



**Validation report form for post-registration changes for CDM project activities**
**(Version 01.0)**

Complete this form in accordance with the "Attachment: Instructions for filling out the validation report form for post-registration changes for CDM project activities" at the end of this form.

**VALIDATION REPORT ON POST-REGISTRATION CHANGES (PRCs)**

<b>Title and reference number of the project activity</b>	Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia UNFCCC ref. No: 2467 Project No: MY-DC 15/22 – 15/180		
<b>Process track</b>	<input checked="" type="checkbox"/> Prior approval <input type="checkbox"/> Issuance <input type="checkbox"/> Renewal of crediting period		
<b>Version number of the validation report on PRCs</b>	Version 1.0		
<b>Completion date of the validation report on PRCs</b>	05/09/2016		
<b>Type(s) of PRCs</b>	<input type="checkbox"/> Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline <input type="checkbox"/> Corrections <input type="checkbox"/> Changes to the start date of the crediting period <input type="checkbox"/> Inclusion of a monitoring plan to a registered project activity <input checked="" type="checkbox"/> Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline <input checked="" type="checkbox"/> Changes to the project design of a registered project activity <input type="checkbox"/> Types of changes specific to afforestation and reforestation project activities		
<b>Version number of PDD to which this report applies</b>	Version: 19.0 Date: 02/09/2016		
<b>Project participant(s)</b>	KUB-Berjaya Enviro Sdn. Bhd. (KBE)		
<b>Host Party</b>	Malaysia		
<b>Sectoral scope(s), selected methodology(ies), and where applicable, selected standardized baseline(s)</b>	<b>Project Scope</b> <i>(according to UNFCCC sectoral scope numbers for CDM)</i>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7	Energy Industries (renewable- /non-renewable sources) Energy distribution Energy demand Manufacturing industries Chemical industry Construction Transport

**CDM-PRCV-FORM**

	<input type="checkbox"/>	8	Mining/Mineral production
	<input type="checkbox"/>	9	Metal production
	<input type="checkbox"/>	10	Fugitive emissions from fuels (solid, oil and gas)
	<input type="checkbox"/>	11	Fugitive emissions from production and consumption of halocarbons and hexafluoride
	<input type="checkbox"/>	12	Solvents use
	<input checked="" type="checkbox"/>	13	Waste handling and disposal
	<input type="checkbox"/>	14	Afforestation and Reforestation
	<input type="checkbox"/>	15	Agriculture
	<input type="checkbox"/>	16	Carbon capture and storage
Applied Methodology(ies) and/or standardized baseline		CDM Methodology: ACM 0001, version 8.0 Consolidated baseline and monitoring methodology for landfill gas project activities.	
<b>Name of DOE</b>		TÜV NORD CERT GmbH	
<b>Name, position and signature of the approver of the validation report on PRCs</b>		 Stefan Winter Final Approver	

**SECTION A. Executive summary**

KUB-Berjaya Enviro Sdn. Bhd., has commissioned the TÜV NORD JI/CDM Certification Program (CP) to assess post registration changes of the project:

“Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia”

This report serves as an annex to the Post-registration changes request form (CDM-PRC-FORM).

**Technical Project Description**

The project activity is a municipal solid waste (MSW) landfill project located at Mukim Sg. Tinggi, District of Hulu Selangor approx. 40 km from Kuala Lumpur, Malaysia.

The objective of the project is to extract and avoid direct emissions of greenhouse gases (GHGs) from the landfill into the atmosphere. The methane gas collected is destructed using gas engines to generate electricity exported to the national grid of Peninsular of Malaysia and excess gas destructed by enclosed flares

The project activity first cell, involved the operation of the cell known as the “Advance Cell” which commenced on 01/04/2005 and was closed on November 2007. A total of approximately 1,430,000 metric tons of municipal solid waste was disposed in this cell. The 2<sup>nd</sup> cell, defined as phase 1, is currently not closed, in operation and is expected to receive up to 3.7 million tons of MSW over the following years. Both these phases are included in this project, as well as any future phases to be developed as stated in Section A.1 of the revised PDD version 19.0.

Essential data of the project is presented in the following Tables.

**Table 1: Project Characteristics**

Item	Data	
Project title	Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia	
Project type	<input checked="" type="checkbox"/> Standard	<input type="checkbox"/> PoA
Project size	<input checked="" type="checkbox"/> Large Scale	<input type="checkbox"/> Small Scale
Technical Area(s)	13.1: Waste handling and disposal	
Location	Malaysia	
Crediting period	<input checked="" type="checkbox"/> Renewable Crediting Period (7 y) <input type="checkbox"/> Fixed Crediting Period (10 y)	

**Table 2: Technical data of the project activity**

Parameter	Unit	Value
<b>Flare</b>		
Manufacturer	-	Fairyland Environmental Technology, China
No. of units		2
Gas Flow Capacity	m <sup>3</sup> /hr	Maximum – 2,500
Retention Time	second	>0.3 at 800-1,000°C
Gas Blower	-	Twin-lobe root blower
Gas Analyser	-	For CH <sub>4</sub> and O <sub>2</sub>
<b>Gas Extraction System</b>		
Manufacture		Q2 Engineering Sdn. Bhd., / Q2 A/S Denmark
Type of Gas Extraction System		Gas Wells
<b>Gas Engine and Generator</b>		
Manufacturer	-	MWM
Gross electricity output	MW	1.190
Voltage	KV	11
Number of genset	unit	1

The project activity has increased the electricity generation by 3.2MW as from 10/01/2013<sup>1</sup> using the additional equipment as below table

Parameter	Unit	Value
<b>Gas Engine and Generator</b>		
Manufacturer	-	MWM
Gross total electricity output	MW	3.2
Rated Voltage	V	415
Number of genset	unit	2

The project has further increase in capacity for electricity generation as follows:

Parameter	Unit	Value
<b>Gas Engine and Generator</b>		
Manufacturer	-	MTU
Gross total electricity output	MW	2
Rated Voltage	V	11,000
Number of genset	unit	1

### Standby Diesel Generator

Parameter	Unit	Value
<b>Diesel Standby Genset</b>		
Manufacturer	-	Perkins
Gross total electricity output	kVA	500
Rated Voltage	V	415
Number of genset	unit	1

### Project Location

**Table 3:** Project Location

No.	Project Location
Host Country	Malaysia
Region:	State of Selangor
Project location address:	Mukim Sg. Tinggi, District of Hulu Selangor
Latitude:	03° 30' 16.8" N
Longitude:	101° 28' 42.8" E

### SECTION B. Validation team, technical reviewer and approver

On the basis of a competence analysis and individual availabilities an assessment team, consistent of one team leader was appointed. Furthermore also the personnel for the technical review and the final approval were determined.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the following table below.

<sup>1</sup> Pls refer also to PRC-2467-001 assessment report w.r.t. increase of capacity of the project activity.

**B.1. Validation team member**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader	EI	Cheong	Chun Yuen (Robert)	TN Malaysia	x	x	x	x

**B.2. Technical reviewer and approver of the validation report on PRCs**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	EI	Lubanga	David	-
2.	Technical reviewer	IR	Winter	Stefan	TN CERT GmbH
3.	Approver	IR	Winter	Stefan	TN CERT GmbH

**SECTION C. Means of validation****C.1. Desk review**

The assessment of post registration changes consisted of the following steps:

- Appointment of team members and technical reviewers
- A desk review of the registered and revised PDD<sup>/PDD/</sup> submitted by the client and additional supporting documents
- On-Site assessment (if required)
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Resolution of corrective actions (CARs / CLs) (if any)
- Final reporting
- Technical review
- Final approval.

In this case all activities were carried out prior before the next verification of this project activity.

The registered as well as the revised PDD and supporting background documents related to the project design and the post registration changes were reviewed.

As far as required the assessment team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

A list of all documents reviewed or referenced during this validation is presented in Appendix 3.

**C.2. On-site inspection**

Duration of on-site inspection: 28/12/2015				
No.	Activity performed on-site	Site location	Date	Team member
1.	Site inspection of equipment, reviewed revised PDD, Financial Analysis, ER spreadsheet, instrument and monitoring	Mukim Sg. Tinggi, District of Hulu Selangor	28/12/2015	Cheong, Chun Yuen (Robert)

**C.3. Interviews**

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Zain	Zainal Fikry	KBE / Operation Manager	28/12/2015	Equipment, project layout, proposals, financial analysis, ER, monitoring	Cheong, Chun Yuen (Robert)
2.	Abdul Aziz	Mustafa Kamal	KBE / Engineer			
3.	Chen	Saw Ling	Eco-Ideal / Manager			
4.	Liew	Yee Ching	Eco-Ideal / Environment Executive			
5.	Yong	Chen Kat	Eco-Ideal / Engineer			

**C.4. Clarification requests, corrective action requests and forward action requests raised**

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form (D.1)	0	0	0
Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline (D.2)	0	0	0
Corrections (D.3)	0	0	0
Changes to the start date of the crediting period (D.4)	0	0	0
Inclusion of a monitoring plan to a registered project activity (D.5)	0	0	0
Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline (D.6)	0	7	0
Changes to the project design of a registered project activity (D.7)	1	0	0
Types of changes specific to afforestation and reforestation project activities (D.8)	0	0	0
Others (please specify)	0	0	0
<b>Total</b>	<b>1</b>	<b>7</b>	<b>0</b>

**SECTION D. Validation findings****D.1. Compliance with PDD form**

<b>Means of validation</b>	The project participant used a most recent version of the PDD form for the revised PDD than the version of the PDD form of the registered PDD. By means of checking updated PDD with the latest applicable and available PDD template form the DOE can confirm that the information transferred to the later version of the PDD form is materially the same as that in the registered PDD besides those changes highlighted and assessed under this report.
<b>Findings</b>	CAR D.6-03
<b>Conclusion</b>	The updated PDD is in line with the latest applicable PDD form. After successful closure of finding the correct template is used.

## D.2. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline

<b>Means of validation</b>	Type of change(s):	<input type="checkbox"/>	Temporary Deviation from Monitoring Plan	
		<input type="checkbox"/>	Temporary Deviation from Monitoring Methodology	
	<b>Description of post registration change</b>			
	<b>Start Date:</b> Please provide the start date of the change	DD/MM/YYYY	<b>End Date:</b> Please provide the end date of the change, if applicable	DD/MM/YYYY
	<b>Description:</b> Please give a detailed description of the change(s)			
	<b>Assessment of post registration change – Temporary deviations from MP or MM</b>			
	<b>Accuracy:</b> Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.			
	<b>Conservative-ness:</b> Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.			
	<b>Appendix 1 PS:</b> Check if the changes fall under one of the scenarios of appendix 1 of the PS.			
<b>Findings</b>				
<b>Conclusion</b>				
Based on the above the temporary deviation(s) from the registered monitoring plan, applied monitoring methodology and/or applied standardized baseline are in accordance with applicable validation requirements related to the temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline in the VVS.				
<b>Revised PDD</b>				
<b>Rev. of PDD:</b> Check whether the changes have been fully addressed in a revised PDD.		<input type="checkbox"/>	The changes have correctly been reflected in the revised PDD.	
		<input type="checkbox"/>	A revision of the PDD is not required (in case of temp. changes).	
		<input type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.	
<b>Prior Approval</b>				
<b>Prior approval:</b> Assess whether the change requires prior approval of the board		<input type="checkbox"/>	The post registration change requires prior approval	
		<input type="checkbox"/>	The post registration change does not require prior approval	

