

VALIDATION OPINION ON PROJECT DESIGN CHANGE & RMP

PROJECT TITLE

'BUNDLED WIND POWER PROJECT IN

JAISALMER (RAJASTHAN IN INDIA) MANAGED

BY ENERCON (INDIA) LTD.'

PROJECT PARTICIPANT
ENERCON (INDIA) LIMITED (EIL)
(UNFCCC REF. NO.0310)

PROJECT REF. NO.CDM.11.VER.172.PDC

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Project Number: CDM.11.VER.172.PDC				
Subject: Notifying changes in the registered Project Design Document& Revision in Monitoring				
Plan.				
Project Title: Bundle	ed Wind power pr	oject in Jaisalmer (Rajasthan in India) managed by Enercon		
(India) Ltd.				
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Abbreviations:

Ajmer DISCOM Ajmer Electricity Distribution Company Ltd

BM Build Margin

CEF Carbon Emission Factor
CEA Central Electricity Authority
CDM Clean Development Mechanism

CO₂ Carbon dioxide

CO₂e Carbon dioxide equivalent
DOE Designated Operational Entity

EIL Enercon India Limited
GHG Greenhouse gas(es)

GWP Global Warming Potential

Jaipur DISCOM Jaipur Vidyut Vitran Nigam Limited

kWh Kilo Watt hour MPMonitoring Plan MRMonitoring Report MWh Mega Watt hour OM Operating Margin OSA On Site Assessment PDC Project Design Change PDD Project Design Document

PA Project Activity

PPA Power Purchase Agreement RMP Revised Monitoring Plan

RRVPNL Rajasthan Rajya Vidyut Prasaran Nigam Ltd

T&C Technical and Certification

UNFCCC United Nations Framework Convention for Climate Change

CDM Clean Development Mechanism
CER Certified Emission Reductions

WEC Wind Electric Converters
WTG Wind Turbo Generator



Tab	le of Contents	Page
1.	INTRODUCTION	5
1.1	Objective	5
1.2	Scope	5
1.3	GHG Project Description and Summary of Changes	5
2.	METHODOLOGY	6
2.1	Review of Documents	ϵ
2.2	Follow-up Actions:	6
2.3	Resolution of Clarification and Corrective Action Requests	7
3.	VALIDATION FINDINGS	8
3.1	Changes from the registered PDD	8
3.2	Validation of the changes from the registered PDD	11
	3.2.1 Additionality of the project activity	
	3.2.2 Scale of CDM project activity	
	3.2.3 Applicability and application of the Applied Approved Baseline	
	3.2.4 Assessment of Revision in Monitoring Plan	12
4.	VALIDATION OPINION	15
5.	REFERENCES	16
ANI	NEX I: VALIDATION PROTOCOL	15
ANI	NEX II: FINDINGS DOCUMENT	27
ANI	VEX III: COMPETENCY CERTIFICATES OF TEAM MEMEBERS	27



1. INTRODUCTION

1.1 Objective

In accordance with paragraph 62(g) of the CDM Modalities and Procedure, the DOE contracted by the project participant to perform verification shall identify and inform the project participants of any concerns related to the conformity of the actual project activity and its operation with the registered project design document (PDD).

Paragraph 57 of the modalities and procedures for the CDM allows project participants to revise monitoring plan in order to improve accuracy and/or completeness of information, subject to the revision being validated by a Designated Operational Entity.

KBS has been contracted by Enercon (India) Limited (EIL) to perform; validation of the revision of monitoring plan according to the procedure detailed in Annex 28 to EB 49 meeting report; validation of changes from project activity as described in the registered PDD "Bundled Wind power project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd." and UNFCCC ref. no. 0310.

The purpose of a validation (PDC and RMP) is to have an independent third party assessment of the project design change and revision of monitoring plan.

1.2 Scope

This validation covers independent and objective review of the revised PDDand other relevant documents and supporting information. The documentation review shall be performed in accordance with applicable Kyoto Protocol requirements, the UNFCCC rules and associated interpretations. Risk based approach employed in the validation is focussed on the identification of significant risks in implementation and operation of the project activity and the generation of CERs.

The scope of the validation is defined as an independent and objective review of the revision in monitoring plan and changes from project activity as described in the registered PDD. The information in revised PDD is reviewed against Kyoto Protocol requirements, UNFCCC rules, applied methodology and associated interpretations.

1.3 GHG Project Description and Summary of Changes

As per the registered PDD Version 2 dated 15/12/2005, the project generates 58.2 MW of wind energy and exports it to grid. In absence of the project activity the same amount of electricity would have been generated from carbon intensive grid. As per the UNFCCC web page, the project was registered on 29th May 2006 against ACM0002 version 4 under UNFCCC reference number 0310.

During the verification process it was observed that the installed capacity of the project activity has decreased from 58.2 MW (as per registered PDD) to 54 MW. The total installed WTG's (each of capacity 0.6 MW) has decreased from 97 (as per registered PDD) to 90, due to the decommissioning of 7 WTG's.

The implementation and operation of the project activity, in regards to the change in capacity and ownership of WTG's, was not found in line with the description in the registered PDD'1.1/.



2. METHODOLOGY

A three step procedure mentioned below is applied to perform the validation of changes in the project activity:

- a desk review of the revised project design documentation and supporting documents;
- follow-up interviews with project stakeholders and performing site visit (if required);
- resolution of raised non-conformities and issuance of the final validation opinion.

Findings established during the validation can either be seen as a non-fulfilment of the requirements of validation protocol. Corrective Action Request (CAR) is raised, where:

- i) mistakes have been made with a direct influence on project results;
- ii) validation protocol requirements have not been met.

Clarification Request (CL) is raised where additional information is needed to fully clarify if the applicable CDM requirements have been met.

2.1 Review of Documents

Documentation review is performed using a validation protocol to verify the correctness, creditability and interpretation of presented information in PDD and other documents submitted for validation by the project proponent. Information in PDD is cross checked using credible and reliable sources. Validation protocol consists of several tables and the different columns in protocol are described below:

Validation Protocol:		•		
Checklist Question	Reference	Means of verification (MoV)	Comment	Conclusion
The checklist questions are developed based on applicable CDM requirements. The project should meet the checklist requirements.	Gives reference of documents referred to check requireme nts of checklist.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (I) or (SV). N/A means 'not applicable'.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a CAR due to non-compliance with the checklist question (See below). CL is used when the validation team has identified a need for further information/clarification.

