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TÜV®

CDM Executive Board

Our / Your Reference

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Date
23.10.2012

Response to the Review of project "Switch at Corobrik's Driefontein Brick Factory in South Africa" (Ref. no. 6567)

Dear Honourable Members of the CDM Executive Board,

Please find attached the response of TÜV NORD to the review of the above mentioned project No. **6567**.

The PP has authorized us to submit their review response in the attached consolidated document. The content of this response remains in the sole responsibility of the PP.


In so far as actions from the PP were to be taken (e.g. revisions of submitted documents) the TÜV NORD response has taken those actions into account.

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

Yours sincerely,



Rainer Winter
Head TÜV NORD JI/CDM Certification Program

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Review Issue # 1	
Original text of the issue raised:	<p>The DOE is requested to describe how each applicability condition of the methodology/ies is fulfilled by the project activity as per VVM v1.2 paragraph 76.</p> <p>The DOE shall provide validation opinion on how the project activity is in compliance with the applicability condition 8 of the methodology. In doing so, the DOE shall confirm that directly measuring the energy use/output of the project activity is ensured</p>
Changes Made were made in the following documents ¹	
<input checked="" type="checkbox"/> PDD	Sections B.2, B.7, and B.7.2
<input type="checkbox"/> FVR	
<input type="checkbox"/> Financial Models	
<input type="checkbox"/> ER Sheet	
PP's Response	
DOE's Response	
Applicability condition as per AMS-III.B (version 15)	DOE response
<p>1. This methodology comprises fossil fuel switching in industrial, residential, commercial, institutional or electricity generation applications (e.g. fuel switch from fuel oil to natural gas in an existing captive electricity generation or replacement of a fuel oil boiler by a natural gas boiler).</p>	<p>The project activity incorporated a switch from coal to natural gas in an industrial application.</p> <p>This could be confirmed during the site visit as well as based on supporting documentation^{/HISTD//DEM//CC/} such as:</p> <ul style="list-style-type: none"> • Historic Coal data, (2004-2006) • Historic Coal, Tar and Duff Sale Data (2007) • Jet demolition (26-06-2009) • Personal communication on demolition of redundant gasifiers • Driefontein Factory, conversion

¹ please indicate the respective sections / worksheets

	to natural gas (21-10-2008)
2. Fuel switch may be in a single element process or may include several element processes within the facility. Multiple fossil fuel switching in an element process however is not covered under this methodology.	<p>This project consists of a fuel switch from coal to natural gas.</p> <p>This was confirmed during the site visit based on the design of the project, which only allows for natural gas consumption.</p>
3. This methodology is applicable for new facilities as well as for retrofit or replacement of existing installations	<p>The fuel switch required a modification of the kiln at Driefontein, which was an existing industrial establishment. This was confirmed during the site visit, as well as from supporting documents presented by PP, such as:</p> <ul style="list-style-type: none"> • Jet demolition (26-06-2009) Personal communication on demolition of redundant gasifiers • Driefontein Factory, conversion to natural gas (21-10-2008)
4. Fuel switching may also result in energy efficiency improvements. If the project activity primarily aims at reducing emissions through fuel switching, it falls into this methodology. If fuel switching is part of a project activity focussed primarily on energy efficiency, the project activity falls under a Type II methodology.	<p>The project activity is aimed at reducing emissions through a complete fuel switch from coal to natural gas. The latter is the main aim of the project and the principle reason for implementation of the project by Corobrik.</p> <p>In addition there is no change in the specific energy consumption by the brick kiln as it stayed constant from 2005 to 2008 within a 95% confidence level between 6.66 and 9.47 GJ/1000 bricks(Ref: CAR B1).</p> <p>The DOE checked and confirmed this through the following Supporting documentation:</p> <ul style="list-style-type: none"> - Excel document ,2012-04-23– Driefontein Fuelswitch Emission Reductions Calculations', the sheet 'Brick production' in the graph 'Average Energy consumption (GJ) per production of 1000 bricks before (2005-2007) and after (2008) project implementation' which can be found from row 77 downwards.


