SHALIVAHANA PROJECTS LIMITED

(FORMERLY KNOWN AS SHALIVAHANA CONSTRUCTIONS LIMITED)

7th Floor, Minerva Complex , 94, S.D. Road, Secunderabad - 500 003.
Phones : 27816072, 27816082, 27816083 Fax : 91-40-55310072
E-mail : shalivahana_biomasspower@yahoo.com / shalivahanaprojects@yahoo.com

October 31, 2006

UNFCCC Secretariat
Martin-Luther-King-Strasse 8
D-53153 Bonn
Germany

K.Attn: CDM Executive Board

Ref: Response to requests for review raised by EB members for "Shalivahana Non-Conventional Renewable Sources Biomass Power Project (0591)"

Dear Members of the CDM executive Board

Please find below the initial response to requests for review raised by EB members for the above said project:

Comment # 1:

1) On the description of the project activity (PDD pg.2) it is said that biomass fuel is available in abundance within radii of 50 km of the site plant. In the Validation report (Sec. 3.2) it is said that "surplus biomass is available in the region and that the project activity will not lead to leakage effects elsewhere due to the usage of fossil fuels". Nevertheless one of the main arguments used in the barrier analysis to justify the additionality of the project activity is that CDM will reduce the project risk related to biomass availability and seasonal prices (PDD pg.13 and 14). This contradiction shall be explained: either the biomass is abundant and there is no risk associated with biomass availability and so this is not a barrier to the project activity; or there is a possibility of shortage of biomass and then leakage effects should be considered.

SHALIVAHANA PROJECTS LIMITED

(FORMERLY KNOWN AS SHALIVAHANA CONSTRUCTIONS LIMITED)

7th Floor, Minerva Complex , 94, S.D. Road, Secunderabad - 500 003.
Phones : 27816072, 27816082, 27816083 Fax : 91-40-55310072
E-mail : shalivahana_biomasspower@yahoo.com / shalivahanaprojects@yahoo.com

Reply:

As mentioned in the Project Design Document (PDD), the biomass is abundantly available within 50 km radii from the site. There is sufficient biomass available in the region and the same is revealed in Biomass assessment reports by NEDCAP and 'Socio Economic Impact Assessment of Biomass Power Plant in India' report prepared by Administrative Staff College of India, Hyderabad. The availability of biomass material (Paddy, groundnut, cotton, sunflower) in the Adilabad district where plant located is around 0.80 lakh tones per annum. The total biomass availability in the neighboring districts where from biomass can be procured, if required is around 2.5 lakh tones which is sufficient enough to generate around 25 MW of power as against the existing plant's capacity of 14 MW. Also, there are no other biomass power plants in the district apart from the project activity. This indicates the availability of enough quantity of the biomass in the region.. Though there is enough quantity of biomass available in the region, the cost of the biomass is on increasing trend and the rise in the prices is more than the expected. This is mainly due to higher and continuous increase in the costs involved in collection, transportation and storage conditions.

Collection, transportation and storage conditions of the biomass make the operation of biomass power plants much more difficult than a standard fossil-fuelled power plant. Biomass supply chain faces the following risks:

- Collection: exogenous uncontrolled conditions are modulating the quantity of biomass available (agriculture yield, rain falls…) each year. The types of the biomass available in the Adilabad district, where plant is located, are: Rice Husk, Cotton Stalk, Juliflora, Sun Flower Stalk and Ground Nut Shell. The availability of each biomass is confined to only for some months in a year in respect of each type of crop. Suitable mix of different types of fuel is required for optimum fuel usage. This demonstrates the relative complexity of supply of Biomass compared to standard fossil fuels.
- Transportation: Beyond 100 km transportation, biomass is no more profitable and so, supply sources are confined into a strict local area. Moreover, considering the great number of biomass types available in the region, the major task consists in

SHALIVAHANA PROJECTS LIMITED
(FORMERLY KNOWN AS SHALIVAHANA CONSTRUCTIONS LIMITED)
7th Floor, Minerva Complex , 94, S.D. Road, Secunderabad - 500 003.
Phones : 27816072, 27816082, 27816083 Fax : 91-40-55310072
E-mail : shalivahana_biomasspower@yahoo.com / shalivahanaprojects@yahoo.com

- the collection and transportation of these biomass materials from various places to meet the daily requirements of the plant.
- Storage: It is required to store the biomass in the fuel collection centres located in the fields at different convenient places in the region before transportation toward the plant. The raw biomass needs to be dried in the collection centres in the hot sun and stored after bailing in the suitable sheds, which theoretically protect the fuel from rains and winds. The PP has almost no means to control these upstream operations and thus, faces a risk of uncontrolled variation in quality of biomass delivered to the plant.