## D.3. Corrections

<b>Means of validation</b>	<b>Description of post registration change</b>
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	<b>Start Date:</b> Please provide the start date of the change	DD/MM/YYYY	<b>End Date:</b> Please provide the end date of the change, if applicable	DD/MM/YYYY																									
	<b>Description:</b> Please give a detailed description of the change(s)																												
	<b>Assessment of post registration change – Corrections</b>																												
	<b>Accuracy:</b> Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.																												
	<b>Conservative-ness:</b> Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.																												
	<b>Appendix 1 PS:</b> Check if the changes fall under one of the scenarios of appendix 1 of the PS.																												
<b>Findings</b>																													
<b>Conclusion</b> Based on the above stated the corrections to the registered PDD are in accordance with applicable validation requirements related to the corrections in the VVS.																													
<table border="1"> <tr> <td colspan="4"><b>Revised PDD</b></td> </tr> <tr> <td rowspan="3"> <b>Rev. of PDD:</b>            Check whether the changes have been fully addressed in a revised PDD.         </td> <td><input type="checkbox"/></td> <td colspan="2">The changes have correctly been reflected in the revised PDD.</td> </tr> <tr> <td><input type="checkbox"/></td> <td colspan="2">A revision of the PDD is not required (in case of temp. changes).</td> </tr> <tr> <td><input type="checkbox"/></td> <td colspan="2">The revised PDD has been forwarded in (i) track-change and (ii) clean version.</td> </tr> <tr> <td colspan="4"><b>Prior Approval</b></td> </tr> <tr> <td rowspan="2"> <b>Prior approval:</b>            Assess whether the change requires prior approval of the board         </td> <td><input type="checkbox"/></td> <td colspan="2">The post registration change requires prior approval</td> </tr> <tr> <td><input type="checkbox"/></td> <td colspan="2">The post registration change does not require prior approval</td> </tr> </table>					<b>Revised PDD</b>				<b>Rev. of PDD:</b> Check whether the changes have been fully addressed in a revised PDD.	<input type="checkbox"/>	The changes have correctly been reflected in the revised PDD.		<input type="checkbox"/>	A revision of the PDD is not required (in case of temp. changes).		<input type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.		<b>Prior Approval</b>				<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input type="checkbox"/>	The post registration change requires prior approval		<input type="checkbox"/>	The post registration change does not require prior approval	
<b>Revised PDD</b>																													
<b>Rev. of PDD:</b> Check whether the changes have been fully addressed in a revised PDD.	<input type="checkbox"/>	The changes have correctly been reflected in the revised PDD.																											
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<b>Prior Approval</b>																													
<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input type="checkbox"/>	The post registration change requires prior approval																											
	<input type="checkbox"/>	The post registration change does not require prior approval																											

#### D.4. Changes to the start date of the crediting period

	<b>Description of post registration change</b>			
	<b>Start Date:</b> Please provide the registered start date of the CP.	DD/MM/YYYY	<b>Revised Start Date:</b> Please provide the proposed revised start date of the CP	DD/MM/YYYY
	<b>Description:</b> Please give a detailed description /reasoning of the requested revision of CP starting date:			
	<b>LDC:</b> Please check if the host country is an	<input type="checkbox"/> The host country is a LDC <input type="checkbox"/> The host country is <b>not</b> a LDC		

	LDC. In case of LDCs the timeframes of the below defined categories are to be doubled.			
	<b>Categories:</b> Please check under which category - as defined below – the requested changes fall. In case of LDCs the timeframes are to be doubled.	<input type="checkbox"/>	Category A: $> \pm 2$ a	
		<input type="checkbox"/>	Category B: $< \pm 1$ a; not before registration date	
		<input type="checkbox"/>	Category C: $(SD_{old} \pm 1 \text{ a}) \leq SD_{new} \leq (SD_{old} \pm 2 \text{ a})$	
	<b>Assessment of post registration change</b>			
	<b>Cat. A: <math>&gt; \pm 2</math> a</b> Changes of start date of more than 2 years (4 years for LDCs) are not allowed as per the PS.	<input type="checkbox"/>	The change is a cat. A case. The change of the CP start date as requested by the PP is not allowed as per the PS. Thus a corresponding CAR has been raised.	
	<b>Cat. B: <math>&lt; \pm 1</math> a</b> Prior notification is not required if changes of less than 1 year are requested. The CP start date shall not be earlier than the date of the project registration.	<input type="checkbox"/>	The change is a cat. B case. The proposed new CP start date differs less than $\pm 1$ year (2 years in case of LDCs) from the registered CP start date. Furthermore it is confirmed that the proposed new CP start date is not before the registration date of the PA. Thus a prior approval is not required.	
	<b>Cat. B: <math>\pm 1 \text{ a} &lt; SD &lt; \pm 2 \text{ a}</math></b> Check whether the project falls under this category. If yes prior approval is required. The assessment team shall assess on the basis of a demonstration by the PPs whether the conservativeness of the baseline is not affected by changes that have occurred in-between. Further it has to be assessed, whether substantive progress has been made by the PPs to start the project activity.	<input type="checkbox"/>	The change is a cat. C case.	
		<input type="checkbox"/>	The PPs have provided the assessment team with a sufficient demonstration regarding (i) potential effects on the baseline and (ii) progress made to start the project.	
		<input type="checkbox"/>	On the basis of a detailed analysis of the PP's demonstration as well as background investigation (incl. on-site inspection) the assessment team confirms that no changes have occurred to the PA which would result in a less conservative baseline. This assessment is based on the following considerations: < further details >	
	<input type="checkbox"/>	On the basis of a detailed analysis of the PP's demonstration as well as background investigation (incl. on-site inspection) the assessment team confirms that substantive progress has been made by the PPs to start the PA. This assessment is based on the following considerations:		
<b>Findings</b>				
<b>Conclusion</b>				
Based on the assessment above the changes to the start date of the crediting period are in accordance with applicable validation requirements related to the changes to the start date of the crediting period in the VVS.				
<b>Revised PDD</b>				
<b>Rev. of PDD:</b> Check whether the changes have been fully addressed in a revised PDD.	<input type="checkbox"/>	The changes have correctly been reflected in the revised PDD.		
	<input type="checkbox"/>	A revision of the PDD is not required (in case of temp. changes).		
	<input type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.		
<b>Prior Approval</b>				

	<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input type="checkbox"/>	The post registration change requires prior approval
		<input type="checkbox"/>	The post registration change does not require prior approval

**D.5. Inclusion of a monitoring plan to a registered project activity**

<b>Means of validation</b>	<b>Description of post registration change</b>		
	<b>Start Date:</b> Please provide the start date of the change	DD/MM/YYYY	<b>End Date:</b> Please provide the end date of the change, if applicable
	<b>Description:</b> Please give a detailed description of the change(s)		
	<b>Assessment of post registration change – Inclusion of a MP</b>		
	<b>MM compliance:</b> Please check in case of changes to the registered MP, whether they are in compliance with the MM.		
	<b>Later version of MM:</b> Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.		
	<b>Accuracy:</b> Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.		
	<b>Conservative-ness:</b> Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.		
	<b>Appendix 1 PS:</b> Check if the changes fall under one of the scenarios of appendix 1 of the PS.		
<b>Findings</b>			
<b>Conclusion</b>	Based on the above stated the inclusion of a monitoring plan to the registered project activity is in accordance with applicable validation requirements related to the inclusion of a monitoring plan to a registered project activity in the VVS.		
	<b>Revised PDD</b>		
	<b>Rev. of PDD:</b>	<input type="checkbox"/>	The changes have correctly been reflected in the

	Check whether the changes have been fully addressed in a revised PDD.	<input type="checkbox"/>	revised PDD.
		<input type="checkbox"/>	A revision of the PDD is not required (in case of temp. changes).
		<input type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.
	<b>Prior Approval</b>		
	<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input type="checkbox"/>	The post registration change requires prior approval
	<input type="checkbox"/>	The post registration change does not require prior approval	

#### D.6. Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline

##### MP change No. 1

Means of validation	Type of change(s):	<input checked="" type="checkbox"/>	Permanent Change from Monitoring Plan	
		<input type="checkbox"/>	Permanent Change from Monitoring Methodology	
	<b>Description of post registration change</b>			
	<b>Start Date:</b> Please provide the start date of the change	26/10/2015	<b>End Date:</b> Please provide the end date of the change, if applicable	NA
	<b>Description:</b> Please give a detailed description of the change(s)	<p><b>Parameter EL<sub>LFG</sub>:</b></p> <p>With the addition of biogas generators to generate additional electricity for export to grid and power consumed by project activity, parameter EL<sub>LFG</sub>: Net amount of electricity generated using landfill gas is revised.</p> <p>1 In the revised PDD version 19, EL<sub>LFG</sub> will be the lower value of the amount electricity after comparing the total of EL4, EL9, EL10 and EL12 with total of EL5, EL11 and EL13.</p> <p>2 The amount of electricity generated by the gas engines will be recorded by meters EL4, EL9, EL10 and EL12.</p> <p>3 EL5, EL11 and EL13 measure the amount of electricity exported to the grid.</p> <p>Refer to figure 10 of revised PDD version 19.0</p>		
	<b>Assessment of post registration change – Permanent changes from MP or MM</b>			
	<b>MM compliance:</b> Please check in case of changes to the registered MP, whether they are in compliance with the MM.	The change is in compliance to the applied methodology ACM0001 Version 08.0.		
	<b>Later version of MM:</b> Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.	The change does not refer to a later version of the MM.		

	<b>Accuracy:</b> Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.	The change will lead to higher accuracy in the monitoring of the electricity generated and consumed. Thus, will not lead to reduction in accuracy of the ER calculations																										
	<b>Conservativeness:</b> Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.	The amount of electricity exported to grid will be measured by separate electricity meters EL5, EL11 and EL13 and compared with the amount of generated electricity measured by meters EL4, EL9, EL10 and EL12. The lower value of the amount will be taken as the net amount generated for emission reduction calculations. The quantity of electricity consumed by the project is monitored via parameter EL <sub>PJ,y</sub> separately and considered as project emissions. Therefore, this is conservative and ensures ERs will not be overestimated.																										
	<b>Appendix 1 PS:</b> Check if the changes fall under one of the scenarios of appendix 1 of the PS.	Since the project activity has design change and permanent changes to MP, therefore appendix I of PS version 09.0 is not applicable.																										
<b>Findings</b>	Refer CAR D.6-04																											
<b>Conclusion</b>	Based on the above stated the permanent changes from the registered monitoring plan, applied monitoring methodology and/or applied standardized baseline are in accordance with applicable validation requirements related to the permanent changes from the registered monitoring plan, monitoring methodology and/or standardized baseline in the VVS.																											
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<b>Prior Approval</b>																												
<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input checked="" type="checkbox"/>	The post registration change requires prior approval																										
	<input type="checkbox"/>	The post registration change does not require prior approval																										

**MP Change No. 2:**

<b>Means of validation</b>	Type of change(s):	<input checked="" type="checkbox"/>	Permanent Change from Monitoring Plan	
		<input type="checkbox"/>	Permanent Change from Monitoring Methodology	
	<b>Description of post registration change</b>			
	<b>Start Date:</b> Please provide the start date of the change	26/10/2015	<b>End Date:</b> Please provide the end date of the change, if applicable	NA
<b>Description:</b> Please give a detailed description of the change(s)	<b>Parameter: Relevant policies and circumstances at the beginning of each crediting period:</b>  In the registered PDD version 5.3 as per the parameter description it is indicated that this parameter will be monitored once at the beginning of the crediting period even though provided in the related monitoring section of the			

		<p>PDD.</p> <p>The information for the parameter was reported at during the 1<sup>st</sup> periodic verification and since then no further updates occurred. In this aspect the PP proposed not to continue monitoring this parameter until the end of the 1<sup>st</sup> crediting period as it is not required.</p>
	<b>Assessment of post registration change – Permanent changes from MP or MM</b>	
	<p><b>MM compliance:</b></p> <p>Please check in case of changes to the registered MP, whether they are in compliance with the MM.</p>	<p>The change is in compliance to the applied methodology ACM0001 Version 08.0. The related applied methodology does not require monitoring this parameter. Besides a related parameter “Regulatory requirement relating to landfill gas projects” is already included since project registration in section B.6.2 “Data and parameters fixed ex ante” of the PDD. Further an assessment of compliance with relevant mandatory national and/or sectoral policies has to be conducted during renewal of crediting period process as per methodological tool EB66 Annex 47 version 03.0.1 step 1.1.</p> <p>Besides DOE has checked the applied related tools and found that any related tool does not require monitoring of this parameter.</p> <p>Therefore the DOE considers the deletion of this parameter from the monitoring plan as reasonable and correct.</p>
	<p><b>Later version of MM:</b></p> <p>Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.</p>	<p>The change does not refer to a later version of the MM.</p>
	<p><b>Accuracy:</b></p> <p>Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.</p>	<p>The change will not have any impact to the ER as per above assessment. Therefore will not lead to reduction in accuracy of the ER calculations.</p>
	<p><b>Conservative-ness:</b></p> <p>Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.</p>	<p>The change will not have any impact to the ER as per above assessment. Therefore will not lead to reduction in accuracy of the ER calculations.</p>
	<p><b>Appendix 1 PS:</b></p> <p>Check if the changes fall under one of the scenarios of appendix 1 of the PS.</p>	<p>Since the applied change refers to a permanent change in the registered monitoring plan appendix I of PS version 09.0 is not applicable.</p>
<b>Findings</b>		
<b>Conclusion</b>		
<p>Based on the above stated the permanent changes from the registered monitoring plan, applied monitoring methodology and/or applied standardized baseline are in accordance with applicable validation requirements related to the permanent changes from the registered monitoring plan, monitoring methodology and/or</p>		

standardized baseline in the VVS.