<p>5. New facilities (Greenfield projects) and project activities involving capacity additions compared to the baseline scenario are only eligible if they comply with the related and relevant requirements in the general guidelines to SSC CDM methodologies. The requirements concerning demonstration of the remaining lifetime of the replaced equipment shall be met as described in the general guidelines to SSC CDM methodologies. If the remaining lifetime of the affected systems increases due to the project activity, the crediting period shall be limited to the estimated remaining lifetime, i.e. the time when the affected systems would have been replaced in the absence of the project activity.</p>	<p>In accordance with the UNFCCC tool for equipment lifetime determination “Tool to determine the remaining lifetime of equipment (EB 50, Annex 15)” an expert input^{/REMLIF/MP/} was obtained to review the ongoing capital expenditure on the gasifier prior to the fuel switch, the maintenance record and actual state of the equipment. The production records for the last 20 years are used as proof that no industrial incident occurred that shortened the remaining technical lifetime of the gasifiers. The original coal gasifiers, used in the project baseline, have been decommissioned and are no longer operational. The expert concluded that the expected lifetime of the decommissioned gasifiers exceeds the project lifetime as the gasifiers could produce gas indefinitely if maintained well.</p> <p>The DOE reviewed the above described document, as well as the other supporting documentation and came to the conclusion that the project fulfils the requirements of the general guidelines to SSC CDM methodologies. The crediting period of the project activity is 21 years and is deemed acceptable.</p>
<p>6. This methodology is not applicable to project activities that propose switch from fossil fuel use in the baseline to renewable biomass, biofuel or renewable energy in the project scenario. A relevant Type I methodology shall be used for such project activities that generate renewable energy displacing fossil fuel use. This methodology is also not applicable to project activities involving the use of waste gas; these project activities might be eligible under AMS-III.Q.</p>	<p>Based on the site visit and presented project documentation^{/NG/LIC/}, the DOE confirms that the project activity is not a switch from fossil fuel used in the baseline to renewable biomass, biofuel or renewable energy in the project scenario.</p>
<p>7. The facility may involve grid connected elemental processes however this methodology does not cover emission reductions on account of shift from use of a grid electricity or electricity exported to a grid.</p>	<p>As the emission reductions are claimed for a shift from coal to natural gas and not a shift away from grid electricity, the DOE can confirm that this applicability</p>

	condition is complied with.
8. This category is applicable to project activities where it is possible to directly measure and record the energy use/output (e.g. heat and electricity) and consumption (e.g. fossil fuel) within the project boundary.	<p>The only input into the burner is natural gas and the only output being hot air.</p> <p>The natural gas input into the burner is directly measured and recorded by a Sasol owned gas flow meter, as well as a Corobrik owned natural gas flow meter.</p> <p>The energy output of the element process is directly measured by the gas consumed by the burner. In addition, at the recipient end, the hot air temperature is measured directly using thermocouples, as is required by the methodology.</p> <p>The DOE confirmed during the site visit that direct measurement of output (heat) and input (natural gas) takes place, as well as the calibrations thereof. Therefore, the project complies with applicability condition 8 of the methodology^{/NG//GASCON//IM01//IM02//IM05/}.</p>
9. Heat or electricity produced under the project activity shall be for on-site captive use or and/or export to other facilities included in the project boundary. The generated electricity may also be supplied to users via mini/isolated grid(s) system exclusively supplied by fossil fuel units.	The heat produced in the project activity is consumed on-site by captive use. This is confirmed by the DOE during their site visit.
10. In case energy produced by the project activity is delivered to another facility, or facilities, within the project boundary, a contract between the supplier and consumer(s) of the energy will have to be entered into specifying that only the facility generating the energy can claim emission reductions from the energy displacement.	The DOE confirmed during site visit that the fuel switch is for own consumption and no energy produced by the project activity is delivered to another facility outside the project boundary ^{/IM01//IM02//IM05//NG//GASCON/} .
11. Regulations do not constrain the facility from using the energy sources cited in paragraph 1 before or after the fuel switch. Regulations do not require the use of low carbon energy source (e.g. natural gas or any other fuel) in the element processes.	<p>The DOE confirms that to have checked and is convinced of the validity of the following documents:</p> <p>Supporting documentation to prove the previously used fuel (coal) neither the new fuel (Natural Gas) is against</p>

