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Date :June 18, 2014
Ref. No. : JCI-CDM-C-14-003

CDM Executive Board
c/o Secretary to the CDM Executive Board

Subject : DOE Response to Request for registration incomplete for the proposed programme of activities "Installation of Energy Efficient Transformers (IET)" (Ref. 9164)

Dear Sirs,

Please find the attached document which shows JCI's response to the request for registration incomplete for the above CDM project / Reference No.9164. It has been reflected to the revised DDs and Validation Report.

If you have any further question or request, please let us know by phone call or Email.

Yours sincerely,



Takayuki ABE

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DOE's Response to Request for Registration Incomplete

Project title: Installation of Energy Efficient Transformers (IEET)

Reference No.: 9164

Project Participants: (1) Standard Bank Plc. (CME of PoA)

(2) The Kenya Power and Lighting Company Co. Ltd. (Implementer of CPA001)

DOE: Japan Consulting Institute, JCI

Issue 1. The PP/DOE is requested to provide further information on

(1) the clear definition of "different technology" in eligibility criteria 14 as per Guidelines on additionality of first-of-its-kind project activities version 2. In doing so, the technical specifications of the transformers to be installed by this PoA shall also be provided in the Eligibility Criteria 3 according to the latest version of "Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programmes of activities", including the level and type of service, performance specifications and compliance with certifications/testing;

(2) whether the eligibility criteria 14 requires the comparison of "different technology" between the CPAs to be included in future and the CPAs already included. The Guidelines on additionality of first-of-its-kind project activities version 2 requires that "the project is the first in the applicable geographical area that applies a technology that is different from technologies that are implemented by any other project, which are able to deliver the same output and have started commercial operation in the applicable geographical area before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of the proposed project activity, whichever is earlier". Please note that "any other project" should have included the other CPAs under this PoA.

Response of Project Participants:

Issue 1. (1);

The Eligibility Criteria 3 in the PoA-DD has been revised to the followings;

Eligibility Criteria 3. The CPA involves installation of transformers to new sites or to replace existing less efficient baseline transformers on the distribution electricity grid and shall comply with following criteria:

- The transformer shall be having capacity ranging from 15 kVA to 1000 kVA having transformation ratio of 11/0.25kV (single phase), 11/0.433kV (three phase), 33/0.25kV (single phase) and 33/0.433kV (three phase).
- Based on the evaluation of no-load losses, the transformer shall be more efficient than the baseline transformers
- The transformer shall comply with the International Electrotechnical Commission (IEC) 60076 standard or relevant national standard
- Load loss of project transformer should not be more than load loss of baseline transformer
- Efficient transformer with amorphous core material

Above Eligibility Criteria is based on the following table for comparison between the existing and the project transformers.

Definition	Items	Existing facility	PoA project	Difference
Type of good/service	Goods/Services	Transformer in distribution grid	Energy efficient transformer in distribution grid	Application of energy efficient transformer
Level of service	Voltage ratio, Capacity range	11/0.25kV, Single phase 15 to 1000 KVA	11/0.25kV, Single phase 15 to 1,000 KVA	No difference
		33/0.25kV, Single phase 15 to 1,000 KVA	33/0.25kV, Single phase 15 to 1,000 KVA	
		11/0.433kV, Three phase 15 to 1,000 KVA	11/0.433kV, Three phase 15 to 1,000 KVA	
		33/0.433kV, Three phase 15 to 1,000 KVA	33/0.433kV, Three phase 15 to 1,000 KVA	
Magnetic core material in transformer	Material	CRGO silicon steel plate	Amorphous metal	Low no load loss through application of Amorphous metal
Performance specifications	Technology Specification	$NLL_{BL,k}$: base	$NLL_{PR,k}$: 80% lower	Low energy loss of transformer due to low NLL (no load loss). Difference between $NLL_{BL,k}$ & $NLL_{PR,k}$ will be used to estimate emission reductions.
		$LL_{BL,k}$: base	$LL_{PR,k} \leq LL_{BL,k}$	Difference between $LL_{BL,k}$ & $LL_{PR,k}$ will not be used to estimate emission reductions in accordance with the AM0067.
Compliance with certifications/testing	IEC, National Standard	International Electrotechnical Commission (IEC) 60076 standard or relevant national standard	International Electrotechnical Commission (IEC) 60076 standard or relevant national standard	Electrical requirement is same.
Conclusion	-	Existing technology	New technology	Project technology is apparently different from the existing one

Issue 1. (2);

The Eligibility Criteria 14 in the PoA-DD has been revised to the followings;

Eligibility Criteria 14. The CPA shall be the first in the applicable geographical area that applies the transformer technology that is different* from transformer technologies that are implemented by any other project including other CPA under this PoA, which are able to deliver the same output and have started commercial operation in the applicable geographical area before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of the proposed project activity, whichever is earlier.