Also, leakage due to usage of biomass in the plant is neglected based on following arguments derived from the latest EB guidelines on determining the leakage from biomass based power plants:

1. As the project activity uses only biomass residues and wastes, the implementation of activity did not lead to shift of pre project activities.
2. Also, the biomass that is being used in the plant is waste that is generated from various crops. This waste will anyhow be generated even in the absence of the project activity and would have burnt without using for any other purpose. As the fuel used in the plant is mostly of agriculture waste, there is no involvement of using fertilizer and clearance of lands for the generation of same and hence there are no emissions towards the same.
3. The quantity of biomass that is available in the region is more than 25% of the quantity of biomass that is utilized including the project activity and hence the leakage can be neglected.

From the above analysis, it can be concluded that the project activity does not have any sources of leakage.

SHALIVAHANA PROJECTS LIMITED

(FORMERLY KNOWN AS SHALIVAHANA CONSTRUCTIONS LIMITED)

7th Floor, Minerva Complex , 94, S.D. Road, Secunderabad - 500 003.
Phones : 27816072, 27816082, 27816083 Fax : 91-40-55310072
E-mail : shalivahana_biomasspower@yahoo.com / shalivahanaprojects@yahoo.com

Comment # 2:

2) The analysis of the biomass price risks as one barrier to the project activity is incomplete. They only presented how the biomass prices have raised during the last years. This analysis to be relevant need to include also the same figures for the coal to be compared with the figures for the biomass. Relative prices are important and not absolute prices. Variations in absolute prices can reflect inflation, for example.

Reply:

The effect of uncertainly on fuel prices is very much higher for biomass based power plants mainly due to the higher risks due to increase in the fuel prices than predicted, difficult to operate plants with improper fuel mix etc. It is true that uncertainty in fuel prices occur in both biomass and fossil fuel power plants projects. But in India, the regulatory framework protects the prevailing practice (Coal-fired power plant) against such risks, while it is not the case at all for Biomass power plants. Hence the analysis is not done in the PDD and may not be required. In addition to this, all biomass power plants are not allowed to use coal more than the stipulated percentages (say 20-25% of total fuel used). Project proponent uses very less quantity of coal as supplementary fuel in case of emergency need. Also, the price of coal during last four to five years has not increased as that of biomass. The rough indicative price figures for the coal during last five years are as given below:

	Coal, Rs. /ton
2001-02	1530
2002-03	1487
2003-04	1516
2004-05	1561
2005-06	1560

SHALIVAHANA PROJECTS LIMITED

(FORMERLY KNOWN AS SHALIVAHANA CONSTRUCTIONS LIMITED)

7th Floor, Minerva Complex , 94, S.D. Road, Secunderabad - 500 003.
Phones : 27816072, 27816082, 27816083 Fax : 91-40-55310072
E-mail : shalivahana_biomasspower@yahoo.com / shalivahanaprojects@yahoo.com

The following paragraphs clarify the same in detail and compares biomass power plants with coal based power plants.

For Coal-fired power plants:

- On the supply side: to minimize coal supply risk, a defined part of the national mines is attributed to Indian coal power plants under the "coal linkage" scheme. This guarantees the coal plants a secured supply of fuel. (see: http://coal.nic.in/linkage.html).

- On the electrical revenue side: The price at which SEB (State Electricity Board like APTRANSCO, the client of the project activity) buys coal-fired power is reviewed regularly to provide the investors a consistent Return on Equity (**16%**). To determine this IRR, SEB uses the regulatory framework defined by Central Electricity Regulatory Commission. (see: http://cercind.gov.in/28052005/annualreport.pdf). The Indian newspapers are full of news testifying that the SEBs have regularly increased the price at which they buy coal power to support the investment in the power sector[1].