**Revised PDD****Rev. of PDD:**

Check whether the changes have been fully addressed in a revised PDD.



The changes have correctly been reflected in the revised PDD.



A revision of the PDD is not required (in case of temp. changes).



The revised PDD has been forwarded in (i) track-change and (ii) clean version.

**Prior Approval****Prior approval:**

Assess whether the change requires prior approval of the board



The post registration change requires prior approval



The post registration change does not require prior approval

**MP change No. 3:****Means of validation**

Type of change(s):



Permanent Change from Monitoring Plan



Permanent Change from Monitoring Methodology

**Description of post registration change****Start Date:**

Please provide the start date of the change

26/10/2015

**End Date:**

Please provide the end date of the change, if applicable

NA

**Description:**

Please give a detailed description of the change(s)

**Parameter FC<sub>i,j,y</sub>:**

In section B.7.1 this monitoring parameter is added to monitoring the diesel consumption by the standby emergency diesel genset.

**Assessment of post registration change – Permanent changes from MP or MM****MM****compliance:**

Please check in case of changes to the registered MP, whether they are in compliance with the MM.

The change is in compliance to the applied methodology ACM0001 Version 08.0 and the tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion" (Version 2).

Therefore the DOE considers the addition of this parameter in the monitoring plan as reasonable and correct.

**Later version of MM:**

Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.

The change does not refer to a later version of the MM.

**Accuracy:**

Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.

The method of measurement for the diesel consumed is by means of fuel meter on volume basis and convert to ton/y. In addition, the fuel consumed will be cross-checked by energy balance against purchased quantity for CDM purposes only and stock change. This approach could be considered conservative to ensure the correctness of fuel consumed.

The inclusion of this project emissions and the applied

		monitoring method even though the related project emissions can be considered as very small and therefore will lead to higher accurate ER result.																										
	<b>Conservative-ness:</b> Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.	The change will not have any impact to the ER as per above assessment. Therefore will not lead to reduction in accuracy of the ER calculations.																										
	<b>Appendix 1 PS:</b> Check if the changes fall under one of the scenarios of appendix 1 of the PS.	Since the applied change refers to a permanent change in the registered monitoring plan appendix I of PS version 09.0 is not applicable.																										
<b>Findings</b>	Refer CAR E.6-07																											
<b>Conclusion</b>	Based on the above stated the permanent changes from the registered monitoring plan, applied monitoring methodology and/or applied standardized baseline are in accordance with applicable validation requirements related to the permanent changes from the registered monitoring plan, monitoring methodology and/or standardized baseline in the VVS.																											
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<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input checked="" type="checkbox"/>	The post registration change requires prior approval																										
	<input type="checkbox"/>	The post registration change does not require prior approval																										

**MP Change No. 4**

<b>Means of validation</b>	Type of change(s):	<input checked="" type="checkbox"/>	Permanent Change from Monitoring Plan	
		<input type="checkbox"/>	Permanent Change from Monitoring Methodology	
	<b>Description of post registration change</b>			
	<b>Start Date:</b> Please provide the start date of the change	26/10/2015	<b>End Date:</b> Please provide the end date of the change, if applicable	NA
	<b>Description:</b> Please give a detailed description of the change(s)	<b>Parameter EFCO<sub>2,i,y</sub></b> In section B.7.1 this monitoring parameter is added to monitoring the weighted average CO <sub>2</sub> emission factor of fuel type i in year y to determine project emissions for diesel consumption by the standby generator.		
	<b>Assessment of post registration change – Permanent changes from MP or MM</b>			
<b>MM compliance:</b> Please check in case	The change is in compliance to the applied methodology ACM0001 Version 08.0 and the tool to calculate project or leakage CO <sub>2</sub> emissions from fossil fuel combustion"			

	of changes to the registered MP, whether they are in compliance with the MM.	(Version 2). Therefore the DOE considers the addition of this parameter in the monitoring plan as reasonable and correct.																			
	<b>Later version of MM:</b> Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.	The change does not refer to a later version of the MM.																			
	<b>Accuracy:</b> Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.	The monitoring method for the fuel emission factor is based on Option A or Option D of the tool whichever is applicable at the time to demonstrate the calculation of project emission. This approach could be considered conservative to ensure the correctness of factor applied.  The default value of 0.0741 tCO <sub>2</sub> /GJ is derived from IPCC 2006 guidelines.  The inclusion of this project emissions and the applied monitoring method even though the related project emissions can be considered as very small and therefore will lead to higher accurate ER result.																			
	<b>Conservative-ness:</b> Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.	The change will not have any impact to the ER as per above assessment. Therefore will not lead to reduction in accuracy of the ER calculations.																			
	<b>Appendix 1 PS:</b> Check if the changes fall under one of the scenarios of appendix 1 of the PS.	Since the applied change refers to a permanent change in the registered monitoring plan appendix I of PS version 09.0 is not applicable.																			
<b>Findings</b>	Refer CAR E.6-07																				
<b>Conclusion</b>	Based on the above stated the permanent changes from the registered monitoring plan, applied monitoring methodology and/or applied standardized baseline are in accordance with applicable validation requirements related to the permanent changes from the registered monitoring plan, monitoring methodology and/or standardized baseline in the VVS.																				
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<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input checked="" type="checkbox"/>	The post registration change requires prior approval																			
	<input type="checkbox"/>	The post registration change does not require prior approval																			

## MP Change No. 5

<b>Means of validation</b>	Type of change(s):	<input checked="" type="checkbox"/>	Permanent Change from Monitoring Plan	
		<input type="checkbox"/>	Permanent Change from Monitoring Methodology	
	<b>Description of post registration change</b>			
	<b>Start Date:</b> Please provide the start date of the change	26/10/2015	<b>End Date:</b> Please provide the end date of the change, if applicable	NA
	<b>Description:</b> Please give a detailed description of the change(s)	<b>Parameter NCV<sub>i,y</sub>:</b> In section B.7.1 this monitoring parameter is added to monitoring the weighted average net calorific value of fuel type i in year y to determine project emissions for diesel consumption by the standby generator.		
	<b>Assessment of post registration change – Permanent changes from MP or MM</b>			
	<b>MM compliance:</b> Please check in case of changes to the registered MP, whether they are in compliance with the MM.	The change is in compliance to the applied methodology ACM0001 Version 08.0 and the tool to calculate project or leakage CO <sub>2</sub> emissions from fossil fuel combustion" (Version 2).  Therefore the DOE considers the addition of this parameter in the monitoring plan as reasonable and correct.		
	<b>Later version of MM:</b> Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.	The change does not refer to a later version of the MM.		
	<b>Accuracy:</b> Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.	The source of data for this parameter is derived from IPCC guidelines and any future changes will be updated during the calculation of project emissions for usage of diesel. This approach could be considered conservative to ensure the correctness of the applied value.  The default value of 43 GJ/t is derived from IPCC 2006 guidelines  The inclusion of this project emissions and the applied monitoring method even though the related project emissions can be considered as very small and therefore will lead to higher accurate ER result.		
	<b>Conservative-ness:</b> Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.	The change will not have any impact to the ER as per above assessment. Therefore will not lead to reduction in accuracy of the ER calculations.		
<b>Appendix 1 PS:</b> Check if the changes fall under one of the	Since the applied change refers to a permanent change in the registered monitoring plan appendix I of PS version 09.0 is not applicable.			

	scenarios of appendix 1 of the PS.																			
<b>Findings</b>	Refer CAR E.6-07																			
<b>Conclusion</b>	<p>Based on the above stated the permanent changes from the registered monitoring plan, applied monitoring methodology and/or applied standardized baseline are in accordance with applicable validation requirements related to the permanent changes from the registered monitoring plan, monitoring methodology and/or standardized baseline in the VVS.</p> <table border="1"> <tr> <td colspan="3"><b>Revised PDD</b></td></tr> <tr> <td rowspan="3"> <b>Rev. of PDD:</b>            Check whether the changes have been fully addressed in a revised PDD.         </td><td><input checked="" type="checkbox"/></td><td>The changes have correctly been reflected in the revised PDD.</td></tr> <tr> <td><input type="checkbox"/></td><td>A revision of the PDD is not required (in case of temp. changes).</td></tr> <tr> <td><input checked="" type="checkbox"/></td><td>The revised PDD has been forwarded in (i) track-change and (ii) clean version.</td></tr> <tr> <td colspan="3"><b>Prior Approval</b></td></tr> <tr> <td rowspan="2"> <b>Prior approval:</b>            Assess whether the change requires prior approval of the board         </td><td><input checked="" type="checkbox"/></td><td>The post registration change requires prior approval</td></tr> <tr> <td><input type="checkbox"/></td><td>The post registration change does not require prior approval</td></tr> </table>		<b>Revised PDD</b>			<b>Rev. of PDD:</b> Check whether the changes have been fully addressed in a revised PDD.	<input checked="" type="checkbox"/>	The changes have correctly been reflected in the revised PDD.	<input type="checkbox"/>	A revision of the PDD is not required (in case of temp. changes).	<input checked="" type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.	<b>Prior Approval</b>			<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input checked="" type="checkbox"/>	The post registration change requires prior approval	<input type="checkbox"/>	The post registration change does not require prior approval
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<b>Prior Approval</b>																				
<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input checked="" type="checkbox"/>	The post registration change requires prior approval																		
	<input type="checkbox"/>	The post registration change does not require prior approval																		

**MP Change no. 6**

<b>Means of validation</b>	Type of change(s):	<input checked="" type="checkbox"/>	Permanent Change to Data and parameters fixed ex ante	
		<input type="checkbox"/>	Permanent Change from Monitoring Methodology	
	<b>Description of post registration change</b>			
	<b>Start Date:</b> Please provide the start date of the change	26/10/2015	<b>End Date:</b> Please provide the end date of the change, if applicable	NA
	<b>Description:</b> Please give a detailed description of the change(s)	<b>Parameter CH<sub>4</sub>:</b> In section B.6.2 the value for this ex-ante parameter is revised according to decision 4/CMP7 and paragraph 66 of the EB 69 Meeting Report, for the second commitment period of the Kyoto Protocol, the global warming potentials used by Parties to calculate the carbon dioxide equivalence of anthropogenic emissions by sources and removals by sinks of the greenhouse gases listed in Annex A to the Kyoto Protocol shall be those listed in the column entitled "Global Warming Potential for Given Time Horizon" in Table 2.14 of the errata to the contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, based on the effects of greenhouse gases over a 100-year time horizon, i.e. 25 tCO <sub>2</sub> /tCH <sub>4</sub> .		
	<b>Assessment of post registration change – Permanent changes from MP or MM</b>			
	<b>MM compliance:</b> Please check in case of changes to the registered MP, whether they are in compliance with the MM.	The change is in compliance to the applied methodology ACM0001 Version 08.0 and decision of 4/CMP7 and paragraph 66 of the EB 69 Meeting Report.  Therefore the DOE considers the change of the ex-ante value of this parameter is reasonable and correct.		
<b>Later version</b>	The change does not refer to a later version of the MM.			