* Refer to the above table for comparison between the existing and the project transformers

Response of JCI:

Issue 1. (1);

The Standard for “Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programmes of activities” requires in the Para 16 (c) to cover, as eligibility criteria for inclusion of CPAs, the specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications.

The revised Eligibility Criteria 3 stipulates that the transformer newly installed or replaced with no efficient existing transformer in each CPA activity shall be confirmed to be comply with the following criteria; level of service (capacity and voltage), performance (lower NLL and not more LL), certification/testing (compliance with IEC) and core material (Amorphous). By these criteria the transformers of the CPA activity shall be confirmed to differ clearly from and more efficient than the existing transformers installed in the applicable geographical area of the PoA activity.

JCI concludes that the Eligibility Criteria 14 in the revised PoA-DD is stipulated appropriately to confirm the specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications.

Issue 1. (2);

The old Eligibility Criteria 14 was as follows;

Eligibility Criteria 14; The CPA shall apply transformer technologies that is different from transformer technologies that are implemented by another project, which are able to deliver the same output and have started commercial operation in the applicable geographical area before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of the proposed project activity, whichever is earlier

The Guidelines on additionality of first-of-its-kind project activity requires in the Para 5 (a) to prove a first-of-its-kind project activity if the project is the first in the applicable geographical area that applies a technologies that is different from technologies that are implemented by any other project, which are able to deliver the same output and have started commercial operation in the applicable geographical area before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of the proposed project activity, whichever is earlier.

On the other hand, the old Eligibility Criteria 14 confirms only whether the CPA shall apply transformer technology that is different from transformer technologies that are implemented by another project. It does not confirm whether the CPA activity is a first-of-its-kind project activity in the applicable geographical area of each CPA.

JCI concludes that the Eligibility Criteria 14 shown in above PPs response and in the revised PoA-DD is stipulated appropriately to require demonstration of a first-of-its-kind project activity in the applicable geographical area in accordance with the Guidelines on additionality of first-of-its-kind project activity.

Issue 2. As per the PoA-DD (p8), each CPA will apply the latest version of the "Combined tool to identify the baseline scenario and demonstrate additionality" to identify baseline scenario and demonstrate additionality.

The PP/DOE is requested to further substantiate how to conduct Step 1 to Step 4 of the Combined Tool in the PoA-DD.

Response of Project Participants:

The PoA-DD conducted only Step 0 in the version 14 since the project was demonstrated as the first-of-its-kind project in the geographical area.

The PPs has revised the “B.1 Demonstration of additionality for PoA” in the PoA DD to include Step 1 to Step 4. The output of Step 2, Barrier analysis, shows that only the scenario 2 (continuation of current practice) was left as the alternative scenario. In that case the step 3 and 4 were not mandatory to conduct according to the para 24 of the Combined tool to identify the baseline scenario and demonstrate additionality.

Response of JCI:

The PoA-DD conducted the Step 1 to Step 4 in accordance with the “Combined tool to identify the baseline scenario and demonstrate additionality” and the applied Methodology of AM0067 “Methodology for installation of energy efficient transformers in a power distribution grid”. As a conclusion the PoA-DD demonstrated the additionality of the PoA by the first-of-its-kind project activity in accordance with the Guideline on additionality of first-of-its-kind project activity.

JCI concluded that the PoA-DD has been revised to demonstrate appropriately the additionality of the PoA project activity.

Issue 3. The PP/DOE is requested to provide the information on how the project is in line with the applicability conditions of AM0067 version 2. In particular:

(1) The PP/DOE has not provided the detail information of the relevant local/national regulation and the values of maximum permissible load losses and no-load losses for each transformer type k as per AM0067 version 2 applicability condition (b).

The PP is also requested to list the $NLL_{reg,y}$ as an ex-ante determined parameter in the generic CPA-DD and 1st specific CPA-DD, and determine the $NLL_{BL,k}$ using equation 2 in page 6 of AM0067 version 2;

(2) The PP/DOE has not provided the complete list of co-ordinates uniquely identifying each transformer installed under the project activity as per AM0067 version 2 applicability condition (f).

Response of Project Participants:

Issue 3. (1);

The following information has been inserted in the Appendix 3, Application of methodology(ies), of the PoA-DD.

In the context of Kenya, the national/local regulation regarding the values of maximum permissible load losses and no-load losses doesn't exist such that International Electrotechnical Commission (IEC) standards are applied to the Kenyan Grid Systems by Kenya Power and Lighting (KPLC). The specifications set out by the KPLC for transformer are based on IEC 60076 and some values are derived from EN 50464-1.

