

Our ref. : KFQCDM-03

Date : 08 November 2011

Contact:

DOE: Mr. Nam Hoon Kim (jaeger@kfq.or.kr, Tel: +82-2-2025-9071, Fax: +82-2-2025-9069)

PP : Ms. Hye Young Yang (heyyoung@hanwha.co.kr, Tel: +82-2-729-3753, Fax: +82-2-729-3722)

Response to Request for Review
‘Yun'An County Gaoli Starch Factory Wastewater Treatment and
Biogas Recovery Project’
(Ref. 5039)

Korean Foundation for Quality (KFQ) had performed the validation of ‘Yun'An County Gaoli Starch Factory Wastewater Treatment and Biogas Recovery Project’ No. 5039 located in China. The submission for registration was made on 22/07/2011.

Two requests for review have been issued. The communication of this request for review was received on 10/10/2011.

We thank the CDM Executive Board and the Secretariat for giving us the opportunity to clarify about our considerations in validating the project mentioned.

Please find below KFQ response to the issues raised by the request for review.

Request for review :

- 1. The DOE is requested to clarify how it has validated the suitability of the input values used in the investment analysis in line with VVM para 114 a), in particular with regard to the coal savings. In doing so, the DOE should clarify, in line with VVM para 113 c), how it has**

assessed that the FSR estimate of the amount of coal displaced was valid and applicable.

Response by DOE:

The coal saving is calculated as coal price multiplied by amount of coal displaced. Thus, in order to demonstrate the validity of coal saving, the validation team investigated the coal price and amount of coal displaced respectively.

The coal price as 585 RMB/ton on final PDD is the highest price(585 RMB/ton with NCV of 5000kcal/kg) from actually purchased three years monthly record(2005~2007). On the other hand the coal price in FSR is 650 RMB/ton which is based on coal price index in China and NCV of 7000kcal/kg(Standard coal). The “standard coal” is a definition given by the Chinese government for the convenience of energy conversion in different industries. Therefore the price of standard coal is usually calculated based on credible commercial price of a certain type of coal and related NCV. Thus the coal price on FSR was used as coal price of standard coal(7000kcal/kg).

Thus considering the coal price with its NCV and the type of coal in the plant, the PP applied simply 585RMB/ton as coal price in the validation process and the validation team confirmed the application in investment analysis is also valid and reasonable.

However, there was a mistake for estimation of amount of coal displaced. The amount of coal displaced should also have been recalculated based on 5000 kcal/kg NCV. PP remained the amount of coal with 7000 kcal/kg NCV when Coal price 585 RMB/ton for 5000 kcal/kg NCV was applied. This was brought about confusion due to Coals with different NCV.

Thus, in order to make consistent application of NCV and Price of coal, PP adjusted the coal price as 650 RMB/ton, which is provided from the FSR.

(1) Coal price

The 650 RMB/ton is based on the coal price index in China.

As there was no national universal coal price index in China in year 2007. the FSR applied the most representative coal price index in China which is Qinhuangdao Harbor coal trading price. Qinhuangdao Harbor coal market is more than 41% of Chinese coal trading market, and the trading price of Qinhuangdao Harbor coal market has been basis for financial analysis and decision making of most Chinese domestic energy and related industries[†].

According to this coal price index, the average trading price (exactly is Free On Board price) of 5,000kcal/kg[‡] coal for year 2005, 2006 and 2007 is around 395.2 RMB/ton. Converting to standard coal(NCV of 7000kcal/kg) is 553.3 RMB/ton. Considering the project is located in Guangdong Province, the coal price should be a CIF price (cost, insurance and freight), so the calculation has taken

[†] <http://www.chinacoal.org.cn/coaljyx/265/25163.aspx>

[‡] <http://www.shenhuagroup.com.cn/xwzx/xyz/mtzs/2011/09/171790.shtml>

transportation fee of 65 RMB/ton and insurance fee of 0.7 RMB/ton into consideration which is $553.3+65+0.7=619$ RMB/ton.

We tested IRR in case applying the coal price before converting the 7000kcal/kg NCV coal. The coal NCV in Qinhuangdao Harbor coal market is 5000kcal/kg and the average price is 460.9 RMB/ton ($395.2+65+0.7$). We found the resulted IRR(7.7%) is less than the IRR after converting the standard coal NCV(7000kcal/kg).

* Transportation fee : According to the average transportation fee from Qinhuangdao Harbor to Guangzhou Harbor for the last week[§], recent average transportation fee level is provided(As of 4th November 2011). The average transportation fee from Qinhuangdao Harbor to Guangzhou Harbor for the last week is below table.

Ship type (Dead weight ton)	Unit Price (RMB/ton)
10000 ~ 15000	67
15000 ~ 20000	66
20000 ~ 30000	65

The current average transportation fee of all ship types is 66 RMB/ton. Considering the transportation cost has been continuously increased for the past years within the price increase rate in China and we confirmed the 65 RMB/ton transportation fee in the estimation of coal price in FSR by using recent average transportation fee level is reasonable.

* Insurance fee : According to the integrated import/export customs information, consulting and services platform supported by the General Administration of Customs of P. R. China **, the insurance fee decided as

- Insurance fee = Cargo value * Insurance rate($0.1\%^{††}$)
- Cargo value = CIF * 110% = 619 RMB/ton * 110%

We confirmed the insurance fee is $680.9 \text{ RMB/ton} * 0.001 = 0.7 \text{ RMB/ton}$ is reasonable.

Thus, the coal price 650RMB/ton is in the FSR instead of 619 RMB/ton since the annual increasing trend of coal price(4.49%, 2002~2008) is considered and a relatively high IRR is also helpful for PP to get governmental approval for the project activity. In doing so, 650 RMB/ton is a valid and applicable for financial analysis.