	<b>of MM:</b> Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.																												
	<b>Accuracy:</b> Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.	The source of data for this parameter is derived from 4/CMP7 and paragraph 66 of the EB 69 Meeting Report.  The change in the value to be in line with the EB decision that will lead to higher accurate ER result.																											
	<b>Conservative-ness:</b> Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.	The change will not lead to reduction in accuracy of the ER calculations.																											
	<b>Appendix 1 PS:</b> Check if the changes fall under one of the scenarios of appendix 1 of the PS.	Since the applied change refers to a permanent change in the registered monitoring plan appendix I of PS version 09.0 is not applicable.																											
<b>Findings</b>	Refer CAR D.6-01																												
<b>Conclusion</b>	Based on the above stated the permanent changes from the registered monitoring plan, applied monitoring methodology and/or applied standardized baseline are in accordance with applicable validation requirements related to the permanent changes from the registered monitoring plan, monitoring methodology and/or standardized baseline in the VVS.																												
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<b>Prior Approval</b>																													
<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input checked="" type="checkbox"/>	The post registration change requires prior approval																											
	<input type="checkbox"/>	The post registration change does not require prior approval																											

**MP Change no. 7**

<b>Means of validation</b>	Type of change(s):	<input checked="" type="checkbox"/>	Permanent Change to Data and parameters fixed ex ante	
		<input type="checkbox"/>	Permanent Change from Monitoring Methodology	
	<b>Description of post registration change</b>			
	<b>Start Date:</b> Please provide the start date of the change	26/10/2015		<b>End Date:</b> Please provide the end date of the change, if applicable

	<b>Description:</b> Please give a detailed description of the change(s)	<b>Parameter <math>p_{i,y}</math>:</b> This parameter is included in section B.7.1 to monitor the density of diesel fuel in year y to determine project emissions for diesel consumption by the standby generator.
	<b>Assessment of post registration change – Permanent changes from MP or MM</b>	
	<b>MM compliance:</b> Please check in case of changes to the registered MP, whether they are in compliance with the MM.	The change is in compliance to the applied methodology ACM0001 Version 08.0 and the tool to calculate project or leakage CO <sub>2</sub> emissions from fossil fuel combustion" (Version 2). Therefore the DOE considers the addition of this parameter in the monitoring plan as reasonable and correct.
	<b>Later version of MM:</b> Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.	The change does not refer to a later version of the MM.
	<b>Accuracy:</b> Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.	The source of data for this parameter is derived from: Option A will be used is the value are available from the fuel supplier in invoices; Option C which is regional or national default values will be used if there is no data available from the fuel supplier The default value of 0.84 is derived from national data issued by the national fuel supplier Petronas. <a href="http://www.pecj.or.jp/japanese/overseas/asian/asia_symp_5th/pdf_5th/8-FazilMatlsa.pdf">http://www.pecj.or.jp/japanese/overseas/asian/asia_symp_5th/pdf_5th/8-FazilMatlsa.pdf</a> . The monitoring frequency is consider appropriate, The inclusion of this project emissions and the applied monitoring method even though the related project emissions can be considered as very small and therefore will lead to higher accurate ER result. Besides the monitoring is in line with the related tool to calculate project or leakage emissions from fossil fuel consumption.
	<b>Conservative-ness:</b> Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.	The change will not lead to reduction in accuracy of the ER calculations.
<b>Appendix 1 PS:</b> Check if the changes fall under	Since the applied change refers to a permanent change in the registered monitoring plan appendix I of PS version 09.0 is not applicable.	

	one of the scenarios of appendix 1 of the PS.																			
<b>Findings</b>	Refer CAR D.6-07																			
<b>Conclusion</b>	<p>Based on the above stated the permanent changes from the registered monitoring plan, applied monitoring methodology and/or applied standardized baseline are in accordance with applicable validation requirements related to the permanent changes from the registered monitoring plan, monitoring methodology and/or standardized baseline in the VVS.</p> <table border="1"> <tr> <td colspan="3"><b>Revised PDD</b></td></tr> <tr> <td rowspan="3"> <b>Rev. of PDD:</b>            Check whether the changes have been fully addressed in a revised PDD.         </td><td><input checked="" type="checkbox"/></td><td>The changes have correctly been reflected in the revised PDD.</td></tr> <tr> <td><input type="checkbox"/></td><td>A revision of the PDD is not required (in case of temp. changes).</td></tr> <tr> <td><input checked="" type="checkbox"/></td><td>The revised PDD has been forwarded in (i) track-change and (ii) clean version.</td></tr> <tr> <td colspan="3"><b>Prior Approval</b></td></tr> <tr> <td rowspan="2"> <b>Prior approval:</b>            Assess whether the change requires prior approval of the board         </td><td><input checked="" type="checkbox"/></td><td>The post registration change requires prior approval</td></tr> <tr> <td><input type="checkbox"/></td><td>The post registration change does not require prior approval</td></tr> </table>		<b>Revised PDD</b>			<b>Rev. of PDD:</b> Check whether the changes have been fully addressed in a revised PDD.	<input checked="" type="checkbox"/>	The changes have correctly been reflected in the revised PDD.	<input type="checkbox"/>	A revision of the PDD is not required (in case of temp. changes).	<input checked="" type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.	<b>Prior Approval</b>			<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input checked="" type="checkbox"/>	The post registration change requires prior approval	<input type="checkbox"/>	The post registration change does not require prior approval
<b>Revised PDD</b>																				
<b>Rev. of PDD:</b> Check whether the changes have been fully addressed in a revised PDD.	<input checked="" type="checkbox"/>	The changes have correctly been reflected in the revised PDD.																		
	<input type="checkbox"/>	A revision of the PDD is not required (in case of temp. changes).																		
	<input checked="" type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.																		
<b>Prior Approval</b>																				
<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input checked="" type="checkbox"/>	The post registration change requires prior approval																		
	<input type="checkbox"/>	The post registration change does not require prior approval																		

#### D.7. Changes to the project design of a registered project activity

<b>Means of validation</b>	Type of change(s):	<input checked="" type="checkbox"/>	Changes to the project design	
		<input type="checkbox"/>	Changes to the PoA design	
	<b>Description of post registration change</b>			
	<b>Start Date:</b> Please provide the start date of the change	26/10/2015	<b>End Date:</b> Please provide the end date of the change, if applicable	NA
	<b>Description:</b> Please give a detailed description of the change(s)	<ol style="list-style-type: none"> <li>The power generation has been increased from 4MW to 5.5MW with the addition of 1 gas engine with an installed capacity of 2MW. The approved power to be exported will be 1.5MW /FA5/</li> <li>The baseline emissions have changed causing an increase in emission reductions due to the increase in power generation and development of the landfill in phases as described in the registered PDD section A.1  The CEF value has been updated for the period Jan to June 2016 in section B.7.1 and applied for the ex-ante ER calculation.  The data is derived from the CDM baseline study report established by the host country DNA. The data and method of calculation in the report has been verified by the assessment team. /O10/</li> <li>In addition, one (1) unit 500kVA standby diesel genset for emergency or black start when there is no import power from the grid to the project activity has been installed. This diesel standby genset is included in the electrical equipment and installation contract. /CPA4/ T</li> </ol>		
	<b>Applicability and application of the Approved Baseline Methodology</b>			
	<b>Description:</b> Please give a detailed description on how the	The project activity applies ACM0001 version 08.0 at the time of registration.		

	<p>changes affect the applicability and application of the approved Baseline Methodology. Check if the actual changes would adversely affect the conclusions during validation.</p>	<p>The changes as described above and the methodology do not restrict the size of the project activity. The changes do not affect the applicability and application of the approved baseline methodology.</p>
	<p><b>Additionality assessment</b></p>	
	<p><b>Description:</b> Please give a detailed description re-assessment of additionality, Check whether the actual changes would adversely affect the conclusions during validation. If required please make use of the assessment tables in the annex.</p>	<p><b>Methodology:</b> In the original project documentation the additionality was justified in line with the requirements of ACM0001 ver.08.0.  "Tool for the demonstration and assessment of additionality" (Version 4.0)" was applied to justify the investment analysis.  <b>Decisive Route of Additionality Justification</b>  During the original validation of the project the additionality was justified on the basis of a financial analysis. A corresponding Excel file was presented and attached to the validation report. The IRR of this project activity was determined to be negative at -11.8% for 10 years analysis and positive at 3.4% for 21 years analysis after PRC-2467-003.<sup>/PDD4//FA1/</sup> Although it is positive, it is below the benchmark applied at 12% at the time of project registration.<sup>/PDD1/</sup>  <b>Re-Assessment of Additionality</b>  During this assessment regarding changes a revised version of the original validated Excel spreadsheet was considered which was provided by the PPs. The modifications mainly reflect the technical changes done.  In this context CL D.7-01 was raised and successfully closed out.  The additionality justification is based on the increase in electricity exported to grid and increase in investment.  For a detailed analysis of the financial parameters for the increase investment refer appendix 5.  <b>Result of Additionality Re-Assessment</b>  The revised Excel sheet shows that the IRR is not significantly influenced by the technical changes to the project design. In the most optimistic scenario the IRR remains negative at -15.7% for 10 year and positive 8.0% for 21 years analysis. There is no change to the benchmark which remains at 12% applied at the time of project was registered. <sup>/FA1/PDD1/</sup>  Thus the assessment team has arrived at the conclusion that the additionality of the project is not affected by the technical changes carried out as a revision from the project design originally validated and registered.</p>
	<p><b>Scale of the Project activity</b></p>	
	<p><b>Description:</b> Please give a detailed regarding the effect of the changes on the scale of the PA (i.e. LSC or SSC).</p>	<p>This is a large scale project activity; therefore this criterion is not applicable in this case.</p>
<p><b>Revised PDD</b></p>		

	<b>Rev. of PDD:</b> Check whether the changes have been fully addressed in a revised PDD. In this context pl. refer to <ul style="list-style-type: none"> <li>- Changes in the effective output capacity.</li> <li>- Addition of components or extension of technology</li> <li>- In case of multiple site projects: Removal or addition of sites</li> <li>- Operational parameters under the control of PPs differing from expected parameters</li> <li>- Changes to the baseline Meth (e.g. addition of a new Meth or change of the BL scenario.</li> <li>- Effects with regards to B, C and D above incl. compliance with the MP and level of accuracy and completeness of monitoring.</li> </ul>	<input checked="" type="checkbox"/>	The post registration change has correctly been reflected in the revised PDD. The assessment has been made on the following: <ol style="list-style-type: none"> <li>1. Increased in power generation capacities from 4MW to 5.5MW;</li> <li>2. Revised several parameters to address the increase in power generation;</li> <li>3. Revised monitoring diagram to include the additional meter that monitored the additional power generated;</li> <li>4. Revised texts to address the increase in power generation;</li> <li>5. Based on the installation of the diesel genset also further sections have been updated: B.6.1 w.r.t. equations and method to calculate related project emission. The equation applied to calculate the PE for diesel consumption is according to "Tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion" (Version 2). The tool is also considered under B.1 and B.2. Further these emissions have also been considered in the project boundary B.3.</li> </ol> <p>The ex-ante value for PE fuel is assumed as zero since the amount of fuel consumed cannot be determined.</p>
<b>Findings</b>	Refer CAR D.6-05 and CAR D.6-06		
<b>Conclusion</b>	Based on the above the changes to the project design of a registered project activity are in accordance with applicable validation requirements related to the changes to the project design of a registered project activity in the VVS.		
	<b>Traceability:</b> Check if the PPs have provided a revised PDD in both clean and track-change version.	<input checked="" type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.
	<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input type="checkbox"/>	The changes do not raise concerns with respect to aspects outlined in the PS: <ol style="list-style-type: none"> <li>a. applicability and application of the Approved Baseline Methodology under which the project activity has been registered.</li> <li>b. additionality of the project</li> <li>c. scale of the CDM project activity and</li> </ol> Prior Approval by the Board is not required.
		<input checked="" type="checkbox"/>	The post registration change requires prior approval.