Kenya Power and Lighting Company (KPLC) and the Rural Electrification Authority (REA) are the two power distribution utilities operating in Kenya. The Kenya Power and Lighting Company sets specifications or regulations for all the transformer types procured even those procured by REA. Regulations (specifications) for all equipment including transformers set by KPLC are taken as national regulations as the utility has the mandate through an Act of Parliament, which sets up the Energy Regulatory Commission. The specifications set by KPLC for technical selection criteria for tenders/suppliers are based on IEC standards.

The generic CPA-DD in the PoA-DD and the specific CPA-DD have been revised to list the $NLL_{reg,y}$, No-load losses (W) defined by the national regulations for k type transformers, to be used for determination of the $NLL_{BL,k}$ using equation 2.

Issue 3. (2);

The following information has been inserted in the A.7, Graphic reference or other means of identification, and in the Appendix 3, Applicability of the selected methodology(ies), of the specific CPA-DD.

The complete list of co-ordinates uniquely identifying each transformer installed under the project activity will be provided at the time of verification. Reasons outlined below:

- a) There are many transformers to be replaced or to be newly installed in the CPA; therefore the exact location of each transformer is not determined yet.
- b) The installation of energy efficient transformers will commence from 1 July 2015. Earlier, it was scheduled to commence in July 2013 that couldn't be commenced on planned date due to delay in tendering and selecting a consultant who was required to review the tender documents to procure the energy efficient transformers.
- c) The complete list of co-ordinates uniquely identifying each transformer installed under the project activity will be provided at the time of verification. Meaning, once the transformer are installed, in line with Note 2 applicability of AM0067 Version 2, information on date of installation, exact location of transformer (providing serial number and co-ordinates of the location), technical data of each transformer (i.e. transformation ratio, capacity), load losses and no-load losses provided by the manufacturer will be provided at the verification stage.

On this issue the project participants has confirmed the UNFCCC thoughts prior preparing the response above. As per the email below, UNFCCC has recommended to provide justification on installation delay (that was originally scheduled for July 2013). Once this is done, GPS coordinates and technical details of project transformers can be provided at the time of verification (as per note 2), meaning, the PPs do not need to provide GPS co-ordinates of CPA transformers at the time of validation as originally thought.

*****<Quote Email from UNFCCC>*****

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Case Reference Number: INQ-01796-C9C4
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Dear Anil,

I am following up your last email to Vintura about your POA Installation of Energy Efficient Transformers (IEET) and issue 3.2 of the IRC incomplete message.

After consultation with my colleagues from the Project Assessment Team, I like to inform that:

- the issue has been raised because at page 6 of the specific CPA, the first installation of transformers is in July 2013. Taking for granted the installation of a first batch of transformer took place already, the geo-coordinates of the transformer location have been requested in line with the methodology requirements.

You are therefore requested to clarify whether or not this installation took place. If yes, geo-coordinates of transformers must be provided. If not, note 2 of the methodology applies; in this regard, it is recommended to provide justification on why transformers have not been installed yet as

estimated in the specific CPA. The DOE shall validate the new situation.

With regard to note 2 of AM0067 version 2, I like to point out that transformers installed after registration will be eligible to obtain CERs from the beginning of subsequent monitoring period. Therefore, the start date of the crediting period of the CPA shall be chosen wisely, in order not to lose CERs.

I hope it clarifies. I remain for any further clarification you may need on this issue.

Best regards,
Andrea Camponogara
(UNFCCC Secretariat in Bonn, for RCC Kampala)

RCC Kampala
Regional Collaboration Centre Kampala CDM A collaboration between the UNFCCC Climate Change Secretariat and the East African Development Bank

*****<Un-quote Email from UNFCCC>*****

Response of JCI:

Issue 3. (1);

The applied Methodology AM0067 stipulates as one of applicability condition that “Installation of transformers within the distribution grid is governed by performance levels established by the local or national regulation, which define maximum permissible load losses and no-load losses”.

JCI confirms that the local or national, which define maximum permissible load losses and no-load losses, does not exist in Kenya under the present registration situation. The KPLC, the national power grid company, sets the specification for all the transformer types procured. The specification stipulates the technical selection criteria of transformer for tenders/suppliers, which is based on International Electrotechnical Commission standards (IEC 60076). And some values in the specification are derived from the European Standardization for transformer losses reduction (EN 50464-1).