[1] http://www.hindu.com/2004/06/25/stories/2004062506260500.htm
http://india.eu.org/2679.html
http://www.tribuneindia.com/2004/20040617/biz.htm#1

SHALIVAHANA PROJECTS LIMITED

(FORMERLY KNOWN AS SHALIVAHANA CONSTRUCTIONS LIMITED)

7th Floor, Minerva Complex , 94, S.D. Road, Secunderabad - 500 003.
Phones : 27816072, 27816082, 27816083 Fax : 91-40-55310072
E-mail : shalivahana_biomasspower@yahoo.com / shalivahanaprojects@yahoo.com

- For these reasons, the prevailing practice, coal-fired power plants, faces limited risks both in amount of fuel supply and in fuel price variations. The comparison between fossil fired and biomass fired power plants is as given below:

Comparison of operation and financial conditions between biomass and fossil fuel power plant

Parameter	Fossil fuel based power plants	Biomass based power plants
Capacity	No fossil-based power plants with capacities similar to existing biomass plants in India (below 15 MW)	Capacities ranging from 2.5 MW to 12 MW available in Andhra Pradesh
Fixed returns from the board	Fixed returns of 16% envisaged for all the fossil fuel based power plants.	No such option available. Entirely depends on individual plants.
Fuel pass through to board	Available to maintain fixed return	Not available. Entire economics of biomass plants depends on how PP plans fuel procurement at economical rate
Auxiliary consumption	Vary from 5 to 9%	Difficult to keep below 10% on practical basis
Shut downs	Limited	More and depends on quality of fuel, climate conditions etc…
Working capital availability	More than 3 or 6 months	Very limited due to poor financial strengths of most of biomass PPs
Heat rate of the plant	Can be maintained constant due to single fuel usage and constant feed rate	Difficult to maintain due to various fuels used and their characteristics

SHALIVAHANA PROJECTS LIMITED
(FORMERLY KNOWN AS SHALIVAHANA CONSTRUCTIONS LIMITED)
7th Floor, Minerva Complex , 94, S.D. Road, Secunderabad - 500 003.
Phones : 27816072, 27816082, 27816083 Fax : 91-40-55310072
E-mail : shalivahana_biomasspower@yahoo.com / shalivahanaprojects@yahoo.com

On the other hand, Purchase Power Agreements (PPA) signed between APTRANSCO and the project activity does not guarantee an automatic revision in case of an increase of biomass prices. As a consequence, the project developer is supporting alone the financial risk and therefore expects a Return on Equity that should at least be as high as the one for prevailing practice.

CER, which represents an additional income compared to electricity selling, is fundamental to help mitigate part of the risks to the investor. Hence only with CER could the investor expect to have a return on Equity similar to the one of the prevailing practice.

These constraints should be interpreted as financial barriers while analyzing the profitability of the investment. This "risk premium" pushes the targeted Rate of Return on Investment equal or above the rate usually taken for prevailing practices.

As a conclusion, risks linked to the supply of the biomass at a competitive price, is one of the main barriers to the project activity development. This risk forces investor to target a Return On investment at least as high as for prevailing practice. Current purchase prices conditions are not good enough to support this additional risk. As for most of biomass plants around, CERs incomes appeared to be the central condition to such project development since they partly allow investor to support risk linked to biomass supply.

As a global conclusion, the Indian regulatory framework, which at the time of the project inception was not familiar with renewable energy and biomass power plants, does not protect biomass power projects against variation in the price of the fuel and its availability. But it does protect coal power plants against such risks.

SHALIVAHANA PROJECTS LIMITED

(FORMERLY KNOWN AS SHALIVAHANA CONSTRUCTIONS LIMITED)

7th Floor, Minerva Complex , 94, S.D. Road, Secunderabad - 500 003.
Phones : 27816072, 27816082, 27816083 Fax : 91-40-55310072
E-mail : shalivahana_biomasspower@yahoo.com / shalivahanaprojects@yahoo.com

Comment # 3:

3) The explanation of the application of the Methodology AMS-I.D is confusing. In the PDD is said that the methodology used is AMS-I.D Version 8. Nevertheless in Annex-3 of the PDD they make reference to ACM0004 methodology and the description of the methodology used is a mix of ACM0002 including options of AMS-I.D.

Reply:

The PP has used AMS I D for the project to identify applicability and followed the instructions in ACM0002, to find out the baseline emission factor. ACM0004 is not used any where in the PDD which is a typography error.

Comment # 4:

4) Regarding leakage it is also said in the PDD that the biomass source is in a radii of 50 km maximum and that these emissions are not significant if compared with the amount of emission to transport the coal to generate the equivalent electricity. In the calculation of these emissions they used 50 km as the "average distance between project site and biomass collection center". This have to be clarified because a radii of 50 km could represent distances by roam much larger that 50 km, the figure used in the leakage calculation.