#### D.8. Types of changes specific to afforestation and reforestation project activities

<b>Means of validation</b>	N/A
<b>Findings</b>	N/A
<b>Conclusion</b>	Based on the above the changes specific to afforestation and reforestation project activities are in accordance with applicable validation requirements related to the types of changes specific to afforestation and reforestation project activities in the VVS.

**SECTION E. Internal quality control**

Before submission of the final assessment report a technical review is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the verification team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the assessment opinion as prepared by the validation team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

**SECTION F. Validation opinion**

The below listed changes have occurred after the registration of the project

<i>Type of Change occurred</i>	<i>Total No. of changes</i>	<i>No. of changes which require prior approval</i>
<input type="checkbox"/> Temporary deviations from the MP	-	-
<input type="checkbox"/> Temporary deviations from the MM	-	-
<input type="checkbox"/> Corrections that do not affect the project	-	-
<input type="checkbox"/> Change to the start date of the CP	-	-
<input checked="" type="checkbox"/> Permanent changes from the MP	7	7
<input type="checkbox"/> Permanent changes from the MM	-	-
<input checked="" type="checkbox"/> Design changes to the project activity / PoA	3	3
<input type="checkbox"/> Changes specific to AR projects	-	-

The above listed post registration changes require prior approval of the Board

Subang Jaya, 05/09/2016



Cheong, Chun Yuen (Robert)  
TÜV NORD JI/CDM CP  
Assessment Team Leader

Essen, 05/09/2016



Winter, Stefan  
TÜV NORD JI/CDM CP  
Final Approval

## Appendix 1. Abbreviations

Abbreviations	Full texts
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO <sub>2</sub>	Carbon dioxide
CO <sub>2e</sub>	Carbon dioxide equivalent
CP	Certification Program
DNA	Designated National Authority
EB	CDM Executive Board
ER	Emission Reduction
GHG	Greenhouse gas(es)
IA	Interlinx Automation Sdn Bhd
KBE	KUB-Berjaya Enviro Sdn. Bhd
LCG	Syarikat Letrik Chen Guan Sdn Bhd
LOA	Letter of Acceptance
MES	MES Solutions Sdn Bhd
PA	Project activity
PDD	Project Design Document
PoA	Programme of Activities
PRC	Post Registration Changes
QC/QA	Quality control/Quality assurance
RM	Malaysian Ringgit
SEDA	Sustainable Energy Development Authority
SPE	SP Energy Sdn Bhd
THR	Tai Hoe Resources Sdn Bhd
TNB	Tenaga Nasional Berhad
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
WZS	WZS Power Gen Sdn Bhd

## Appendix 2. Competence of team members and technical reviewers



### Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JICDM Certification Program

**Mr. Robert Cheong**

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification)	2018-04-01
VCS	Senior Assessor	2018-04-01

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
3.1	Energy demand
13.1	Solid waste and wastewater
13.2	Manure

128 - Rev. 8, Date: 2016-01-26

128\_S01-VA050-F20\_2016-01-26\_v8.doc

S01-VA050-F20 rev 8 / 2016-10-25



### Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JICDM Certification Program

**Mr. David Lubanga**

SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification)	2018-10-20
VCS / ISO 14064-2	Lead Assessor	2018-10-20

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
3.1	Energy demand

251 - Rev. 4, Date: 2015-10-21

251\_S01-VA050-F20\_2015-10-21\_v4.doc

S01-VA050-F20 rev 4 / 2016-10-25



### Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JICDM Certification Program

**Mr. Stefan Winter**

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2017-07-27
VCS	Senior Assessor (Validation, Verification) Technical Reviewer	2017-07-27

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.1	Thermal energy generation
1.2	Renewables
2.1	Energy distribution
3.1	Energy demand
4.1	Cement and lime production
4.2	Paper
5.2	Caprolactam, nitric and adipic acid
9.1	Aluminium and magnesium production
9.2	Iron, steel and Ferro-alloy production
13.1	Solid waste and wastewater
13.2	Manure

163 - Rev. 4, Date: 2015-01-05

163\_S01-VA050-F20\_2015-01-05\_rev4.doc

S01-VA050-F20 rev 4 / 2016-10-25

## Appendix 3. Documents reviewed or referenced

No.	Reference	Author	Title	References to the document	Provider
1	<b>/ACM1/</b>	UNFCCC	ACM0001: Consolidated baseline and monitoring methodology for landfill gas project activities version 8	<a href="http://cdm.unfccc.int/methodologies/index.html">http://cdm.unfccc.int/methodologies/index.html</a>	Others
2	<b>/TA/</b>	UNFCCC	Tool for the demonstration and assessment of additionality (Ver. 4.0)	<a href="https://cdm.unfccc.int/Reference/tools/index.html">https://cdm.unfccc.int/Reference/tools/index.html</a>	Others
3	<b>/TEF/</b>	UNFCCC	Tool to calculate the emission factor for an electricity system: (Version 01)-EB 35 Annex 32		
4	<b>/TFFC/</b>	UNFCCC	Tool to calculate project or leakage CO2 emissions from fossil fuel combustion" (Version 2)		
5	<b>/TFG/</b>	UNFCCC	Tool to determine project emissions from flaring gases containing methane Version 1.0		
6	<b>/TME/</b>	UNFCCC	Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site"(Version 2);		
7	<b>/TMEEC/</b>	UNFCCC	Tool to calculate project emissions from electricity consumption" (Version 1)		
8	<b>/PDD-T/</b>	UNFCCC	Project Design Document Form (F-CDM_PDD) (Version 8.0)	<a href="https://cdm.unfccc.int/Reference/PDDs_Forms/index.html">https://cdm.unfccc.int/Reference/PDDs_Forms/index.html</a>	Others
9	<b>/KP/</b>	UNFCCC	Kyoto Protocol (1997)		Others
10	<b>/MA/</b>	UNFCCC	Decision 3/CMP. 1 (Marrakesh – Accords)		Others
11	<b>/PS/</b>	UNFCCC	CDM project standard (Version 9)	<a href="http://cdm.unfccc.int/Reference/Standards/index.html">http://cdm.unfccc.int/Reference/Standards/index.html</a>	Others
12	<b>/VVS/</b>	UNFCCC	CDM Validation and Verification Standard (Version 9)	<a href="http://cdm.unfccc.int/Reference/Standards/index.html">http://cdm.unfccc.int/Reference/Standards/index.html</a>	Others
13	<b>/CPM/</b>	DOE	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)		Others
14	<b>/IPCC/</b>	IPCC	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book  2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book	<a href="http://www.ipcc-nggip.iges.or.jp/public/gl/invs1.html">http://www.ipcc-nggip.iges.or.jp/public/gl/invs1.html</a>  <a href="http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html">http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html</a>	Others
<b>Contracts &amp; Proposals</b>					
15	<b>/CP1/</b>	PP / SPE / WZS	Letter of Acceptance for gas engine 2MW to WZS Power Gen Sdn Bhd dated 16/12/2104  Proposal from SP Energy Sdn Bhd dated 31/10/2014  Proposal from WZS Power Gen Sdn Bhd dated 03/11/2014		PP

16	<b>/CP2/</b>	PP / MES	Letter of Acceptance for mechanical & electrical consultancy services to MES Solutions Sdn Bhd dated 14/05/2104  Proposal for mechanical & electrical consultancy services from MES Solutions Sdn Bhd dated 21/04/2014		PP
17	<b>/CP3/</b>	PP / THR	Letter of Acceptance for Phase 2B Gas Extraction to Tai Hoe Resources Sdn Bhd dated 04/08/2014  Proposal for Phase 2B Gas Extraction Installation of wells and pipeline Proposal from Tai Hoe Resources Sdn Bhd dated 30/04/2014		PP
18	<b>/CP4/</b>	PP / LCG	Letter of Acceptance for Electrical works and supply of electrical equipment to Syarikat Letrik Chen Guan Sdn Bhd dated 26/01/2015  Proposal for Electrical works and supply of electrical equipment from Syarikat Letrik Chen Guan Sdn Bhd dated 14/05/2014		PP
19	<b>/CP5/</b>	PP / IA	Letter of Acceptance for gas supply system to Interlinx Automation Sdn Bhd dated 20/03/2015  Proposal from Interlinx Automation Sdn Bhd for gas supply system dated 17/02/2015  Proposal from Tai Hoe Resources Sdn Bhd for gas supply system dated 29/10/2015		PP
20	<b>/CP6/</b>	PP / WZS	Service and maintenance cost for GE4 from WZS Power Gen Sdn Bhd dated 30/03/2016		
<b>ER Spreadsheet</b>					
20	<b>/ER1/</b>	PP	ER calculation version 1.0 dated 23/01/2016  ER Calculation version 2.0 dated 24/05/2016  ER Calculation version 3.0 dated 13/06/2016		PP
<b>Financial Spreadsheet</b>					
21	<b>/FA1/</b>	PP	Financial Analysis version 5.0 dated 05/04/2013  Financial Analysis version 6.0 dated 11/12/2015  Financial Analysis version 7.0 dated 07/07/2016		PP
22	<b>/FA2/</b>	PP	Chronology events for addition power generation		PP
23	<b>/FA3/</b>	PP	Decision for addition power		PP

			generation dated 03/09/2014		
24	<b>/FA4/</b>	SEDA	Feed in Approved Tariff Certificate & Additional Bonus issued by Sustainable Energy Development Authority Malaysia dated 24/09/2014		PP
25	<b>/FA5/</b>	PP / SPE	Overhaul Cost for 2MW gas engine from SP Energy Sdn Bhd dated 01/04/2014		PP
	<b>Equipment and Instrument</b>				
26	<b>/EI1/</b>	MTU	Gas Engine Specification		PP
27	<b>/EI2/</b>	AUTROL / COMBIMASS / Guardian	<ul style="list-style-type: none"> <li>• COMBIMASS Flow Meter Specification</li> <li>• Autrol Pressure Transmitter Specification</li> <li>• Autrol Temperature Transmitter Specification</li> <li>• Guardian Gas Analyser Specification</li> </ul>		PP
28	<b>/EI3/</b>		Diesel Genset specification		PP
	<b>Others</b>				
29	<b>/O1/</b>	PP	<p>Estimated power usage for GE1, GE2, GE3 and GSS undated</p> <p>Summary of Shutdown records for GE1, GE2, GE3 Jan 2013 to Dec 2015</p> <p>Project emission from fossil fuel consumption version 2.0 dated 28/05/2016</p>		PP
30	<b>/O2/</b>	PP	ELPJ Consumption Ver 1.0 dated 16/05/2016		PP
31	<b>/O3/</b>	PP	Management Review Meeting No.09 dated		PP
32	<b>/O4/</b>	Bank Negara	Exchange rate Euro to RM April 2014		Others
33	<b>/O5/</b>	PP	Site Layout Plan undated		PP
34	<b>/O6/</b>	PP	Implementation Schedule undated		PP
35	<b>/O7/</b>	PP	<p>Invitation to WZS Power Gen Sdn Bhd dated 13/10/2014</p> <p>Final Tender Evaluation report dated 09/12/2014</p>		PP
36	<b>/O8/</b>	PP	Management Meeting Minutes for FiT for Additional Power Generation from Bukit Tagar dated 24/08/2014		PP
37	<b>/O9/</b>	UNITEN	Report for Acceptance Test by UNITEN for 2MW dated 14/01/2016		Others
38	<b>/O10/</b>	DNA	CDM Baseline 2013 / 2014 dated		Others