2.2 Follow-up Actions:

Site visit and interview with relevant stakeholders and personnel with knowledge of project design, operation and implementation is performed. Authenticity of information is cross checked through other publically available information. A site visit, by the assessment team of KBS, was conducted for the verification of the actual implementation of the process mentioned in the registered PDD^{/1.1/}, version 2.



Site visit interview details are given below:

Date of site visit	Person(s) Interviewed	Interview topic(s)	
09/11/2011	Saujanya Kumar – CDM-Corporate, Enercon India Limited	Implementation and operation of the PA	
	Mr. Manish Wadhwa – Engineer, Enercon India Limited Mr. Jeetendra Kumar Engineer, Enercon India Limited	Monitoring and measuring system Collection of measurements Observations of established practices Data verification of monitoring parameters.	
	Mr. Manish Wadhwa – Engineer, Enercon India Limited Mr. Jeetendra Kumar- Engineer, Enercon India Limited	QA/QC procedures, data management, maintenance of data quality, reliability & maintenance practices.	

2.3 Resolution of Clarification and Corrective Action Requests

Resolution of CARs and CLs is detailed in Table 3 of Validation Protocol (Findings Document). Different sections of 'Findings Document' are discussed in table below:

Findings Document: Resolution of Corrective Action and Clarification Requests					
Clarifications and corrective action requests	Reference	Summary of project proponents response	Validation conclusion		
If the conclusions from the Validation Protocol are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	Reference to the checklist question number in protocol where the Corrective Action Request or Clarification Request is explained.	The responses given by the Client during the communications with the validation team should be summarised in this section.	This section should summarise the validation team's responses and final conclusion on any issue.		



3. VALIDATION FINDINGS

3.1 Changes from the registered PDD

It was observed, by the assessment team, during the verification site visit that the project activity title "Bundled Wind power project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd." is not

implemented as per registered PDD for the following reason.

S. No	Changes	Information in the registered PDD	Deviation observed
1	Change in capacity	The project activity involves installation and operation of 97 WTG's of capacity 0.6 MW each. The total installed capacity of the project is 58.2 MW.	The project activity has an installed capacity of 54 MW (90 WTG's of 0.6 MW each). 7 WTG's were decommissioned during the current monitoring period.
2	Swap of installed capacity of 2 sub project owner's.	The installed capacity of Texmo Group and Venlon Polyester Film Ltd. group is 3 MW and 4.2 MW respectively.	This has been observed as typo error and the actual installed capacity of these companies was erroneously swapped in the registered PDD. The installed capacity at the time of registration for Texmo Group and Venlon Polyester Film Ltd. group is 4.2 MW and 3 MW respectively.
3	Change in ownership	The installed 97 WTG's were owned by different owners.	There has been a change in the ownership of 38 WTG's out of 97 installed.

3.1.1 When the changes occurred

The date of change has been summarized in the table below.

Change in installed capacity:

It has been confirmed that 7 out of 97 WTGs have been decommissioned and details are mentioned below;

S. No.	Owner	WTGs	Capacity (MW)	Decommissioning Date
1	Dinesh Pouches Ltd.	1	0.6 MW	03/06/2008
2	R. K. Marbles	1	0.6 MW	03/06/2008
3	Revathi Equipments Ltd.	1	0.6 MW	03/06/2008
4	Texmo Industries-I	1	0.6 MW	02/06/2008
5	Venlon Polyester Film Ltd	2	1.2 MW	02/06/2008
6	Dempo Industries Pvt. Ltd.	1	0.6 MW	02/06/2008
-	Total	7	4.2 MW	-

As a consequence, the overall installed capacity of project activity reduced by 4.2 MW from erstwhile 58.2 MW to 54 MW as mentioned in the revised PDD. However, these WTGs continued to operate and generate electricity between commissioning and decommissioning dates. The decommissioning dates have been confirmed from the decommissioning certificates for relevant WTGs.

Swap of installed capacity:

It has been confirmed that the ownership of the WTGs for the two owners in the registered PDD was erroneously shown as interchanged. The details are mentioned below;



C No	Capacity (registered PDD)			Capacity (revised PDD)	
S. No.	Sub-Project Owners	WTGs	Capacity (MW)	WTGs	Capacity (MW)
1	Texmo Group	5	3.0	7	4.2
2	Venlon Polyester Film Ltd	7	4.2	5	3.0

As a consequence, there is no variation in the installed capacity due to this change. However, in order to bring consistency between the actual ownership of the respective WTGs and description in the registered PDD the corresponding correction has been made in the revised PDD. The ownership has been confirmed from the JMR and Share certificates for the respective WTGs.

Change in ownership of the WTGs:

In the current monitoring period, the ownership of 31 WTGs (18.6 MW) from various owners (mentioned below) has been transferred to Enercon Wind Farm (Tungbhadra) Pvt. Ltd. on 'as is where is' basis. Furthermore, 7 WTGs (4.2 MW) have changed hands from Shree Ram Transport Finance Co Ltd. to NU POWER Renewable Ltd. The details are mentioned below;

S. No.	Owner (Registered PDD)	Present Owner	Date
1	Venlon Polyester Film Ltd	Enercon Wind Farm	20/03/2008
2	Texmo Industries-I	(Tungbhadra) Pvt. Ltd.	20/03/2008
3	Dinesh Pouches Limited		17/10/2008
4	Texmo Industries-II		20/03/2008
5	Revathi Equipment Ltd.		20/03/2008
6	R.K.Premises Pvt. Ltd.		20/03/2008
7	R. K. Marbles Pvt Ltd		04/02/2008
8	Supreme Buildestates Pvt. Ltd.		04/02/2008
9	Premier Buildestates Pvt. Ltd.		04/02/2008
10	Rennaissance Asset Management Co. Pvt. Ltd.		04/02/2008
11	Texmo Precision Casting		28/02/2008
12	Shree Ram Transport Finance Co Ltd	NU POWER Renewable Ltd.	25/11/2009

The transfer of ownership has been confirmed from the respective Purchase Orders issued by Enercon Wind Farm (Tunghbhadra) Pvt. Ltd. and NU POWER Renewable Ltd. It has further been confirmed from the JMR, Revised PPA and Share certificates issued against the respective WTGs.