SHALIVAHANA PROJECTS LIMITED

(FORMERLY KNOWN AS SHALIVAHANA CONSTRUCTIONS LIMITED)

7th Floor, Minerva Complex , 94, S.D. Road, Secunderabad - 500 003.
Phones : 27816072, 27816082, 27816083 Fax : 91-40-55310072
E-mail : shalivahana_biomasspower@yahoo.com / shalivahanaprojects@yahoo.com

Reply:

The leakage activity identified, which contributes for GHG emissions outside the project boundary is transportation of biomass from biomass collection centers to biomass power project site. The average distance of procurement considered in the calculations is based on the average distance of procurement of biomass from various nearby villages nearer to the plant location. This is based on the established monitoring system in the plant to monitor the source of biomass to the plant. To be on conservative side, this leakage due to fuel transportation has not been included considering the smaller percentage out of total GHG emission reductions by project activity.

Comment # 5:

5) It is not clear how the uncertainty on electricity prices is a barrier to the CDM project and not to the baseline scenario (with coal).

Reply:

First of all the baseline scenario considered for the project includes not only coal based power plant but grid mix with all kinds of power plants run with coal, gas, Naphtha, diesel etc. As explained in detail above for the comment No. 2, Indian regulatory protects fossil based power plants from any uncertainty in the fuel prices but not the biomass based power plants. Also, it is easier for the regulatory body to determine the prices for the fossil based power plants due to their fewer fluctuations in calorific values, heat values and limited effect of market conditions on fuel availability due to their dominance and applicability. However, power plants with biomass as main fuel face many problems in terms of their quality, pricing, high fluctuations in heat rate, higher auxiliary consumption than predicted etc. Hence, it is not easy for any regulatory body to fix the tariff for biomass based power plants to suit to the ground realities in the biomass based power plants.

SHALIVAHANA PROJECTS LIMITED

(FORMERLY KNOWN AS SHALIVAHANA CONSTRUCTIONS LIMITED)

7th Floor, Minerva Complex , 94, S.D. Road, Secunderabad - 500 003.
Phones : 27816072, 27816082, 27816083 Fax : 91-40-55310072
E-mail : shalivahana_biomasspower@yahoo.com / shalivahanaprojects@yahoo.com

In addition to above, the revision of the tariff structures for power plants is done by regulatory bodies separately for biomass based power plants and fossil fuel plants. The revised tariff by regulatory commission for the biomass power plants have significant effect on all the biomass power plants in the state and the biomass plant association in the state has approached Hon'ble Supreme court of India on the same to fix the tariff to avoid any financial loss to the plants in the state. As there is no progress in this front till date, most of the project proponents in the state are anticipating CDM revenue to reduce the gap between generation cost and revenue from the state electricity boards. Hence, the affect of the revision in the electricity tariff is applicable to the project activity.

6) The project is using many different source of biomass, including permitted woody biomass (Juliflora), which is considered to be renewable biomass by the EB. It was highlighted, in the Validation report, that if any other source of woody biomass is used that it should be verified by the verification team. Nevertheless in the monitoring tables the biomass is considered as only one fuel. There is no possibility to identify the different types of biomass which come into the plant. They will have to clarify how the monitoring system will control different sources of biomass in a way that it will be possible to the verification team identify if other woody non renewable biomass was used as a fuel in the plant.

Reply:

Plant monitors each type of biomass used in the plant and well documented all the details related to the various biomass material used in the plant. Records of the same are verified by DOE during the validation visit. Biomass referred in the monitoring plant includes all kinds of biomass materials allowed to use in the plant. This includes all kinds of permitted woody biomass and agriculture wastes. Plant also established pool proof mechanism to identify and reject any non permitted biomass entered in to the plant. Plant assesses all the biomass suppliers based on criteria defined and undertakes declaration from all the selected biomass

SHALIVAHANA PROJECTS LIMITED

(FORMERLY KNOWN AS SHALIVAHANA CONSTRUCTIONS LIMITED)

7th Floor, Minerva Complex , 94, S.D. Road, Secunderabad - 500 003.
Phones : 27816072, 27816082, 27816083 Fax : 91-40-55310072
E-mail : shalivahana_biomasspower@yahoo.com / shalivahanaprojects@yahoo.com

suppliers that only permitted biomass is supplied to the plant. This ensures only usage of permitted biomass fuel in the plant and rejection of any other non permitted biomass in the plant. Also, plant monitors and records all kinds of permitted biomass supplied to the plant. This has been recorded in the security, weighbridge and yard records. All the biomass fuels used in the plant can be verified by verifier or any authorized government representatives at any point of time. Also, plant submits reports on various biomass fuels used in the plant to NEDCAP regularly.

We hope the above responses clarify the issues raised by EB members and we look forward to the registration of the project activity.

For Shalivahana Projects Limited

M Komariah
MANAGING DIRECTOR