			31/07/2015		
39	<b>/O11/</b>	SPE	SP Energy Maintenance Cost Summary 3.2MW GE		Others
40	<b>/O12/</b>	PP	Average Operating Time of Gas Engine 9 <sup>th</sup> 270415		PP
41	<b>/O13/</b>	SPE	GE Overhaul Cost from SPE		Others
42	<b>/PDD1/</b>	UNFCCC	Registered PDD: "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia" revision 5.3 dated 23/08/2009		Others
43	<b>/PDD2/</b>	UNFCCC	Revised PDD: "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia" revision 7.2 dated 22/02/2012		Others
44	<b>/PDD3/</b>	UNFCCC	Revised PDD: "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia" revision 9.0 dated 05/04/2013		Others
45	<b>/PDD4/</b>	UNFCCC	Revised PDD: "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia" revision 10.0 dated 26/06/2015  Revised PDD: "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia" revision 11.0 dated 29/07/2015  Revised PDD: "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia" revision 12.0 dated 20/10/2015		Others
46	<b>/PDD5/</b>	UNFCCC	Revised PDD: "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia" revision 13.0 dated 11/12/2015  Revised PDD: "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia" revision 14.0 dated 28/05/2016  Revised PDD: "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia" revision 15.0 dated 13/06/2016  Revised PDD: "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia" revision 16.0 dated 07/07/2016  Revised PDD: "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia" revision 17.0 dated 13/06/2016  Revised PDD: "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia"		Others

			revision 18.0 dated 10/08/2016 Revised PDD: "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia" revision 19.0 dated 02/09/2016		
47	<b>/PRC1/</b>	UNFCCC	Post Validation Report for CDM project "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia" revision 1.1 dated 27/02/2012 for notification of changes and revision of the monitoring plan.		Others
48	<b>/PRC2/</b>	UNFCCC	Post Registration Report for CDM project "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia" revision 0 dated 24/04/2013 for notification of changes and revision of the monitoring plan.		Others
49	<b>/PRC3/</b>	UNFCCC	Post Registration Report for CDM project "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia" revision 1.2 dated 22/10/2015 for notification of changes and revision of the monitoring plan.		Oter
50	<b>/VAL/</b>	UNFCCC	Validation Report for CDM project "Landfill Gas Recovery and Utilization at Bukit Tagar Sanitary Landfill, Hulu Selangor in Malaysia" revision 04, dated 06/07/2009		Others
51	<b>/VER/</b>	UNFCCC	Documents of previous verifications (Monitoring report, verification report, ER calculation sheet)		Others

## Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. CL from this validation

CL ID	D.7-01	Section no.	Financial Analysis	Date: 28/12/2015
<b>Description of CL</b>				
Financial Analysis version 6.0, Input sheet: The PP is requesting for clarify following:				
<ol style="list-style-type: none"> <li>1. Provide the initial proposals or quotations from the respective suppliers and contractors to justify the costs applied are conservative.</li> <li>2. Row 141. Justification for the incurred costs.</li> <li>3. Row 66. Justification for the inclusion of the 6% GST</li> <li>4. Row 38. Justification for applying the tariff of 0.21 sen/kWh for year 2016 and 2017 for GE4</li> </ol>				
<b>Project participant response (1<sup>st</sup> round)</b>				<b>Date: 28/05/2016</b>

1. The initial proposals or quotations from all suppliers and contractors were submitted to validator as requested.
2. The incurred cost for row 141 is overhaul cost for 4MW (GE1, GE2 & GE3) received from SPE. The incurred cost for 4MW (GE1, GE2 & GE3) was removed due to the current design change requested is for the additional GE4. As a result, the overhaul cost for GE4 (2MW) received from WZS (CP6 Service, maintenance cost and overhaul for GE 2MW WZS) was updated into the revised FA (row 139)
3. The 6% GST was removed from the revised FA because the 6% GST is not applicable for manpower and supervision cost (row 67)
4. The tariff of 0.21 sen/kWh for year 2016 and 2017 for GE4 was amended to 0.4669 sen/kWh in revised FA (row 40)

**Documentation provided by project participant (1<sup>st</sup> round)**

<input type="checkbox"/>	Changes in the PDD	Section(s):	New version No.:
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:
<input checked="" type="checkbox"/>	Changes in XLS FA1_BTSL_KBE_Financial_4MW to 5.5MW_ver 7.0_070716_0.4669_latest	Worksheet(s): Input	New version No.: 7.0
<input checked="" type="checkbox"/>	Other: Respective proposals and quotations CP1 to CP6		

**DOE assessment (1<sup>st</sup> round)****Date:** 29/05/2016

Financial Analysis version 7.0, Input sheet: The PP is requesting for clarify following:

1. The initial proposals or quotations for all suppliers and contractors were submitted and cross checked with the Letters of Acceptance. The values in the input sheet are consistent with the final negotiated amount according to the Letters of Acceptance.
2. The incurred cost in row 141 is deleted since it is not applicable for the current design change. The overhaul cost for GE4 2MW from WZS is updated in row 139 of revised FA and consistent with the value in the submitted document.
3. For conservativeness, the PP has removed the 6% GST for manpower and supervision cost in row 67.
4. The tariff for year 2016 and 2017 for GE4 is amended to 0.4669 sen/kWh in row 40 and consistent with Feed-in-Tariff approval dated 23/09/2014.

**Conclusion**

Tick the appropriate checkbox

- ☐ Additional action should be taken (finding remains open)
- ☒ The finding is closed

**Table 2. CAR from this validation**

CAR ID	D.6-01	Section no.	B.5.2	Date: 28/12/2015
<b>Description of CAR</b>				
PDD version 13.0 section B.5.2, Parameter GWP <sub>CH4</sub> : The value applied of 21 is no longer applicable for the 2 <sup>nd</sup> commitment period.				
<b>Project participant response (1<sup>st</sup> round)</b>				<b>Date: 28/05/2016</b>
Parameter GWP <sub>CH4</sub> was updated to 25 for the 2 <sup>nd</sup> commitment period in revised PDD, page 37				
<b>Documentation provided by project participant (1<sup>st</sup> round)</b>				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): B 5.2	New version No.: 14.0	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:	
<input type="checkbox"/>	Other:			
<b>DOE assessment (1<sup>st</sup> round)</b>				<b>Date: 29/05/2016</b>

<p>PDD version 14.0 section B.5.2, Parameter <math>GWP_{CH_4}</math>: The value applied is corrected to 25 for the 2<sup>nd</sup> commitment period according to the decision 4/CMP7 and paragraph 66 of the EB 69 Meeting Report, for the second commitment period of the Kyoto Protocol, the global warming potentials used by Parties to calculate the carbon dioxide equivalence of anthropogenic emissions by sources and removals by sinks of the greenhouse gases listed in Annex A to the Kyoto Protocol shall be those listed in the column entitled "Global Warming Potential for Given Time Horizon" in Table 2.14 of the errata to the contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, based on the effects of greenhouse gases over a 100-year time horizon, i.e. 25 tCO<sub>2</sub>/tCH<sub>4</sub>IPCC</p>	
<p><b>Conclusion</b> Tick the appropriate checkbox</p>	<p><input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed</p>

<b>CAR ID</b>	D.6-02	<b>Section no.</b>	B.6.1	<b>Date:</b>	28/12/2015
<b>Description of CAR</b>					
PDD version 13.0 section B.6.1, Parameter $CEF_{elec,PR,y}$ : The value applied of 0.622 is no longer applicable. The most recent value shall be adopted.					
<b>Project participant response (1<sup>st</sup> round)</b>					<b>Date:</b> 28/05/2016
Parameter $CEF_{elec,PR,y}$ was updated to 0.742 in revised PDD, page 54					
<b>Documentation provided by project participant (1<sup>st</sup> round)</b>					
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): B 6.1, B.6.3, B.7.1		New version No.: 14.0	
<input type="checkbox"/>	Changes in MR	Section(s):		New version No.:	
<input checked="" type="checkbox"/>	Changes in XLS	Worksheet(s): ERCalculation BT		New version No.: 2.0	
<input type="checkbox"/>	Other:				
<b>DOE assessment (1<sup>st</sup> round)</b>					<b>Date:</b> 29/05/2016
PDD version 14.0 section B.6.1, B.6.3 and B.7.1, Parameter $CEF_{elec,PR,y}$ : The value applied is corrected to 0.742 is according the most recent data obtained from the DNA secretariat of the host country.					
The CEF data is applied to calculate the ER for the period Jan to June 2016, the end of the 1 <sup>st</sup> CP.					
<p><b>Conclusion</b> Tick the appropriate checkbox</p>		<p><input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed</p>			

<b>CAR ID</b>	D.6-03	<b>Section no.</b>	all	<b>Date:</b>	28/05/2016
<b>Description of CAR</b>					
The applied PDD template is not valid any longer. Update to latest template is requested.					
<b>Project participant response (1<sup>st</sup> round)</b>					<b>Date:</b> 07/07/2016
New template is used.					
<b>Documentation provided by project participant (1<sup>st</sup> round)</b>					
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): all		New version No.: 16.0	
<input type="checkbox"/>	Changes in MR	Section(s):		New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):		New version No.:	
<input type="checkbox"/>	Other:				
<b>DOE assessment (1<sup>st</sup> round)</b>					<b>Date:</b> 11/07/2016
As per check of updated PDD against UNFCCC template the correct template is now applied. All information has been transferred correctly and no significant changes besides those stated here have been applied.					
<p><b>Conclusion</b> Tick the appropriate checkbox</p>		<p><input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed</p>			

<b>CAR ID</b>	D.6-04	<b>Section no.</b>	B.6.3	<b>Date:</b>	28/12/2015
<b>Description of CAR</b>					

PDD version 13.0, Section B.7.3, figure 10. The gas feed line to GE 4 is incorrect as according to the actual installation.			
<b>Project participant response (1<sup>st</sup> round)</b>			<b>Date:</b> 28/05/2016
The gas feed line to GE4 was amended according to the actual installation in revised PDD, page 60			
<b>Documentation provided by project participant (1<sup>st</sup> round)</b>			
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): B 6.3	New version No.: 14.0
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:
<input type="checkbox"/>	Other:		
<b>DOE assessment (1<sup>st</sup> round)</b>			<b>Date:</b> 29/05/2016
PDD version 14.0, Section B.7.3, figure 10. The gas feed line to GE 4 is correct according to the actual installation and reflect the actual situation at site.			
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

<b>CAR ID</b>	D.6-05	<b>Section no.</b>	A.3	<b>Date:</b> 28/05/2016
<b>Description of CAR</b>				
Following issues w.r.t. section A.3 have been identified:				
<ol style="list-style-type: none"> <li>1. A.3: It is unclear 1.5MW capacity out of an expected 2MW addition. Please include the basis for this net in the PDD</li> <li>2. A.3: Clarify if already commissioned, and include the dates of commissioning of the 2MW capacity (if applicable)</li> <li>3. A.3: Clarify whether the 3<sup>rd</sup> flare system was installed and discontinued or never implemented as expected in PDD version 09.0</li> </ol>				
<b>Project participant response (1<sup>st</sup> round)</b>				<b>Date:</b> 07/07/2016
<ol style="list-style-type: none"> <li>1. Refer PDD section A3, page 7 specified</li> <li>2. Commissioned on 26 October 2015 and included in PDD</li> <li>3. Never implemented and a DD was submitted earlier for removal of flare 3</li> </ol>				
<b>Documentation provided by project participant (1<sup>st</sup> round)</b>				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): A.3	New version No.: 16.0	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:	
<input type="checkbox"/>	Other:			
<b>DOE assessment (1<sup>st</sup> round)</b>				<b>Date:</b> 11/07/2016
<ol style="list-style-type: none"> <li>1. Ok. Related information provided.</li> <li>2. Ok. Included in A.3 and crosschecked with supporting document during site visit.</li> <li>3. Ok. Already removed during previous PRC-2467-003.</li> </ol>				
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed		