KFQ conclude that the adjusted coal price is valid and appropriate for investment analysis by cross-checking with other reference and the FSR adopted this price as well.

[§] <http://ghd.cqcoal.com/Trade/Price/>

^{**} <http://www.e-to-china.com.cn/tgzn/hwys/cjwt/2009/1012/63340.html>

^{††} <http://www.nnzsy.com/shop/pinpaidiannao/130257416325.html>

(2) Amount of coal displaced

Amount of coal displaced has been adopted from the FSR. For more investigation for amount of coal displaced, the validation team checked annual coal consumption and its caloric value of coal through purchasing receipts.

The installed capacity of the production line is 60tons/day, and current production has reached 54~58 tons/day. In a very long-term, PP will try to keep the production stable at 58~60 tons/day thus the amount of coal displaced will not significantly exceed historical consumption record and we could regard the amount of coal displaced limited to the maximum production capacity.

In addition, it can be crosschecked that the baseline emissions from heat displaced by the project activity(BE_{thermal}) is followed by the converted caloric value from the amount of coal displaced.

We confirmed that the average coal consumption is 2,947 ton/year and caloric value of coal is 4,800kcal/kg or 5,100kcal/kg from three years monthly record(2005~2007) that is actual purchased data demonstrated by purchase receipts every month provided by coal provider such as Guangdong Lanyue Energy Development Limited & Zhaoqing Shenyu Trading Limited. For the caloric value of coal, PP applied average 5,000kcal/kg caloric value as purchased coal considering each caloric value of coal purchased and amount of purchased coal respectively.

Therefore, amount of coal displaced could be estimated as 2,105 ton/year by converting to the Chinese national standard net caloric value of coal (7,000kcal/kg).^{††}

The amount of coal displaced applied in FSR (2,250 ton/year) is higher than the estimated coal amount based on actually consumed record(2,105 ton/year). The validation team confirmed that the amount of coal displaced applied in FSR (2,250 ton/year) is estimated reflecting the gap between current annual starch production capacity (54~58 tons/day) and maximum production capacity(60 tons/day) as a conservative manner.

(3) Variation range for sensitivity analysis

- Statistical data on coal industry price for Guangdong Province published by National Bureau of Statistics of China shows that the coal price annual average increasing rate is 4.49% from 2002 to 2008.
- According to the report^{§§} by Henan Development and Reform Commission, publicized in year 2007, the forecast of coal price trend in the year 2008 will be mildly increased, while the increase is less than the year 2007 (in 2007, the coal price increase was 3.4%) by result of analysis of coal demand and supply.

And in another research report issued by Chinese Academy of Science Center for Econometric Analysis and Forecasting Science Research Center Northeast Branch on 6 December 2007, after

^{††} <http://www.sndrc.gov.cn/view.jsp?ID=4078>

^{§§} <http://www.hndrc.gov.cn/html/fagaiweizhuanlan/diaochayanjiu/2011/0601/3169.html>

applying economic modelling and historical data, the report forecasted in year 2008, the coal price will be increased 5%~6%.

Thus we confirms that 10% variation range for coal price in sensitivity analysis is reasonable

In conclusion, we can conclude that the coal price (650)and amount of coal displaced(2,250) in financial analysis are valid and applicable at the time of the investment decision.

2. The DOE shall explain how it confirmed that the monitoring plan is in accordance with the applied methodology AMS LC ver 19 and the “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion” which require monitoring of NCV of fossil fuel, considering that the NCV of coal is not included in the monitoring plan.

Response by DOE:

The project emission from the fossil consumption is for keeping temperature of UASB digester in winter time. Thus heat utilization component in the project emission ($PE_{thermal}$) should be counted in the proposed project activity according to the “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion (Ver. 2)”.

Thus PP added the following table of monitoring fossil fuel NCV into the PDD B.7.

Data / Parameter:	NCV _{coal,y}
Data unit:	TJ/ton
Description:	Net calorific value of coal that is consumed in the year y
Source of data used:	Values provided by the fuel supplier
Value of data applied for the purpose of calculating expected emission reductions in section B.5	0.0293076
Description of measurement methods and procedures to be applied:	The NCV will be monitored for each fuel delivery, from which weighted average annual values will be calculated.
QA/QC procedures to be applied:	NCV test report will be provided, and the measurements will be undertaken in line with national fuel standards.
Any comment:	-

KFQ confirmed the monitoring parameter for NCV of fossil fuel requiring ex-post monitoring is clearly described on PDD and that the means of monitoring described in the plan complies with the

requirements of the methodology. And the monitoring parameter $NCV_{coal,y}$ is assessed on the final validation report as follows.

Parameter Title	Description	Unit	Comment	
$NCV_{coal,y}$	Net calorific value of coal that is consumed in the year y	TJ/ton	Data Checklist	Yes/No
			Data unit correctly expressed?	Yes
			Appropriate Description of parameter?	Yes
			Source clearly referenced?	Yes
			Correct value provided for estimation?	Yes
			Has this value been verified?	Yes
			Measurement method correctly described?	Yes
			Correct reference to standards?	Yes
			Indication of accuracy provided?	N/A
			QA/QC procedures described?	Yes
			QA/QC procedures appropriate?	Yes

※ **Attachments**

- 1) PDD (Ver. 1.6)_clean
- 2) PDD (Ver. 1.6)_track
- 3) Excel Spreadsheet on Investment Analysis Report (Ver. 1.6)
- 4) Excel Spreadsheet on ER (Ver. 1.6)
- 5) Validation report (Ver. 04)_clean
- 6) Validation report (Ver. 04)_track