The consequence of this change affects the monitoring plan and cross checks. The corresponding changes have been made in the revised PDD and which are consistent with the actual implementation.

3.1.2 Reasons for these changes taking place

Change in installed capacity:

The reason for change is an internal decision of the WTG owners, which is largely based on the low PLF observed in the current monitoring period. The same has been confirmed from the Site Assessment Report dated 20/06/2007, where the average PLF, based on monitored data of 2 years (2005-06 and 2006-07), is found to be less than 15%, which is exceedingly low as compared to the validated figure of 23.78%. The referred report also recommended the decommissioning of the WTGs.

Swap in installed capacity:

The installed capacities for Texmo Group and Venlon Polyester Film Ltd were from the beginning as per the description in the revised PDD. This has been confirmed from the respective purchase orders issued. It has been accepted as a typographical error in the registered PDD.

Change in ownership of the WTGs:



The reason for change is an internal decision of the WTG owners, which is largely based on the low PLF observed in the current monitoring period. The same has been confirmed from the Site Assessment Report dated 20/06/2007, where the average PLF, based on monitored data of 2 years (2005-06 and 2006-07), is found to be less than 15%, which is considerably low as compared to the validated figure of 23.78%. The WTGs (31+7) were then purchased by new owners on 'as is where is' basis.

The change in ownership has not been considered as a permanent change as it neither affects the implementation nor operation of the project activity.

3.1.3 Whether the changes would have been known prior to registration of the project activity

Change in installed capacity:

In the opinion of the assessment team the changes would not have been known prior to the registration of the project activity as they are based on low PLF observed after the project activity implemented and became operational. Moreover, the report, which played role in the decision making was prepared on 20/06/2007 i.e. after the registration of the project activity.

Swap in installed capacity:

The installed capacities for Texmo Group and Venlon Polyester Film Ltd were from the beginning as per the description in the revised PDD. This has been confirmed from the respective purchase orders issued. Therefore, it is confirmed that the swap in installed capacity is a typo error and these changes were clearly known prior to the registration of the project activity.

Change in ownership of the WTGs:

In the opinion of the assessment team the changes would not have been known prior to the registration of the project activity as they largely are based on low PLF observed after the project activity became operational. Moreover, the report, which played role in the decision making was prepared on 20/06/2007 i.e. after the registration of the project activity.

3.1.4 How the changes would impact the overall operation/ability of the project activity to deliver emission reductions as stated in the PDD

The changes in the project activitydoes not, in any way, impact the ability of the project activity to deliver emission reductions because all the required paramters to calcualte the emission reduction are being monitored in accordance with the applied methodology^[4] and registered PDD^[1,1]. However, due to reduction in project capacity the overall ability of the project activity to deliver emission reduction reduces accordingly as shown below;

Year	Registered PDD	Revised PDD
	(tCO_2e)	(tCO_2e)
01 July 2004 to 30 June 2005	82,812	110,147
01 July 2005 to 30 June 2006	99,937	110,147
01 July 2006 to 30 June 2007	99,937	110,147
01 July 2007 to 30 June 2008	99,937	108,705
01 July 2008 to 30 June 2009	99,937	92,849
01 July 2009 to 30 June 2010	99,937	92,849
01 July 2010 to 30 June 2011	99,937	92,849
01 July 2011 to 30 June 2012	99,937	92,849
01 July 2012 to 30 June 2013	99,937	92,849
01 July 2013 to 30 June 2014	99,937	92,849
Total ERs	982,245	996,240
Average (ERs during 10 year crediting period)	98,225	99,624

Inconsistencies in the estimated emission reductions in the registered PDD:

The registered PDD indicated emission reduction for a typical year as 99,937 tCO₂e (refer year 2006 in section A.4.4.1 of registered PDD). However, considering the validated PLF as 23.78% and the original installed capacity as 58.2 MW and 8760 hours/years, the electricity generation would have been 121,238 MWh/year. When multipled with grid emission factor (0.90852 tCO₂e/MWh) the emission reduction comes out to be 110,147 tCO₂e/year.



The registered PDD contained erroneous number as the emission factor was multiplied twice (as shown in the revised CER sheet) and electricity generation was rounded down, which was not correct.

In the revised PDD the emmission reductions have been correctly shown for both the situations i.e., 58.2 MW as the project capacity and 54 MW after the project capacity is reduced due to decommissioning of 7 WTGs.

In the opinion of the assessment team, the revised PDD and corresponding revised CER sheet contains the clear, consistent and correct information regarding the emission reductions.

3.2 Validation of the changes from the registered PDD

3.2.1 Additionality of the project activity

Change in installed capacity:

The investment analysis of the sub bundles has been undertaken and it is confirmed that the project activity remains additional in the revised configuration (where the fair salvage value of the decommissioned WTGs is taken into consideration as cashflow) with reduced installation size. It has been further confirmed that the financial indicators remains within the benchmark under the sensitivity analysis. Following is the summary of impact on additionality;

-	Registered PDD	Revised PDD	@22.28 % PLF	@25.28% PLF	Remarks, if any
Project Benchmark	16%	16%	16%	16%	Equity benchmark as per CERC
Financial Indicator (without CDM)	11.9%	11.9%	9.2%	14.6%	24.6 MW (Revised PDD)

The revised investment analysis after considering the fair salvage value of the decommissioned WTGs into cashflows has been conducted for the project owners and results are presented below;

-	IRR@ base	IRR@ base	Sensitivity Analysis		-
-	PLF Original	Revised PDD*	@22.28% PLF	@25.28 % PLF	Remarks, if any
Venlon Polyester Film Ltd	9.9%	9.0%	7.9%	9.9%	2 WTG decommissioned
Texmo Industries-I	10.1%	9.0%	8.0%	10.0%	1 WTG decommissioned
Dinesh Pouches Limited	10.4%	9.4%	8.3%	10.3%	1 WTG decommissioned
Revathi Equipment Ltd.	10.4%	10.0%	9.0%	11.0%	1 WTG decommissioned
R. K. Marbles Pvt Ltd	10.1%	9.8%	8.8%	10.9%	1 WTG decommissioned
Dempo Industries Pvt. Ltd.	9.9%	10.2%	9.4%	11.0%	1 WTG decommissioned

^{*}After decommissioning of WTGs

The approach to calculate fair value has been found to be correct as per financial expert and follows standard account practices. The higher value for salvage is considered between the remaining value after accounting depreciation and the actual amount that is received by the sub project owner.