<b>CAR ID</b>	D.6-06	<b>Section no.</b>	B.6.2	<b>Date:</b> 28/05/2016
<b>Description of CAR</b>				
<p>The value for BE<sub>CH4,SWSD</sub> is inconsistent between PDD and Excel spreadsheet. Clarify and revise accordingly.</p> <p>Further the ex-ante fixed parameters for the calculation of project emissions from fossil fuel consumption is missing.</p>				
<b>Project participant response (1<sup>st</sup> round)</b>				<b>Date:</b> 07/07/2016
<p>The value has been made consistent</p> <p>Parameter EF<sub>CO2,i,y</sub> has been provided now in B.6.2</p>				

Documentation provided by project participant (1 <sup>st</sup> round)			
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): B 6.2	New version No.: 16.0
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:
<input type="checkbox"/>	Other:		
DOE assessment (1 <sup>st</sup> round)			Date: 11/07/2016
Ok. The values are now consistent as per revised PDD and spreadsheet			
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

<b>CAR ID</b>	D.6-07	<b>Section no.</b>	B.6.1, B.7.1	<b>Date:</b> 28/05/2016
Description of CAR				
<p>Project emissions from fossil fuel consumption are mentioned due to the use of a diesel generator but neglected due to the reason that the emissions are less than 1% of the overall ER. However, justification for the same is to be provided.</p> <p>Further clarify why the related equation to monitor the project emissions and related parameters are not provided.</p>				
Project participant response (1 <sup>st</sup> round)				Date: 07/07/2016
<p>The project emissions are now monitored and parameters <math>EF_{CO2,i,y}</math> and <math>FC_{j,i,y}</math> have been provided. The approach to neglect the emissions has been deleted.</p>				
Documentation provided by project participant (1 <sup>st</sup> round)				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): B 6.1, B.7.1	New version No.: 17.0	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:	
<input type="checkbox"/>	Other:			
DOE assessment (1 <sup>st</sup> round)				Date: 25/07/2016
<p>The approach of neglect is deleted and parameters to monitor amount of fossil fuel used as well as related emission coefficient have been provided.</p> <p>However the related equation to calculate the project emissions is still missing in B.6.1 as well as clarification is requested why parameter <math>NCV_{i,y}</math> for diesel is not considered</p>				
Project participant response (2 <sup>nd</sup> round)				Date: 10/08/2016
<p>The description on the method to calculate the PE from FC is included in section B.6.1</p> <p>The parameter is included under section B 6.2, already amended according to the tool to describe on the preferred source.</p>				
Documentation provided by project participant (2 <sup>nd</sup> round)				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): B 6.1, B.7.1	New version No.: 18.0	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:	
<input type="checkbox"/>	Other:			
DOE assessment (2 <sup>nd</sup> round)				Date: 15/08/2016
<p>The following has been identified:</p> <p>Parameter <math>EF_{CO2,i,y}</math>: Further specification and revision has been conducted. However, the parameter is given under ex-ante fixed parameters but the value has to be monitored and therefore has to be moved to monitoring plan section B.7.1</p> <p>Parameter <math>FC_{i,j,y}</math>: It is stated that density will be applied to convert from volume to mass however related density is not a monitoring parameter. Clarify why this is not a parameter as required be related tool and how density will be monitored.</p>				
Project participant response (3 <sup>rd</sup> round)				Date: 02/09/2016
<p>Parameters <math>EF_{CO2,i,y}</math> and <math>NCV_{i,y}</math> is added in section B.7.1 and removed from section B.6.2</p> <p>Parameter <math>\rho_{i,y}</math> is for monitoring of density is added in section B.7.1. The data is derived from fuel supplier of host country or national or international source at the time of determining the fuel consumed.</p>				
Documentation provided by project participant (3 <sup>rd</sup> round)				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): B 6.1, B.7.1	New version No.:19.0	

<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:
<input type="checkbox"/>	Other:		
<b>DOE assessment (3<sup>rd</sup> round)</b>			<b>Date:</b> 04/09//2016
<p>Parameters <math>EF_{CO_2,i,y}</math> and <math>NCV_{i,y}</math> is added in section B.7.1, therefore is appropriately.</p> <p>Parameter <math>\rho_{i,y}</math> is added in section B.7.1 to monitor the fuel density and derived from fuel supplier of host country or national or international that will be applied at the time of calculating the PE for fuel consumption if any consumed. Therefore is appropriate and in line with the related tool as well as value is correct.</p>			
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

Table 3. FAR from this validation

<b>FAR ID</b>	xx	<b>Section no.</b>	<b>Date:</b> DD/MM/YYYY
<b>Description of FAR</b>			
<b>Project participant response</b>			<b>Date:</b> DD/MM/YYYY
<b>Documentation provided by project participant</b>			
<b>DOE assessment</b>			<b>Date:</b> DD/MM/YYYY

## Appendix 5. Assessment of Financial Parameters

Assessment of Financial Parameters (VVS, §§ 129, 130 / in case financial parameters from FSR §131 and §132)

<input type="checkbox"/>	No financial parameters are used for additionality justification																					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below																					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT																	
					Correctness of value applied	Comment																
Capital Expenditure (includes up to phase 4)	15,418,724	RM	Revised Financial Analysis Proposals from SP Energy Proposal from WZS Power Letter of Acceptance to WZS Power Mechanical & Electrical Consultancy LOA Tai Hoe Proposal Letter of Acceptance to Tai Hoe Letter of Acceptance to Interlinx Automation Sdn Bhd Proposal from Interlinx Automation Sdn Bhd Proposal from Chen Guan	/unfccc/ /CP1/ /CP2/ /CP3/ /CP4/ /CP5/	<input checked="" type="checkbox"/>	<p>Description:</p> <p>The investment is increased from RM53,526,030 based on the revised financial analysis approved by UNFCCC EB reference PRC-2467-003 dated 12/11/2015 <sup>/unfccc/</sup> to RM68,944,754. The increase in investment for this PRC is as per below table:</p> <table border="1"> <thead> <tr> <th>Description</th> <th>Amount (RM)</th> </tr> </thead> <tbody> <tr> <td>Gas Engine includes preliminary, pipe works, gas pre-treatment system and LFG generator for grid</td> <td>4,950,000</td> </tr> <tr> <td>Installation of wells and pipeline</td> <td>2,737,630</td> </tr> <tr> <td>Gas Supply system</td> <td>886,994</td> </tr> <tr> <td>Electrical works and supply of electrical equipment (exclude gas engines and include diesel standby genset)</td> <td>6,361,100</td> </tr> <tr> <td>M&amp; E consultancy</td> <td>40,000</td> </tr> <tr> <td>Other costs – Testing, Commissioning &amp; Contribution charges to local authorities</td> <td>293,000</td> </tr> <tr> <td>Contingency for 2MW GE</td> <td>150,000</td> </tr> </tbody> </table>	Description	Amount (RM)	Gas Engine includes preliminary, pipe works, gas pre-treatment system and LFG generator for grid	4,950,000	Installation of wells and pipeline	2,737,630	Gas Supply system	886,994	Electrical works and supply of electrical equipment (exclude gas engines and include diesel standby genset)	6,361,100	M& E consultancy	40,000	Other costs – Testing, Commissioning & Contribution charges to local authorities	293,000	Contingency for 2MW GE	150,000
Description	Amount (RM)																					
Gas Engine includes preliminary, pipe works, gas pre-treatment system and LFG generator for grid	4,950,000																					
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Gas Supply system	886,994																					
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M& E consultancy	40,000																					
Other costs – Testing, Commissioning & Contribution charges to local authorities	293,000																					
Contingency for 2MW GE	150,000																					

<input type="checkbox"/>	No financial parameters are used for additionality justification							
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below							
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT			
					Correctness of value applied	Comment		
			Letter of Acceptance to Chen Guan			<table border="1"> <tr> <td>Total</td> <td>15,418,724</td> </tr> </table> <p>Justification:</p> <p>The respective costs in the above table were reviewed and cross checked against the Letter of Acceptance and original proposal received by the PP to confirm the values applied in the financial analysis are based on the Letter of Acceptance.</p> <p>Based on the revised financial analysis incl. consideration of updated investment but also revenue, the project IRR remains below the benchmark of 12% (applied during registration). The project IRR without finance costs, for 10 years is negative at -15.7% and for 21 years is +8.0% without CDM revenue.</p> <p>A reduction in the investment by 10% renders the IRR still to be in the negative of -12.0% for 10 years and +9.8% for 21 years which is below the benchmark of 12%. However, this is unlikely since several costs have already been reduced and the local host country Goods and Sales tax of 6% (costs) was not included.</p> <p>Therefore, in order to meet the benchmark, the investment needs to reduce by 21.1% which is unlikely to happen as explained above.</p> <p>Further details for each cost component analysis refer to below.</p> <p>Conclusion:</p> <p>It could conclude, the increase in investment cost is considered reasonable.</p>	Total	15,418,724
Total	15,418,724							
2MW Gas Engines	5,393,000	RM	Proposals from SP Energy	/CP1/	<input checked="" type="checkbox"/>	<p>Description:</p> <p>The cost for the 2MW gas engine includes the following:</p>		

<input type="checkbox"/>	No financial parameters are used for additionality justification																						
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below																						
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT																		
					Correctness of value applied	Comment																	
			Proposal from WZS Power Letter of Acceptance to WZS Power			<table border="1"> <thead> <tr> <th>Description</th> <th>Amount (RM)</th> </tr> </thead> <tbody> <tr> <td>Preliminary</td> <td>220,000</td> </tr> <tr> <td>Gas piping for the gas engine</td> <td>120,000</td> </tr> <tr> <td>Gas Pretreatment system</td> <td>735,000</td> </tr> <tr> <td>Gas Engines</td> <td>3,875,000</td> </tr> <tr> <td>Other costs - Testing, Commissioning &amp; Contribution charges to local authorities</td> <td>293,000</td> </tr> <tr> <td>Contingency</td> <td>150,000</td> </tr> <tr> <td>Total</td> <td>5,393,000</td> </tr> </tbody> </table> <p>Justification:</p> <p>The cost for GE 4 with the relevant works was derived from the Letter of Acceptance to WZS Power dated 16/12/2014.</p> <p>The cost applied was cross-checked with the proposals from SP Energy dated 31/10/2014 amounting to RM6,989,534 and WZS Power dated 03/11/2014 amounting to RM6,418,000.</p> <p>The sensitivity is conducted in the total investment.</p> <p>Conclusion:</p> <p>It can be concluded, the cost applied is considered appropriate since it is lower when compared with the original proposals received from both suppliers.</p>	Description	Amount (RM)	Preliminary	220,000	Gas piping for the gas engine	120,000	Gas Pretreatment system	735,000	Gas Engines	3,875,000	Other costs - Testing, Commissioning & Contribution charges to local authorities	293,000	Contingency	150,000	Total	5,393,000	
Description	Amount (RM)																						
Preliminary	220,000																						
Gas piping for the gas engine	120,000																						
Gas Pretreatment system	735,000																						
Gas Engines	3,875,000																						
Other costs - Testing, Commissioning & Contribution charges to local authorities	293,000																						
Contingency	150,000																						
Total	5,393,000																						
Installation of wells & piping	2,737,630	RM	Tai Hoe Proposal Letter of Acceptance to Tai Hoe	/CP3/	<input checked="" type="checkbox"/>	<p>Description:</p> <p>This cost is for the installation of new pipeline and construction for the gas supply from phase 2a to the power generation based on</p>																	