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	<p>regulations: <i>environmental approval for the installation of the Sasol Natural Gas pipeline to Corobrik</i> confirms that Natural Gas is allowed to be used. Furthermore, this environmental approval states the previous use of coal, which means that the Department of Agriculture, Conservation and Environment was aware and approved of the use of coal at Corobrik^{/REN/LIC/EIA/}.</p> <p>Supporting documentation to prove that regulations do not require the use of Natural Gas in Brick production facilities is the letter from the Claybrick association which states that only a minority of the Clay brick factories within South Africa make use of Natural gas in their brick production process</p>
<p>12. The project activity does not result in integrated process change. The purpose is to exclude measures that affect other characteristics of the process besides switch of energy sources e.g. operational conditions, type of raw material processed, use of non-energy additives, change in type or quality of products manufactured etc.</p>	<p>The project does not involve an integrated process change. The kiln operates the same and with the same energy efficiency.</p> <p>The process description as contained in the PDD was validated by the DOE through onsite visit and project documentation.</p>
<p>13. Measures are limited to those that result in emission reductions of less than or equal to 60 kt CO2 equivalent annually.</p>	<p>Yearly reductions are ex-ante estimated as 37,131tCO2e. The DOE has checked all technical information and assumptions used for the calculations and checked the relevant spreadsheets.</p>
<p>DOE's Response</p>	
<p>The Project Proponent has revised the PDD and elaborated further to demonstrate how the project activity conforms to applicability condition 8. The DOE confirmed the same during onsite and by detailed review of project activity documentation and deems all methodology criteria fulfilled.</p>	
<p><input type="checkbox"/> Other/Additional documents</p>	

Review Issue # 2	
<p>Original text of the issue raised:</p>	<p>The DOE is requested to provide information on the steps taken to validate the project starting date as per VVM v 1.2 paragraph 104 (a). In doing so, the DOE shall provide validation opinion on why the gas supply contract</p>

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	signed on 26 September 2006 or the construction license issued in January 2007 has not been considered as the project starting date.
Changes Made were made in the following documents²	
<input type="checkbox"/> PDD	
<input checked="" type="checkbox"/> FVR	Section 4 (CAR B6)
<input type="checkbox"/> Financial Models	
<input type="checkbox"/> ER Sheet	
PP's Response	
<p>As the start date of a CDM project activity is defined as "the earliest date at which either the implementation or construction or real action of a project activity begins", the start of the construction of the Sasol pipeline (11 June 2007) has been found to be the most appropriate project start date. Several other actions took place in close proximity to this date. All of these actions have been considered by the project participant as potential start dates as they would satisfy the requirement as stipulated by the Executive Board. The start of the construction of the pipeline was the most appropriate to be taken as the project start date for the following reasons:</p> <p><u>Gas supply contract signed on 26 September 2006</u>: a contract with Sasol (the gas supplier) was signed, which would only become legally binding once all conditions precedent stipulated in the contract were met. Two conditions precedent, namely a positive environmental Record of Decision (the milestone for environmental approval as specified in South African environmental legislation) and all required licenses for the gas pipe, were stipulated in the contract. Therefore, the signing of the gas supply contract is not legally binding at the time of signing and therefore no real action was taken by Corobrik on the basis of this agreement.</p> <p><u>The construction license for the Sasol pipeline was issued in January 2007</u>. However, at that time still one condition precedent, namely the operating license, was still outstanding.</p> <p><u>On the 1st of June 2007</u>, an invoice was raised by Sasol for the construction of the Sasol pipeline for Corobrik. As this was however done by Sasol and not by Corobrik, this was not interpreted as an action by the project participant.</p> <p><u>On the 11th of June 2007</u>, when construction of the pipeline started, conditions precedent were removed and the first real action on the project was taken.</p>	
DOE's Response	
During project validation, the DOE considered all actions taken by PP to implement the project	

² please indicate the respective sections / worksheets

activity, and determined that, based on the reasons explained in the PP's response and in the relevant findings in section 4 of the final validation report (CAR B6), that the date of 2007-06-11, when actual Sasol pipeline construction commenced is the most appropriate date to assign the project starting date in accordance with the CDM glossary of terms.

☐ **Other/Additional documents**

Review Issue # 3		
Original text of the issue raised:	<p>The DOE is requested to provide information on the steps taken to validate the actions taken to secure the CDM status between the project starting date and the start of validation as per EB 62 Annex 13 paragraph 8 b.</p> <p>In doing so, the DOE shall provide validation opinion on all evidences listed on page 22 of the PDD, in particular the meeting with the CDM consulting company on 23 January 2008, the CDM consulting contract signed on 15 September 2008, and the quotations received from DOEs.</p>	
Changes Made were made in the following documents³		
<input type="checkbox"/> PDD		
<input checked="" type="checkbox"/> FVR	Section 5.2.5 and section 7	
<input type="checkbox"/> Financial Models		
<input type="checkbox"/> ER Sheet		
PP's Response		
<p>The following list of supporting documentation were submitted by the project developer to prove that continuing and real actions were taken to secure CDM status for the project activity between project start date and the start of validation:</p>		
Date	Progress	Supporting Documentation
11 June 2007	Construction of the pipeline started. This date is seen as the first real action on the project and is therefore chosen as the starting date	Minutes progress meeting pipeline construction (2007-06-20)
25 Sep 2007	Email sent to Nu Planet, CDM developer, to develop the Driefontein fuel switch as a CDM project	Email sent to Nu Planet , CDM developer (2007-09-25)

