution of power. The EPS earned by the Company during the year 2005-06 was Rs.30.63 and Rs.28.04 in the previous year. Against this, the PP had fixed Rs.1.40 as the benchmark, which is very conservative. In the above background, the PP would not have venured into this project but for the CDM benefits. At the price of €12 per CER and the current exchange rate of Rs.66/€, CDM benefits would enable the PP to cross the benchmark return of 14%. PP was aware of the benefit likely to accrue to the project on account of CDM benefits and without CDM benefits, the PP would not have taken up this activity. Mr. Hetalkumar Shah Reliance Innoventures Ltd 3rd Floor, Reliance Energy centre, Santacruz (E), Mumbai – 400 055 India Phone : +91 22 30386767 Mobile : +91 9324216669 Email: hetalkumar.shah@relianceada.com

[1] Of the above, Nifty and Sensex are traded as derivatives an can be traded as such. A time horizon of 5 years has been considered in computing the CAGR imparting the long term nature, which the investment in project activity represents.

[2] Loan sanctioned by ICICI Bank; copy furnished for reference and records to DOE

Response of DOE	As stated by the PP, the project yields a return of only 11% on the equity, which is low compared to the alternate investment opportunity available to the PP as explained above. It is lower than the return earned by the PP from one of its projects engaged in generation and distribution of power and lower than even the commercial lending rate. The PP had availed a term loan at 12.75% for another project. Considering the risk associated with renewable energy projects, DOE was convinced that the PP would not have venured into this project without CDM benefits. CDM benefits would enable the PP to cross the investment barrier. Contact person: Mr. Asim Kumar Jana TUV India Pvt. Ltd. 801, Raheja Plaza - I L.B.S. Marg. Ghatkopar (West) Mumbai - 400 086 India Phone: +91 22 66477074 Email: jana@tuv-nord.com

Request for Review (2-1,2-2,2-3)	
Issue raised by EB-Members / DNA	2. The DOE should explain how exactly it has validated the IRR calculation and the 14% equity benchmark as appropriate. The PP/DOE should include a sensitivity analysis for the key input values in accordance with EB 39, Annex 34, paragraph 16.
Response of project participant	In order to demonstrate the robustness of the conclusion arrived at above, viz., that the project is additional, the PP had subjected PLF and windmill cost, the two critical assumptions of the project activity to reasonable variations, i.e., by 10 %. Both PLF and windmill cost hve been subjected to 10% varition on either side to ascertain the validity of the conclusions drawn. The results of the sensitivity analysis are as follows:

Factors	Project IRR		
	-10%	0	+10%
PLF	9.40%	11.11%	12.72%
Windmill cost	12.39%	11.11%	9.99%

It could be seen from the above that project will remain additional even in the case of an increase in the PLF by 10 % or the wind mill cost coes down by 10%.. Having said that, it needs to be mentioned that increase in PLF by 5% is a very difficult proposition in the case where grid availability and stability is a major problem with in the state and past trend is not favourable.Moreover, the PLF achieved by the project in the last one year has been of the order of 16% only, which goes to prove that the PLF assumed in the calculations is quite conservtive. As regards the windmill cost, the orders have already been placed and the delivery has taken place at the cost indicated in the PDD. Hence, we submit that it is highly unrealistic to assume any reduction in windmill cost.

The spread sheet with the provision for sensitivity analysis is enclosed for perusal.