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<p>the letter of acceptance.</p> <p>This additional cost is part of the additional investment.</p> <p>Justification:</p> <p>The letter of acceptance was reviewed to confirm the cost applied in the financial analysis amounting to RM 2,737,630 is correct</p> <p>The original proposal submitted by Tai Hoe was amounting to RM 3,278,593.</p> <p>There is no sensitivity analysis conducted since this is part of the total investment.</p> <p>Conclusion:</p> <p>Since the cost is derived from the letter of acceptance and lower than the original proposal, it can be concluded the cost applied is plausible.</p>
Mechanical & Electrical Consultancy	40,000	RM	MES Solutions Proposal Letter of Acceptance to MES Solutions	/CP2/	<input checked="" type="checkbox"/>	<p>Description:</p> <p>This cost is for the consultancy services for the design, construction, supervision and commission for the addition 2MW generation capacity.</p> <p>The cost is derived from the Letter of Acceptance issued by the PP to MES Solutions Sdn Bhd.</p> <p>Justification:</p> <p>The cost is a relatively small amount that has no impact to the additional even it is not considered.</p> <p>Conclusion:</p> <p>Although the amount is relatively small, the PP has included since</p>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						it is part of the expansion programme cost.
Electrical equipment and Installation to grid connection – 2MW	6,361,100	RM	Proposal from Chen Guan Letter of Acceptance to Chen Guan Revised Financial Analysis	/CP4/ /FA1/	<input checked="" type="checkbox"/>	<p>Description:</p> <p>The cost applied is derived from the Letter of Acceptance issued by PP to Chen Guan.</p> <p>This cost is based on the list of work specified which includes supply of switch gears, transformer, installation works, electrical cable from the power house to the grid connection point and standby diesel genset for black start.</p> <p>Justification:</p> <p>The Letter of Acceptance was reviewed to confirm the amount minus the cost of the diesel genset was applied in the financial analysis. Comparing with the proposal submitted by Chen Guan amount to RM6,700,000 which includes the standby diesel genset.</p> <p>The cost for the diesel genset amounting to RM338,900 according to the proposal was not included in the financial spreadsheet.</p> <p>The list of work scope has been reviewed to cross check the work scope.</p> <p>A sensitivity analysis is conducted in the total investment.</p> <p>Conclusion:</p> <p>The assessment team concludes the cost applied is appropriate since it is based on the letter of acceptance and for conservativeness the cost for the diesel genset was not included in the analysis.</p>
Gas Supply	886,994	RM	Letter of Acceptance to	/CP5/	<input checked="" type="checkbox"/>	Description:

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
System to GE 4 (2MW)			Interlinx Automation Sdn Bhd  Proposal from Interlinx Automation Sdn Bhd  Proposal from Tai Hoe Resources Sdn Bhd			<p>The cost is the installation of additional gas pipeline for supply of gas to the new 2MW gas engine.</p> <p>This cost is part of the additional investment.</p> <p>Justification:</p> <p>The cost applied is based on the letter of approval of RM886,994 awarded to Interlinx Automation..</p> <p>The proposals from Interlinx Automation and Tai Hoe was compared and found the cost from Tai Hoe is higher than Interlink. The PP has selected Interlinx and applied in the financial analysis.</p> <p>Proposal from Tai Hoe: RM975,205</p> <p>Proposal from Interlinx: RM886.994</p> <p>The sensitivity analysis is conducted in the total investment.</p> <p>Conclusion:</p> <p>It can be concludes the cost applied is appropriate since it is based on the letter of acceptance which is lowest of the proposals received.</p>
Tariff (from year 2016 for GE 4 electricity sold to grid)	0.4669	RM/k Wh	Feed-In approval Financial Analysis	/FA5/ /FA1/	<input checked="" type="checkbox"/>	<p>Description:</p> <p>The tariff rate applied for GE 4 was based on the approval by Sustainable Energy Development Authority Malaysia effective from 13/12/2015 for a period of 16 years. In the approval it states the net export capacity is 1.5MW.</p> <p>In the validated financial analysis at the time of registration, the tariff applied was RM0.19/kWh.</p> <p>Justification:</p>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<p>The feed-in approval was reviewed to confirm the tariff and export capacity applied for GE 4 is correct in the financial analysis.</p> <p>A sensitive analysis was conducted.</p> <p>A 10% increase in the tariff sensitivity analysis has been conducted. The project IRR of the result is -9.3% for 10 years analysis and 12% for 21 years analysis which is lower than the benchmark. In order to meet the benchmark, the tariff is required to be increased by 17.5%. However, such incremental is unlikely since the tariff is stated clearly in the approval.</p> <p>Although there is a new feed-in tariff for renewable energy in Malaysia, this is not applicable since the policy is made after 11/11/2001.</p> <p>Conclusion:</p> <p>The assessment team concluded that the tariff applied by the project participant is appropriate.</p>
Electricity sold to grid for GE 4	11,828,000	kWh	Feed-In approval Financial Analysis Average operating factor	/FA5/ /FA1/ /O12/	<input checked="" type="checkbox"/>	<p>Description:</p> <p>The expected electricity that will be sold to grid as from 2016 is calculated based on 1.5MW at 8,760 h/y with 90% availability factor.</p> <p>The 1.5MW is based on the approved feed-in tariff that allows a maximum of 1.5MW to be exported to the grid.</p> <p>The availability factor of 90% is based on operating factor of GE1 1MW and GE2 &amp; 3, 3.2MW gas engines for the period from April 2014 to March 2015.</p> <p>Justification:</p>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<p>The actual operating factor for GE1, 1MW gas engine was 77%, GE2 &amp; GE3 3.2MW was 94% and 88% respectively. The average availability factor for the 3 GEs is 86%. The operation logsheet was verified to confirm the actual availability factor.</p> <p>A 10% increase in the electricity generation sensitivity analysis has been conducted. The project IRR of the result is -11.9% for 10 years analysis and 10.2% for 21 years analysis which is lower than the benchmark. In order to meet the benchmark, the electricity generation is required to be increased by 17.5%.</p> <p>However, it is unlikely the generation capacity exceeds the approved capacity stated in the feed-in tariff approval. In addition, it is also not possible for the gas engine to operation at 100% in one year without stoppage for maintenance.</p> <p>Conclusion:</p> <p>It can be concluded the expected amount of electricity for sale to the grid is determine in a plausible approach.</p>
O&M Year 1 & 2 (From year 3 onwards)	995,000 399,360 (average per year for 6 years from year 2018 to 2023) 139,193 (average per	RM	Service and Maintenance from WZS for GE4 Energy Maintenance Cost Summary (SPE) Overhaul Cost from SP Energy	/CP6/ /O11/ /O13/ /CP1/	<input checked="" type="checkbox"/>	Description: The O&M cost covers the following: <ol style="list-style-type: none"> <li>1. Service Fees</li> <li>2. Spare parts</li> <li>3. Overhaul fees for GE4</li> </ol> The O&M cost is derived from the proposal submitted by WZS Power based on the interval of operating hours for each year starting from year 3 of operation. The total cost for the 6 years is approx. RM2,396,157.00.

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
Overhaul	year 2024 to 2028) 1,518,005 (average of all 4 overhauls required)					<p>The total cost from year 2024 to 2028 is approx. RM695,965. The annual cost from year 2024 is determined based on year 2023 cost of RM127,270 by adding an annual inflation of 3% annually for each year.</p> <p>The initial year 1 and year 2 costs are derived from the gas engine supply contract. Therefore, this cost is not included in the analysis.</p> <p>The overhaul cost is derived from the proposal submitted by WZS Power amounting to approx. RM6,072,022 for a period of 7 years. The overhaul will be carried out in alternate year after year 2 of operation.</p> <p>The average for each overhaul is approx. RM1,518,005 and includes service fees and spares.</p> <p>Justification:</p> <p>The cost is for GE4 only whilst there is no change to the service and maintenance costs for GE1, GE2 &amp; GE3.</p> <p>The year 1 &amp; 2 cost was cross-checked with the engine supply contract and could be confirmed as correct.</p> <p>The O&amp;M cost from year 3 onwards is cross-checked with maintenance summary provided by the gas engine supplier for correctness that cover service fee and spare parts for each service interval hours.</p> <p>The costs do not include GST, annual inflation rate and remain fixed for 6 years.</p> <p>The costs from year 2024 to 2028 is based on the year 2023 cost and add the annual 3%. The inflation rate is considered conservative since it is lower than the average inflation of the host</p>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<p>country as at 30/06/2015. <a href="http://www.indexmundi.com/malaysia/inflation_rate_(consumer_prices).html">http://www.indexmundi.com/malaysia/inflation_rate_(consumer_prices).html</a>. In addition, the 6% GST was not included, therefore the estimate is considered conservative.</p> <p>The annual O&amp;M cost was compared with the supplier SP Energy and found the cost from SP Energy was approx. RM1,089,920 per year.</p> <p>The cost for each overhaul was cross-checked and compared with another supplier and found the cost from alternative supplier was approx. RM1,089,920 per year.</p> <p>The costs do not include GST and annual inflation rate for the overhaul service period.</p> <p>A 10% decrease in the cost has been conducted. The project IRR of the result remains below the benchmark at 8.6% for 21 years.</p> <p>To meet the benchmark the cost need to reduce by 75% which is practically not possible.</p> <p>Conclusion:</p> <p>It can be concluded, the O&amp;M and overhaul cost applied is plausible and considered conservative.</p>
Manpower & Supervision	30,000 / y	RM	Financial Analysis Post Registration Changes Approved Revised PDD version 9.0	/FA1/ /PRC2/ /PDD3/	<input checked="" type="checkbox"/>	<p>Description:</p> <p>This additional manpower &amp; supervision cost is for operating the 2 MW gas engine.</p> <p>This amount applied is same as the previous PRC (PRC-2467-001) approved by UNFCCC EB on 09/09/2013.</p> <p>Justification:</p>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<p>The amount was cross-checked with the financial analysis for PRC-2467-001 and same as the amount of RM30,000 per year. /UNFCCC/</p> <p>No sensitivity analysis conducted for this amount since it is relatively small amount that has no impact to the additionality analysis even it is not considered.</p> <p>Conclusion:</p> <p>Although the amount is relatively small, the PP has included since it is part of the operation costs.</p>
Benchmark	12	%	Registered PDD	/PDD1/ /PDD2/ /PDD3/	<input checked="" type="checkbox"/>	<p>Description:</p> <p>The benchmark applied is same as the registered PDD which is based on the feature article in the Jurutera, July 2006 which states IRR of not less than 12%</p> <p>Justification:</p> <p>The registered PDD was reviewed to cross-checked the applied benchmark was 12%.</p> <p>Conclusion:</p> <p>It can be concluded, the benchmark applied is same as the registered PDD.</p>

## Appendix 6. Assessment of Barrier Analysis

### Assessment of Barrier Analysis (VVS, §§ 133-136)

<input checked="" type="checkbox"/>	No barrier parameters are used for additionality justification			
<input type="checkbox"/>	Assessment of barriers see below			
Kind of Barrier (invest, tech, other)	Description of Barrier	Evidence used	Assessment of validation team	
			Appropriateness of information source	Explanation of final result
			<input type="checkbox"/>	
			<input type="checkbox"/>	

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**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
01.0	23 March 2015	Initial publication by UNFCCC
Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: post-registration change, project activities, validation report		

**TÜV NORD Revision history**

<i>Version</i>	<i>Date</i>	<i>Description</i>
3.0	18.06.2015	Adoption of UNFCCC report template to TÜV NORD certification and quality system as well as TÜV NORDs reporting guidance
Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: post-registration change, project activities, validation report		