³ please indicate the respective sections / worksheets

	<i>This email mentions that the decision to implement the fuel switch has been taken and that guidance from the CDM developer is required on how to take the CDM registration process further. It is clear from the email that the project has been discussed previously with the CDM developer (Nu Planet). A suitable date for an appointment is discussed in this email.</i>	
23 Oct 2007	First draft of the Driefontein PDD by NuPlanet <i>Draft PDD version (23 October 2007) provided for review to the DOE.</i>	First draft of the Driefontein PDD by NuPlanet (2007-10-23) was provided by PP as part of the validation process.
23 Jan 2008	Corobrik meeting to discuss progress of the Driefontein PDD <i>Minutes from that meeting have been provided. The following persons attended this meeting (also confirmed by these persons during the site visit):</i> <ul style="list-style-type: none"> • Robbie Carswell, Corobrik Driefontein • John Anthony, Corobrik • Anton Louis Olivier, Nu Planet <p><i>As per the minutes, it was agreed that the PDD be submitted by Monday 11 February 2008 and draft number 2 of the PDD to be finalized by 15 February 2008.</i></p> <p><i>However, CDM Credit issuance of another CDM project in the area (28 km from Driefontein), Lawley Fuelswitch, was delayed. For that reason it was decided to use the lessons learned during the Lawley verification to improve the Driefontein PDD. When issuance took place on the 13 of June, it was decided to incorporate the knowledge and experience into the Driefontein PDD.</i></p>	Corobrik meeting to discuss progress of the Driefontein PDD (2008-01-23).
15 Sep 2008	Corobrik contacts Promethium Carbon to work on Driefontein project <i>Email from John Anthony of Corobrik to Harmke Immink of Promethium asking for a meeting to discuss the Corobrik-Driefontein project.</i>	Corobrik contacts Promethium Carbon to work on the Driefontein project. (2008-09-15)

9 Oct 2008	Promethium proposal accepted and work on the PDD begins. Site visit by Promethium to Driefontein Factory <i>On the 9th of October, Rajan Pillay from Corobrik head office confirms acceptance of Promethium's proposal to take over the CDM Registration process work from Nu Planet. Acceptance was via email to Mr HJ Swanepoel, financial manager of Promethium.</i>	Promethium proposal accepted (2008-10-09)
20 Feb 2009	Stakeholder consultation for the CDM project commences <i>Supporting documentation, newspaper articles, have been provided and assessed.</i>	Stakeholder consultation for the CDM project commences_1 and Stakeholder consultation for the CDM project commences_2.
Feb 2009	Draft PDD completed by Promethium <i>Draft PDD received as part of supporting documentation.</i>	Draft PDD completed by Promethium. (February 2009)
20 Mar 2009	Requested quote for validation of Driefontein Fuel Switch Project from SGS <i>Email is send by Joslin Andrews of Promethium to Mia Antoni en Cornelis van den Berg of SGS on the 20th of March 2009.</i>	Requested quote for validation of Driefontein Fuel Switch Project from SGS (2009-03-20)
14 Apr 2009	Requested quote for validation of Driefontein Fuel Switch Project from Tuev Nord and ERM <i>Email is send by Joslin Andrews of Promethium to Katja Beyer en Alet Fabricius of Tuev Nord on the 14th of April 2009.</i>	Requested quote for validation of Driefontein Fuel Switch Project from TÜV NORD (2009-04-14).
9 Apr 2009	Quote received from SGS <i>Quote is signed on the 9th of April by Sergey Putintsev from SGS and addressed to Mr. Dirk Meyer from Corobrik.</i>	Quote received from SGS (2009-04-09)
8 May 2009	Quote received from ERM <i>Quote is signed on the 8th of May by Leigh Lloyd from ERM and addressed to Mr. John Anthony from Corobrik.</i>	Quote received from ERM (2009-05-08)
9 June 2009	Quote received from TÜV NORD <i>Quote is submitted on the 9th of June by Tuev Nord to Corobrik.</i>	Quote received from TÜV NORD (2009-05-09)
19 Aug 2009	TÜV NORD quote is accepted by Corobrik, but unfortunately it had expired. Hence, an updated quote was requested from Tuev	TÜV NORD quote is accepted by Corobrik, but unfortunately it had expired (2009-08-19)