It has been confirmed that under no situation the financial indicator is able to surpass the project benchmark (16%). The sensitivity analysis conducted by changing the PLF to the magnitude it was done in the registered PDD confirms the same. Furthermore, the WRD report confirms the PLF has been considerably lower than envisaged at the time of investment decision. In fact, low PLF is the reason considered by PP to decommission these 7 WTGs. .

Swap in installed capacity:

The installed capacities for Texmo Group and Venlon Polyester Film Ltd were from the beginning as per the description in the revised PDD. The original investment analysis has been reviewed and found to confirm the same.

Owner Equity IRR (Original)	Equity IRR	Remarks, if any
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		(revised PDD)	
Venlon Polyester Film Ltd	9.9%	9.0%	Sensitivity shown above
Texmo Industries-I	10.1%	9.0%	Sensitivity shown above

Change in ownership of the WTGs:

The change in ownership of the registered sub-bundle project does not impact the additionality of the project. Moreover, the change in ownership was due to lower PLF as compared to the registered PDD.

Scale of CDM project activity

This is to confirm that the change in the revised PDDhas no affect on the scale of the project activity. The project continues to be large scale, with the present installed capacity of 54 MW as compared to 58.2 MW at the time of registration.

Applicability and application of the Applied Approved Baseline Methodology 3.2.3

The project activity now generates 54 MW of electricity using wind energy, supplies it to the grid and correctly applied the methodology ACM0002 version 04. This is to confirm that due to change in the substation in no way affects the applicability of the applied methodology. The project continues to be in line with the applicability of the approved baseline and monitoring methodology.

Assessment of the Revision in Monitoring Plan

During the verification visit, the assessment team identified the need to revise the monitoring plan for the following reasons.

The project activity is located in Sodabandhan and Temdari, which are connected to the Amarsagar substation managed by state utility. It was noted that the energy recorded at Amarsager substation comprises all electricity generated by various WTGs (all project activity WTGs and other WTGs which are not part of this project activity) and is not specific to the project activity.

The applied monitoring methodology ACM0002 version 4 requires measurement of the 'electricity supplied to the grid by the project'. Pertinent to the project activity the electricity exported and imported by the project activity can not be routed directly from the energy meters installed at the state utility sub-station (main meters) because the main meter monitor the cumulative values representing all the WTGs (project and non-project) for the export and import of electricity. Therefore, an apportioning approach for the calculation of electricity exported, imported and net electricity supplied by the sub-project owners, has been adopted. These breakup sheets giving details (export, import and net electricity) are prepared by Enercon for all the WTGs (project and non project) connected to the sub-station. With this apportioning approach, the electricity exported, imported and net electricity supplied to the grid, by individual sub project owner (project and non project), is calcualted for the financial purposes (raising the invoices). However, the project participant has chosen to deduct the total electricity imported (EGJMR,Import) by all the WTGs (project and non project) for the calculation of emission reductions in the project activity. The taken approach was found conservative given that the electricity imported by all sub-project owner (non project and project) will anyway be higher than electricity imported by the project activity alone.

It may be worthy to note, the state utility also accepts the apportioning approach used to calculate the net electricity supplied by the each WTG by appropriately distributing the line losses and factoring the imported electricity in the proportion the gross electricity is generated. The gross electricity generated by each WTG is recorded at controller.

The monitoring plan of the registered PDD has been revised in order to completely describe the procedure of emission reductions calculations, in particular the apportioning approach. It has been confirmed by the assessment team that the revised PDD Annex 4 contains the description of monitoring as it is practiced on site during the site visit and reviewing the sample apportioning sheets.

Therefore, following expression is used to determine the net electricity supplied by the WTGs, which are part of the project activity.

Electricity Export to the grid by the sub-project included in the project activity, $= \mathbf{EG}_{JMR,Export} * \sum \mathbf{EG}_{Controller,N,M} / \sum \mathbf{EG}_{Controller,i}$ $\mathbf{EG}_{\mathrm{Export,v,M}}$

Page 12



Electricity Import from the grid by project activity is taken as $\mathbf{EG}_{JMR,Import}$ recorded by the main meter at the state utility substation.

This is taken as a conservative approach as the value recorded by the main meter at the state utility sub-station records the total electricity imported by all the WTGs conneted to it; that includes the WTGs of the project as well as non-project activity.

Where,

ΣEG_{Controller, N,M} = Electricity exported by the sub projects included in the project activity, as recorded at LCS where N is number of WEGs in the sub project M included in the project activity
 ΣEG_{Controller,i} = Electricity exported by project activity as well as non project activity WEGs, as recorded at the LCS where i is number of WEGs including project and non project.
 EG_{Controller,i} = Electricity exported by an WTG (project or non project), as recorded at the LCS
 EG_{JMR,Export} = Electricity export recorded at respective billing meters located at state utility substation
 EG_{JMR,Import} = Electricity import recorded at respective billing meters located at state utility substation

Therefore, the net electricity supplied to grid by WTGs of the project activity is calculated as: $\mathbf{EG}_{y} = \sum \mathbf{EG}_{\text{Export},y,M} \cdot \mathbf{EG}_{\text{JMR},\text{Import}}$

The revised PDD has been reviewed that the monitoirng plan now contains following parameters;

S. No.	Parameters	Assessment of Revisions
1	EG_{y}	Net electricity generation supplied to the grid by the project activity.
		The comment section has been updated to correctly reflect the monitoring and calculation procedures, which is consistent with the implementation.
		The revision will allow the conservative and project specific emission reduction calculations. The QA/QC procedure continues to be the same.
2	EG _{JMR,Export}	Electricity exported by project activity & non project activity WTGs, as recorded at the main meters (Amarsagar substation)
		The parameter is included in section D.2.1.3 of revised PDD.
		The QA/QC procedures shall be as per Annex 4 of the revised PDD. The parameter is eventually used to determine EGy.
3	EG _{JMR,Import}	Electricity imported by project activity & non project activity WTGs, as recorded at the main meters (Amarsagar substation)
		The parameter is included in section D.2.1.3 of revised PDD.
		The QA/QC procedures shall be as per Annex 4 of the revised PDD. The parameter is used to determine EGy.
4	$\mathrm{EG}_{\mathrm{Controller,i}}$	Gross electricity exported by a WTG of project activity or non project activity.
		The parameter is included in section D.2.1.3 of revised PDD.
5	\sum EG _{Controller,i}	Electricity generation by all the WTGs (project and non project) connected to the main metering system at state utility.
		The parameter is included in section D.2.1.3 of revised PDD.