Such standardization situation is common in the low/medium industrial development country like Kenya. Then the specification of KPLC is considered to be corresponded to the national standard for transformer, since the origin of KPLC is a governmental organization and at present the KPLC manages and operates the Kenyan Grid Systems. JCI concluded that the PoA-DD and CPA-DD have been revised appropriately in accordance with the applied methodology AM0067.

Issue 3. (2);

The specific CPA-DD has been revised to clarify the reason of no complete list of transformer installed or replaced under the PoA activity why the exact location of huge number of the transformer under the CPA-01 is not determined yet due to delay of purchase procedure of the efficient transformer and also to revision of the project schedule (01/07/2015 of the revised CPA-01 project start). And the specific CPA-DD describes clearly that the complete list of installed or replaced transformers under the project activity will be provided at the time of verification.

JCI concludes that it is reasonable and acceptable under condition of the list submission at the verification stage.

Issue 4. The specific CPA-DD indicates that the UNC (maximum allowable uncertainty for the no-load losses stated in the certification report provided by an accredited entity) is based on IEC 60076-1 pg.15 while the applied methodology requires the PP to have UNC from certification report.
The DOE is requested to further validate the UNC as per AM0067 version 2. Further, the IEC60076-1 pg.15 provides the value of +/- 5 % (as shown in the Excel spreadsheet ERs_IEET_CPA.xls) whereas 0.5% is used for calculation. Please also rectify this inconsistency.

Response of Project Participants:

The description of “Uncertainty (UNC), 0.50%, IEC 60076-1 pg.15: value for voltage variation is +/- 5% at no load (design parameters)” for parameter of Uncertainty (UNC) is a mistake in the “ER_y” sheet of the Spread Sheet. It has been revised to “Uncertainty (UNC), 15%, KPLC Kenya draft transformer specifications (Section 4.8.4)”. The 15% of UNC in the KPLC specifications is derived from IEC 60076-1.

Response of JCI:

The approved methodology AM0067 stipulates in the Project Emission calculation that “UNC is maximum allowable uncertainty for the no-load losses stated in the certification report provided by the accredited entity. As description of above response of PPs the revised DDs and the Spread Sheet selects 15% of UNC which is stipulated in the KPLC’s draft specification and is derived from the IEC 60076-1.

JCI confirms in the page 57 of IEC60076-1 that the tolerances for component losses^{*1} of transformer is “+15% of each component loss, provided that the tolerance for total losses is not exceeded”. (Note *1 of IEC 60076-1; the loss tolerances of multi-winding transformers apply to every pair of windings unless the guarantee state that they apply to a given load condition.)

JCI also confirms that the “ER_y” sheet of the Spread Sheet and the DDs has been revised appropriately and the ER calculation conducted appropriately using 15% of UNC.

Issue 5. The PoA-DD (p6) states that "the transformer that the CPA will implement or replace are those located between the distribution substation and the home (number 4 as shown in the above figure)" where as the Eligibility criteria 9 states "the CPA target group are grid-connected transformers within the PoA boundary". The PP/DOE is requested to ensure the consistency.

Response of Project Participants:

The PoA DD has been revised in A.6 to “The transformers that the CPA will implement or replace are those located those between the distribution substation and the home (number 4 as shown in the above figure)”. It is consistent with the Eligibility Criteria 9.

Response of JCI:

JCI confirmed the followings;

- a) AM0067 version 02 stipulates as the definition of Distribution grid that “a distribution grid is the portion of the electric system that is dedicated to delivering electric energy to the end-users. It delivers power at medium voltage levels (generally less than 50 kV)”.
- b) KPLC year book of 2013 shows that the electric voltage ratio of Transmission Substation transforms is from 220/132 kV to 132/33 kV and those of Distribution Substation transforms is from 66/33 kV to 33/11 kV.
- c) The transformers to be installed and replaced in the PoA are specified as 33 and 11 kV of the higher side electric voltage, of which transformers are categorized for Distribution Substation transform in the KPLC year book of 2013.

From above information JCI concluded that the location of transformer installed or replaced is appropriately provided in the section A.6 and in the Eligibility Criteria 9 of the PoA-DD.

Issue 6. The specific CPA-DD appears at CPA view page

https://cdm.unfccc.int/ProgrammeOfActivities/cpa_db/GNDCQ9ROXKU60ZP1BTYE

58AJH2VW4S/view is version 13 dated 13/12/2012 which is not the latest version.

The latest version 14 dated 12/06/2013 is available at PoA view page

https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/UE2T0YS7NQPAF98BIJDZ

CXMVL6HG5K/view. Please ensure that only the latest version of specific CPA-DD is uploaded.

Response of JCI:

JCI shall upload appropriately the latest version of the CPA-DD.

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