	Nord. <i>Email from Michael Kirn of Tuev Nord to John Anthony of Corobrik explaining that the issued proposal was only valid for 30 days and that the validity period therefore expired on the 9th of July. As Tuev Nord is changing its proposal process, there are expected delays in the issuing of a new proposal. Furthermore, limited availability of the company's CDM experts might also cause a delay in new submission of a proposal and planning of a validation date.</i>	
Aug - Nov 2009	Follow up on proposal from TÜV NORD <i>Several emails show communication between Tuev Nord and Promethium in order to obtain an updated quote.</i>	Follow up on proposal from TÜV NORD_1 to _10 (August to November 2009)
20 Nov 2009	Updated quote received from TÜV NORD <i>Updated quote is submitted on the 20th of November by TÜV NORD to Corobrik.</i>	Updated quote received from TÜV Nord (2009-11-20)
1 Feb 2010	PDD uploaded for global stakeholder consultation by TÜV NORD	PDD uploaded for global stakeholder consultation by TÜV NORD (2010-02-01)

DOE's Response

The DOE has inspected the above mentioned documentation^{/PRIOR/} and is satisfied that the supporting documentation provided for these actions prove that continuing and real actions were taken to secure CDM status for the project activity.

Specifically:

1. *the meeting with the CDM consulting company on 23 January 2008*

The meeting minutes between PP (Corobrik) with Nu Planet consultants were checked and confirmed by DOE. Contents therein included discussions on PDD drafting and ways to improve project design based on lessons learned from the Lawley CDM project.

2. *the CDM consulting contract signed on 15 September 2008*

This was not a signed consulting contract but an email offer from PP (Corobrik) to meet and discuss developing the project further with CDM consultants Promethium Carbon. Hence, this proves CDM intention.

3. *the quotations received from DOEs*

- Quote received from SGS on 2009-04-07 for CDM validation services was in response to request from Promethium Carbon for quotation dated 2009-03-20 as seen and validated by DOE.

- Quote received from ERM on 2009-05-08 was in response to an email request from Promethium carbon dated 2009-04-28 as seen and validated by DOE.
- On 2009-04-14, Promethium Carbon also sent an email request for a quotation from TÜV NORD for the validation services. TÜV NORD replied 2009-06-09 with a quotation.
- The above emails and quotations from respective DOEs have been cross-checked and confirmed to be authentic and clearly show CDM intention. On 2009-10-13, TÜV NORD quote was accepted and subsequently updated on 2009-11-20.

Therefore, in line with EB 62, Annex 13, it can be unambiguously confirmed by DOE that PP has shown prior CDM consideration through real and continuous actions.

☐ **Other/Additional documents**

Review Issue # 4	
Original text of the issue raised:	<p>The DOE is requested to describe the steps undertaken to assess if the monitoring arrangements are feasible to be implemented within the project design as per VVM v1.2 paragraph 124(b).</p> <p>The DOE shall provide validation opinion on how the monitoring plan is in compliance with the methodology which requires to monitor the output of element process i (Qpj).</p>
Changes Made were made in the following documents⁴	
<input checked="" type="checkbox"/> PDD	Section B.7 and B.7.2
<input checked="" type="checkbox"/> FVR	Section 5.2.7
<input type="checkbox"/> Financial Models	
<input type="checkbox"/> ER Sheet	
PP's Response	
<p>The monitoring plan in the PDD has been updated to include monitoring of the output energy from the burner (element process) as well as the heat at the recipient end (temperature of hot air in the kiln). The only input into the burner is natural gas and the only output being hot air. The energy</p>	

⁴ please indicate the respective sections / worksheets



output of the element process is directly measured by the gas consumed by the burner. At the recipient end, the hot air temperature is measured directly using thermocouples, as is required by the methodology.

DOE's Response

All energy measurements, apart from electricity measurements, are based on calculations (for example steam = pressure * temperature) (as initially discussed in CAR B15).

The most accurate and appropriate measurement of output from the natural gas burner is by measuring the natural gas consumed by the burner.

The DOE has inspected the supporting documentation, including gas flows and temperature measurements inside the kiln as part of process operations during the onsite visit and confirms that it complies with the requirement of the methodology. The PDD version 11 has been revised to reflect the measurement and determination of net energy output ($Q_{PJ,y}$). The monitoring plan as described is feasible and complies with the methodology AMS III.B.

☐ **Other/Additional documents**