6	∑EG _{Controller} , N,M	Electricity generation by project activity's WTGs connected to the main metering system at state utility. The parameter is included in section D.2.1.3 of revised PDD.
7	EG _{Export,y,M}	Electricity exported to the grid by project activity's WTGs calculated as per apportioning formulae described above and in Annex 4 of the revised PDD. The parameter is included in section D.2.1.3 of revised PDD.
8	∑ EG Export,y,M	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$

In the opinion of the assessment team, the revised monitoring plan ensures the level of accuracy and completeness in the monitoring and verification process is not reduced. The revision, on the other hand, now includes more parameters which will allow the determination of emission reductions specific to the project activity WTGs in a more conservative manner. The apportioning approach is followed by the state utility and same approach is used for financial transactions (invoicing and billing) purposes. The revised PDD (including Annex4) has clear description for each monitoring parameter with regard to frequency of measurements and quality of monitoring equipment.

The proposed revision is in accordance with the applied methodology as it provides clear and transparent calculation approach in the emission reductions due the project activity. In the opinion of the assessment team, the revision points do not affect the application of the methodology.

The assessment team has reviewed the previous report and did not find any outstanding issue in the context of the monitoring plan.

Therefore, in the opinion of the assessment team the requirements stipulated in the EB49 Annex28 Para9 have been appropriately addressed.



4. VALIDATION OPINION

Based on review of revised PDD version 6, dated 28/04/2012 and other supporting documents, we are of the opinion that the changes from the registered PDD have no impact on following aspects of the registered PDD:

- (a) Additionality of the project activity
- (b) Scale of the project activity
- (c) Applicability and application of Approved Baseline Methodology under which the activity has been registered

Based on the above conclusion, KBS is submitting a Notification of the changes in the registered PDD.

Additionally, during the verification assignment KBS also identified the need of revision in the monitoring plan to bring further clarity and transparency in the emission reduction calculation for the project activity. A combined validation opinion is prepared following EB59 Para66 and conformance with regard to EB49 Annex28 Para9 is indicated below;

The proposed revision in monitoring plan improves the accuracy, clarity and transparency and we confirm:

- (a) The proposed revision points have been described, and an assessment has been provided to substantiate the reasons for each of the proposed revision points of the registered monitoring plan, using objective evidence;
- (b) The proposed revisions of the monitoring plan ensures that the level of accuracy and completeness in the monitoring and verification process are not reduced as a result of the revisions;
- (c) The proposed revisions of the monitoring plan are in accordance with the approved monitoring methodology ACM0002 Version 4 applicable to the project activity whilst ensuring the conservativeness of the emission reductions calculation.
- (d) No outstanding findings from the previous verification reports

Authorized Signatory

Signature:

Name: Kaushal Goyal

Date: 30/04/2012



5. REFERENCES

/1/ PDD

- /1.1/ Registered PDD Version 2 dated 15/12/2005
- /1.2/ Revised PDD Version 4 dated 15/10/2011 (received for PDC+RMP assessment)
- /1.3/ Revised PDD, version 5 dated 18/02/2012
- /1.4/ Revised PDD, version 6 dated 26/04/2012(submitted with this request)
- /2/ /2.1/ Original PPAs

PPA between M/S Dinesh Pouches Ltd., EIL, RRVPNL, JVVNL, AVVNL and JaVVNL dated 17/12/03

PPA between M/S Revathi Equipment Limited, J.N. Investments and Trading Co. Pvt. Ltd., RRVPNL, JVVNL, AVVNL and JaVVNL dated 19/02/04

PPA between M/S R.K. Marbles Pvt. Ltd., RRVPNL, JVVNL, AVVNL and JaVVNL dated 19/02/04

PPA between M/S Texmo Industries, EIL, RRVPNL, JVVNL, AVVNL and JaVVNL dated 20/09/03 for $1.8 \mathrm{MW}$

PPA between M/S Revathi Equipment Limited, J.N. Investments and Trading Co. Pvt. Ltd. RRVPNL, JVVNL, AVVNL and JaVVNL dated 19/02/04 for 0.6MW.

PPA between M/S Venlon Polyester Film $\,$ Ltd., $\,$ EIL, RRVPNL, JVVNL, AVVNL and JaVVNL dated 17/09/03

/2.2/ Revised PPAs

PPA between M/S Dinesh Pouches Ltd. and M/S Enercon Wind Farm (Tungabhadra) Pvt. Ltd. with Ref. No. SE(RPPC)JDR/XEN(C&R)F./D729 dated 17/10/08

PPA between M/S R.K. Premises Pvt. Ltd. and M/S Enercon Wind Farm (Tungabhadra) Pvt. Ltd. with Ref. No. SE(RPPC)JDR/XEN(C&R)F.AEN-CR-II/D.1137 dated 20/03/08

PPA between M/S Revathi Equipment Ltd. and M/S Enercon Wind Farm (Tungabhadra) Pvt. Ltd. with Ref. No. SE(RPPC)JDR/XEN(C&R)F.AEN-CR-II/D.1133 dated 20/03/08

PPA between M/S Venlon Polyester Film Ltd. and M/S Enercon Wind Farm (Tungabhadra) Pvt. Ltd. with Ref. No. SE(RPPC)JDR/XEN(C&R)F.AEN-CR-II/D.1134 dated 20/03/08

PPA between M/S Texmo Industries and M/S Enercon Wind Farm (Tungabhadra) Pvt. Ltd. for 1.8MW with Ref. No. SE(RPPC)JDR/XEN(C&R)F.AEN-CR-II/D.1135 dated 20/03/08

PPA between M/S Texmo Precision Casting and M/S Enercon Wind Farm (Tungabhadra) Pvt. Ltd. with Ref. No DY.CE(RPPC)/XEN/(C&R)/Ajmer Discom//E.Energy/D.1557 dated 28/02/08