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Response of DOE	The question consists of three parts, viz., a) Validation of IRR calculation; b) Appropriateness of the 14% equity benchmark; and c) Sensitivity analysis for key input values a) Validation of IRR Calculation: The IRR calculation is dependent upon cash outflow and cash inflow. The PP has chosen equity IRR to demonstrate the additionality of the project. As the project is entirely financed by equity, entire project cost constitute the cash outflow. Cash inflow is taken to include profit after tax, depreciation, salvage value and tax shield. PP has computed the IRR for a period of 20 years. The cash outflow, inflow and the tenure considered by the PP are also in conformity with the Guidance on Assessment of Investment Analysis (Para Nos. 3,5 and 10). Based on the above, the equity IRR of the project works out ot 11.11%. As stated in the FVR (p.18) DOE carried out the financial assessment by scrutinizing the input data and assumptions (hours of operation, electricity generation, Tariff rate, CER revenue, O&M expenses, insurance charges, income tax, benchmark) used in the calculation of IRR, cross verified the same with the documentary evidences provided by the PP and found them to be satisfactory. Further, DOE also checked the accounting principle adopted in computation, fiscal and financial benefits accounted for, arithmetical accuracy of calculation and found all of them to be in order. Hence, DOE was convinced that IRR of 11.11% is correct. b) Appropriateness of the 14% equity benchmark: As mentioned vide page No. 17 of FVR, the post tax return on equity of 14% selected as benchmark was deemed appropriate because both the benchmark and financial indicator reflect the financial attractiveness of the project from the point of view of an equity investor. As stated in the FVR (P.17), the benchmark chosen by the PP to demonstrate the additionality is the ROE recommended by CERC for power projects. Moreover, one of the alternatives recommended by Additionality Tool (Ver. 05) for benchmark pertains to *Government/ Offical approved rate, where such benchmarks are used for investment decisions*. The rate selected by the PP is Government approved rate (as CERC is a statutory body) and rate is used for investment decisions by the public and private sector projects. As it fulfills the conditions stipulated by the Additionality Tool also , DOE considered the benchmark as appropriate. Moreover, since the PP has chosen equity IRR to demonstrate additionality, the benchmark chosen is appropriate as it represents the *acceptable return*, which is sought to be compared with the *actual return* to draw conclusions. The DOE considered the benchmark chosen as appropriate only after comparing the same with three other alternatives, viz., i) Capital Asset Pricing Model (CAPM); ii) Return presently earned by the PP in one of its project engaged in generation and distribution of power; iii) Premium over commercial lending rate; The PP has worked out the required return on equity based on CAPM. Given the market return of 35.99%[3] and risk free rate of 7.34%[4], the beta value for an expected return on equity of 14% works out to 0.23[5], which by any standards is highly conservative. In fact the beta value of the wind power company listed and traded in the stock exchange is more than 1. The appropirateness of the 14% benchmark had been tested in relation to the return earned by the PP in

[3] 5 year CAGR of S&P CNX 500 index has been taken to represent the market return. While the 5 years period takes care of long term nature of investment, selection of S&P CNX 500 (which consists of 500 stocks) ensures the unsystemtic risk is reduced to the bare minimum, if not altogether eliminiated

[4] http://rbidocs.rbi.org.in/rdocs/AnnualReport/PDFs/72295.pdf. p182

[5] As per CAPM formula $R_e = R_f + \beta (R_m - R_f)$; Since the market risk premium is known, i.e., 28.65% (35.99% - 7.34%), the beta for an expected return on equity of 14% is nothing but (14.00-7.34) /28.65 = 0.23. Instead of S&P CNX 500, if the S&P CNX Nifty is chosen, the beta value does not exceed 0.30 even then.

	one of its projects already engaged in generation and distribution of power (thermal power project). The Earnings Per Share (EPS) of the Company during the year 2005-06 was Rs.30.63 and Rs.28.04[6] in the previous year. Against this, the PP had fixed Rs.1.40 as the benchmark. Finally, The PP has contracted a term loan for another project at 12.75%. This is the commercial lending rate, which is secured and hence least risky. In contrast ,an unsecured and risky investment should carry a premium. The premium assumed by the PP works out to hardly 10% over the commercial lending rate. In the above background, DOE considers the 14% return on equity taken as benchmark is conservative and appropriate for the project. c) Since this is a small scale project activity, sensitivity analysis was not carried out. However, as requested by EB, sensitivity analysis has now been carried out by varying two most critical factors, viz., CUF and Wind mill cost. There are no other costs or revenues, which account for more than 20% of the total cost or revenue. The results of the sensitivity analysis are given above in PP's reply. DOE carried out an independent study of the IRR and find that the project would cease to be non additional only when the wind mill cost drops down by 22% or the CUF goes up by 18%. During the discussions, PP has submitted that occurance of both the events are unrealistic. Since the orders for WEGs have already been placed and the WEGs have been delivered at the cost stated in the worksheet, the wind mill cost cannot come down. As regards CUF, achieving 27.6% CUF is much higher than even what the TNERC has assumed based on an exhaustive study of wind conditions. The project is not even able to achieve the stated CUF and hence the question of achieving higher CUF is not possible. DOE concurs with the submissions of PP. In the above background, DOE is convinced that the project is additional and would continue to be additional even under the most optimistic conditions. Contact person: Mr. Asim Kumar Jana TUV India Pvt. Ltd. 801, Raheja Plaza - I L.B.S. Marg. Ghatkopar (West) Mumbai - 400 086 India Phone: +91 22 66477074 Email: jana@tuv-nord.com

Request for Review	
Issue raised by EB-Members / DNA	Other Issues The PDD (p23) states that the crediting period start date would not be before registration.
Response of project participant	Nil
Response of DOE	Page 23 of PDD states, "*01/07/2008 or from the date of registration of the project, which ever is later*". Since the registration will take place after 01/07/2008, the crediting period will start from the date of registration by virtue of the operation of the clause, "whichever is later".

6 http://www.moneycontrol.com/india/stockpricequote/powergenerationdistribution/relianceinfrastructure/14/46/profitloss/marketprice/RI38

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