PPA between M/S Texmo Industries and M/S Enercon Wind Farm (Tungabhadra) Pvt. Ltd. for 0.6MW with Ref. No. SE(RPPC)JDR/XEN(C&R)F.AEN-CR-II/D.1136 dated 20/03/08

PPA between M/S Renaissance Asset management Company Pvt. Ltd. and M/S Enercon Wind Farm (Tungabhadra) Pvt. Ltd. with Ref. No. SE(RPPC)JDR/XEN(C&R)F.AEN-CR-II/D.1275 dated 04/02/08

PPA between M/S R. K. Marble Pvt. Ltd. and M/S Enercon Wind Farm (Tungabhadra) Pvt. Ltd. with Ref. No. SE(RPPC)JDR/XEN(C&R)F.AEN-CR-II/D.1276 dated 04/02/08

PPA between M/S Supreme BuildestatesPvt. Ltd. and M/S Enercon Wind Farm (Tungabhadra) Pvt. Ltd. with Ref. No. SE(RPPC)JDR/XEN(C&R)F.AEN-CR-II/D.1277 dated 04/02/08

PPA between M/S Premier BuildestatesPvt. Ltd. and M/S Enercon Wind Farm (Tungabhadra) Pvt. Ltd. with Ref. No. SE(RPPC)JDR/XEN(C&R)F.AEN-CR-II/D.1278 dated 04/02/08

- /3/ ACM0002, version 4 dated 19/05/2006
- /4/ Validation report (DNV, report number 2005-9023-2) dated 03/03/2006
- /5/ Verification Report(report number BVC/INDIA/VER 1/350.49/2011) Revision 03 dated March 2011.

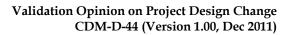


/6/ Clean Development Mechanism Verification and Validation Manual (version 01.2) Procedures for notifying and requesting approval of changes from the project activity as described in /7/ the registered PDD (version 01), Annex 66, EB 48. Guidelines on assessment of different types of changes from the project activity as described in the /8/ registered PDD (version 01), Annex 67, EB 48. $Project\ webpage: \underline{http://cdm.unfccc.int/Projects/DB/DNV-CUK1143050217.74/view}$ /9/ Site Assessment Report dated 20/06/2007 for 31 WTGs (transferred to Enercon Tungbhadra Pvt. Ltd.) /10/ Purchase orders of the 7 WTGs decommissioned /11/ Salvage value received by the sub project owners for the 7 WTGs decommissioned /12/



ANNEX I: VALIDATION PROTOCOL FOR PROJECT DESIGN CHANGE

	Checklist Question	Ref.	MoV*	Comments	Conclusion/ CARs/CLs
A. Ge	eneral Description of Project Activity				
A.	1. Project Title				
	A.1.1. Is there an indication of a revision number and the date of the revision in revised PDD?	VVM Para.56 PDD section A.1	DR	The PDD revision and date has been updated as 06 and 26/04/2012, respectively.	OK
A.2	2. Description of the changes of the Pr	roject Activity			
	A.2.1. Does the description of the CDM project activity as contained in the revised PDD sufficiently cover all relevant elements accurately? Does it give a clear description of the changes as compared to the description in the registered PDD?	VVM Para.59 PDD section A.2 see also A.4, A.4.3 and B.3	DR	Yes, the revised PDD contains all the relevant changes and the description of the project activity. These changes are reflected in section A.2, A.4.3 and B.3.	OK
	A.2.2. Is all information provided consistent and in compliance with the actual situation or planning?	VVM Para.64 PDD section A.2 see also A.4, A.4.3 and B.3	DR, OSA	The information provided is consistent and in compliance with the actual situation on site.	OK
	A.2.3. Are the changespermanent from the registered project activity under one of the following situations?	Para 7 of Annex 66 to EB 48 meeting	DR, OSA	The project was implemented in accordance with the description in the registered PDD.	OK





Checklist Question	Ref.	MoV*	Comments	Comments			
(a) the project has never been implemented in accordance with description in the registered PDD; or			these changes	The changes occurred after the registration of the project activity at these changes were not known at the time of the registration of project activity.			
(b) permanent changes occur after the project activity has been implemented in accordance with the description in the PDD and issuance of CERs has taken place.							
A.2.4. When did the changes occur?	Para 10(b) of Annex 66 to EB 48 meeting	to EB OSA documents for these changes have been verified and have been added					CL#01 CL#01 closed OK
			Change	Date		Reference	
			Change in	Dinesh Pouches	02/06/2008	PPA and	
			capacity (decommiss	R. K. Marbles	02/06/2008	Decommissioning certificate	
			ioning)	RevathiEquipm ents	03/06/2008		
				Texmo Industries	03/06/2008		
				Venlon	02/06/2008		
			Swap of installed			JMR, Share certificates	
			capacity of				
			2 sub				
			project owners.				
			Change in			New PPA and JMR	
			ownership	Venlon Polyester Film	20/03/2008	reflecting change.	



Checklist Question	Ref.	MoV*	Comments	Conclusion/ CARs/CLs
Checklist Question	Ref.	MoV*	Ltd Texmo 20/03/2008 Industries I Texmo 28/02/2008 Precision Casting Dinesh Pouches Limited Texmo 20/03/2008 Industries II Revathi 20/03/2008 Equipment Ltd. R.K.Premises 20/03/2008 Pvt. Ltd. R. K. Marbles Pvt. Ltd Supreme 04/02/2008 Buildestates Pvt. Ltd. Premier Buildestates Buildestates Buildestates Buildestates Buildestates Buildestates Buildestates D4/02/2008 Buildestates Buildestates Buildestates D4/02/2008 D4/02	
			Pvt. Ltd. Rennaissance 04/02/2008 Asset Management Co. Pvt. Ltd. Texmo 28/02/2008 Precision Casting	
A.2.5. What are the reasons for these changes taking	Para 10(b) of Annex 66 to EB	DR, OSA	Shree Ram Transport Finance Co Ltd	CL#01 CL#01 Closed



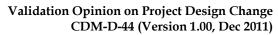
Checklist Question	Ref.	MoV*	Comments	Comments			
place?	48 meeting		Change	Reason	Reference	OK	
			Change in capacity	Low PLF (<15%) has been the reason for the decommissioning of these WTG's.	Enercon's WRD (Wind Resource Department) report.		
			Swap of installed capacity of 2 sub project owners.	This was a typo error.	JMR, Share certificates		
			Change in ownership	Low PLF has been the reason for the change of ownership of these WTG's.	Enercon's WRD (Wind Resource Department) report.		
A.2.6. Would the changes have been known prior to registration of the project activity? If yes, state reasons why these were not considered during the registration of CDM project activity?	Para 10(b) of Annex 66 to EB 48 meeting	DR, OSA	registration of the proj PLF and under perform Enercon's WRD (Wind The project activity ha that the changes have	The change in capacity was not known to the PP before the registration of the project activity. The change happened due to low PLF and under performance of 7 WTG's. This has been prepared by Enercon's WRD (Wind Resource Department) report. The project activity has already been verified once, which confirms that the changes have occurred after the implementation of the project activity point 2 (typo in mentioning the installed capacity of two sub owners)			
A.2.7. How would the changes impact the overall operation/ability of the project activity to deliver emission reductions as stated in the registered PDD?	Para 10(b) of Annex 66 to EB 48 meeting	DR, OSA	There is no impact on the overall operation/ability of the project activity to deliver emission reductions. The Emission reductions accounted from the project activity as per the registered PDD/1.1/, are based on the 'Net electricity supplied to grid by the project, EGy' at the state electricity substation. The project activity operational is for 54 MW as compared to 58.2 (as per registered PDD) due to decommissioning of 7 WTG's of capacity 4.2 MW and hence there is a decrease in the estimated emission reductions from the date of change. The calibration and other technical details of the measurement devices meets the QA/QC as mentioned in the registered PDD/1.1/ and is in line to the monitoring methodology.			OK	



Checklist Question	Ref.	MoV*	Comments	Conclusion/
,		1.20 (CARs/CLs
A.3. Technical Description of the Projec	t Activity		,	
A.3.1. Is the table required for the indication of projected emission reductions correctly applied and do the changes to the PDD result in a change in the total emission reductions?	VVM Para.64 PDD section A.4	DR	Yes, the table required for the indication of projected emission reduction is correctly applied. As per revised PDD, there is an reduction in the estimated emission reduction of the project activity. The emission reductions as per registered PDD were 99,937 and as per revised PDD it is 99,624 tCO ₂ e. The revised estimates take into account the decommissioned WTGs. Therefore the estimates are higher in the initial years (58.2 MW installed capacity) and gets reduced later (when the project capacity is 54 MW) i.e. after decommissioning of 7 WTGs.	OK
A.4. Scale of project activity				
A.4.1. Is the project activity a small scale or large scale according to the original registered PDD?	PDD section A.2, A.4.4, B.1 and B.2	DR	The project activity is a large scale project activity with an installed capacity of 58.2 MW as per registered PDD.	OK
A.4.2. Is the current project activity a small scale or large scale according to the revised PDD?	Revised PDD section A.2, A.4.4, B.1 and B.2	DR	The project activity is a large scale project activity with an installed capacity of 54 MW as per revised PDD. The change of capacity does not impact the scale of the project activity.	OK
B. Baseline Methodology				
B.1. Choice and Applicability				
B.1.1. Are changes in registered PDD affecting the applicability/application of applied methodology to the project activity? If yes, then which all sections of registered PDD are getting	VVM Para.75/66a/68/7 3 PDD section B (B.1-B.2)	DR	The methodology applicable in the registered PDD (ACM 0002, version 04) is still applicable in the revised PDD (ACM 0002, version 04). The changes do not impact the applicability of the applied methodology.	OK



Checklist Question	Ref.	MoV*	Comments	Conclusion/ CARs/CLs
impacted?				
B.1.2. Is the applied methodology still applicable to the project activity? If yes, is the discussion in the revised PDD in conformance with all applicability criteria of the applied methodology? 6. 7.	VVM Para.75/66b/68 PDD section B (B.1-B.2)	DR, OSA	The project activity is a large scale project applying baseline and monitoring methodology ACM 0002, version 04. The change of capacity and ownership of WTG's does not impact the applicability of the methodology. Hence, the same methodology is applicable in the revised PDD also.	OK
B.2. Project Boundary B.2.1. As a result of the implementation or operation of the CDM project activity are there any sources added to the project boundary which are expected to contribute more than 1% of the overall expected average annual emissions reductions, which are not addressed by the applied		DR, OSA	There is no source identified, after the change of substation, which contribute more than 1% of the overall expected average annual emissions reductions, which are not addressed by the applied methodology.	OK





Checklist Question	Ref.	MoV*	Comments			Conclusion/ CARs/CLs
methodology?If yes, have these been included in the project boundary diagram?						
B.3. .Additionality: Within this category project registration, thus affecting to				vestment analysis or	barrier analysis establishe	d at the time of
B.3.1. Is additionality of project getting impacted due to changes in the project activity? If yes, which barrier in registered PDD is getting affected?	VVM Para.67d/95 PDD Section B.1/B.4/B.5	DR	IRR sheet at the time of investment analysis sho (project IRR) is still belo decision making. The re the IRR at the time of in	ctivity. The revised Is registration has been we that the suitable ow the benchmark tavised IRR is also convestment decision. It all and these changes	RR sheet along with the en reviewed. The financial indicator	OK
B.3.2. If an investment analysis has been used, has it been shown that with the application of changed input parameters the proposed project activity is economically or financially less attractive than at least one other alternative without the	VVM Para. 106, 107, 109 112a-c PDD Section B.5	DR	The investment analysis activity the project active the registered project acquantum of the emission attractive than the registalso. The benchmark us equity of 16%. The financial indicator of affected before and after table below:	OK		
revenue from the sale of CERs?			Name of the PP	Financial Indicator before the change	Financial indicator after change	
			Dinesh Pouches	10.4%	9.4%	
			R. K. Marbles	10.1%	9.8%	
			Revathi Equipments	10.4%	10.0%	



Checklist Question	Ref.	MoV*	Comments			Conclusion/ CARs/CLs
			Texmo Industries	10.1%	9.0%	
			Venlon	9.9%	9.0%	
			Dempo	9.9%	10.2%	
B.3.3. If a barrier analysis has been used, has it been shown that the proposed project activity faces the identified barriers that prevent the implementation of this type of proposed project activity under new circumstances?	VVM Para. 114 115a-b/116 PDD Section B.5	DR	Not Applicable, there ha	is been no change in	the barrier analysis.	ОК
B.3.4. Is the project activity additional under new circumstances?	VVM Para. 105 PDD Section B.5	DR	The project activity is additional with the specified changes also.		OK	
B.4. Application of the Baseline Method	ology to Calculate E	mission l	Reductions			
B.4.1. Are changes made in project activity impacting the baseline emissions, project emission and leakage?	VVM Para. 91d PDD Section B (B.6.1 -B.71)	DR	There is no change in the provisions of calculation of baseline emissions, and project emissions and leakages are otherwise not applicable to the project activity. Since, there is a decrease of 4.2 MW of installed capacity hence the baseline emissions are reduced accordingly. The annual emission reductions as per registered PDD are 99,937tCO2e and as per the revised PDD it is 99,624 tCO2e.		ОК	
B.4.2. Has the approved methodology been applied correctly for determining baseline emissions, project emission and leakage?	VVM Para. 91d PDD Section A.4.4/B.6	DR	The methodology is application registered PDD and the			OK



Checklist Question	Ref.	MoV*	Comments	Conclusion/ CARs/CLs
B.4.3. Are the emission reduction calculations documented in a complete and transparent manner?	VVM Para. 91e PDD Section B.6	DR	Yes, the calculation is done as per the requirement and are documented in a complete and transparent manner in the revised PDD and ER sheet. The revision in monitoring plan is also proposed alongside notification request (EB59 Para66)	ОК

^{*} DR- Desk review ; OSA- Onsite Assessment



ANNEX II: FINDINGS DOCUMENT

Date	Type & Number	Raised by	Reference				
09/01/2012	CL 01	Assessment team	CDM D-44				
Non conformitie	es raised						
PP needs to justify the reason for change in the project design as per Para 10(b) of Annex 66 to EB 48.							
Project particip	ant response	Date : 09/01/2012					
We would like t	o clarify to DOE that the cl	nanges were affected as pe	r advice of wind recourse				
department to i	mprove array efficiency. Co	ppy of Enercon's WRD (Wi	nd Resource Department) report has				
been submitted	to DOE for reference. Furt	her these changes were no	t known prior to the registration of				
			dix 5 of revised PDD. Due to the				
			aced from 58.2 MW to 54.0 MW and				
		<u> </u>	ted in the PDD. There is no impact				
	s on the additionality of pro	-					
	Provided as Evidence by P						
	rovided by Enercon (India)	Limited.					
Information Ve	Information Verified by Lead Assessor Date of review: 27/02/2012						
WRD report.							
Reasoning for acceptance							
The report was reviewed and it was concuded that the change because of lower PLF at the project site							
which could not have been known prior to registration of project. Therefore the argument is accepted.							
Date of accepta	nce	27/02/2012	Status: Closed				

Date	Type & Number	Raised by	Reference					
09/01/2012	CL02	Assessment team	CDM D-44					
Non conformities ra	Non conformities raised							
The date of change	The date of change in the project design needs to be provided as per Para 10(b) of Annex 66 to EB 48.							
Project participant:	response	Date: 09/01/2012						
The chronology of cl	nanges has been added as A	Appendix 5 of revised PE	DD.					
Documentation Pro	vided as Evidence by Proje	ct Participant						
Copy of 'Assignmen	t of PPA' as provided by RF	REC is being submitted t	to DOE for the reference of these					
changes as reflected	l in the JMR and breakup s	sheet.						
Information Verifie	d by Lead Assessor	Date of review: 27/02/2	2012					
Revised PDD.	Revised PDD.							
Reasoning for acceptance								
The date of change was provided along with the supportives and were found to be correct.								
Date of acceptance		27/02/2012	Status: Closed					



ANNEX III: COMPETENCY CERTIFICATE OF TEAM MEMBERS

Certificate of Competence

Personnel Name:	Kaviraj Singh			
Qualified to work as:				
Team Leader		Technical Expert		
Validator/Verifier		Financial Expert		
Technical Reviewer		Local Expert (India)		
Area(s) of Technical Expertise				
Sectoral Scope		Technical Area		
Energy Industries (renewable/non- renewable)				
	TA 1.2: Energy generation from renewable energy sources			
Waste handling and disposal	TA 13.1: Waste handling and disposal			
Approved by (Manager C & T)	Mayank Kumar Jain			
Approval date:	Approval date: 12 /12/2011			

Certificate of Competence

Personnel Name:		Shreya Garg			
	Qualified to v	vork as:			
Team Leader		Technical Expert			
Validator/Verifier		Financial Expert			
Technical Reviewer		Local Expert (India)			
Area	Area(s) of Technical Expertise				
Sectoral Scope		Technical Area			
NA	NA				
Approved by (Manager C &T)	Mayank Kumar Jain				
Approval date:	12/12/2011				

Certificate of Competence

Personnel Name:	Phool Chand				
Qu	alified	to work as:			
Team Leader		Technical Expert	\boxtimes		
Validator/Verifier	\boxtimes	Financial Expert			
Technical Reviewer		Local Expert (India)	\boxtimes		
Area(s)	Area(s) of Technical Expertise				
Sectoral Scope Technical Area					
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources				
Approved by (Manager C& T)	Mayank Kumar Jain				
Approval date: 12/12/		12/12/2011			



<u>Certificate of Competence</u>

Personnel Name:		Ashok Kumar Gautam		
Qu	alified to v	vork as:		
Team Leader		Technical Expert		
Validator/Verifier		Financial Expert		
Technical Reviewer		Local Expert (India)	\boxtimes	
Area(s) of Technical Expertise				
Sectoral Scope		Technical Area		
		TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
Waste handling and disposal T		TA 13.1: Waste handling and disposal		
Approved by (Manager C& T)	Mayank Kumar Jain			
Approval date:	12/12/2011			

History of the document

Version	Date	Nature of revision	Reviewed by (Date)	Approved by (Date)
1.0	12 Dec 2011	Initial adoption	Manager CDM Quality,	MD,
			13 Dec 2011	13 Dec 2011