JCM Validation Report Form

A. Summary of validation

A.1. General Information

Title of the project	Installation of Inverter-type Air Conditioning System, LED Lighting and Separate Type Fridge Freezer Showcase to Grocery Stores in Republic of Indonesia
Reference number	ID006
Third-party entity (TPE)	TPE-ID-003 Japan Quality Assurance Organization (JQA)
Project participant contracting the TPE	Lawson, Inc.
Date of completion of this report	20/01/2016

A.2 Conclusion of validation

Overall validation opinion	☒ Positive ☐ Negative

A.3. Overview of final validation conclusion

Only when all of the checkboxes are checked, overall validation opinion is positive.

Item	Validation requirements	No CAR or CL remaining
Project design document form	The TPE determines whether the PDD was completed using the latest version of the PDD forms appropriate to the type of project and drafted in line with the Guidelines for Developing the Joint Crediting Mechanism (JCM) Project Design Document, Monitoring Plan and Monitoring Report.	☒
Project description	The description of the proposed JCM project in the PDD is accurate, complete, and provides comprehension of the proposed JCM project.	☒
Application of approved JCM methodology (ies)	The project is eligible for applying applied methodology and that the applied version is valid at the time of submission of the proposed JCM project for validation.	☒
Emission sources and calculation of emission reductions	All relevant GHG emission sources covered in the methodology are addressed for the purpose of calculating project emissions and reference emissions for the proposed JCM project.	☒
	The values for project specific parameters to be fixed *ex ante* listed in the Monitoring Plan Sheet are appropriate, if applicable.	☒
Environmental	The project participants conducted an environmental	☒

Item	Validation requirements	No CAR or CL remaining
impact assessment	impact assessment, if required by the Republic of Indonesia, in line with Indonesia's procedures.	
Local stakeholder consultation	The project participants have completed a local stakeholder consultation process and that due steps were taken to engage stakeholders and solicit comments for the proposed project unless a local stakeholder consultation has been conducted under an environmental impact assessment.	☒
Monitoring	The description of the Monitoring Plan (Monitoring Plan Sheet and Monitoring Structure Sheet) is based on the approved methodology and/or Guidelines for Developing the Joint Crediting Mechanism (JCM) Project Design Document, Monitoring Plan, and Monitoring Report. The monitoring points for measurement are appropriate, as well as whether the types of equipment to be installed are appropriate if necessary.	☒
Public inputs	All inputs on the PDD of the proposed JCM project submitted in line with the Project Cycle Procedure are taken into due account by the project participants.	☒
Modalities of communications	The corporate identity of all project participants and a focal point, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories are included in the MoC.	☒
	The MoC has been correctly completed and duly authorized.	☒
Avoidance of double registration	The proposed JCM project is not registered under other international climate mitigation mechanisms.	☒
Start of operation	The start of the operating date of the proposed JCM project does not predate January 1, 2013.	☒

Authorised signatory:	Mr. ☒ Ms. ☐
Last name: Yano	First name: Tadayuki
Title: Senior Executive	
Specimen signature: [redacted]	Date: 20/01/2016

B. Validation team and other experts

	Name	Company	Function*	Scheme competence*	Technical competence*	On-site visit
Mr. ☒ Ms. ☐	Koichiro Tanabe	JQA	Team leader	☒	Authorized	☒
Mr. ☐ Ms. ☒	Sachiko Hashizume	JQA	Team member	☒	Authorized	☒
Mr. ☒ Ms. ☐	Hiroshi Motokawa	JQA	Internal reviewer	☒	Authorized	☐
Mr. ☐ Ms. ☐	N/A	N/A	N/A	☐	N/A	☐

Please specify the following for each item.

* *Function: Indicate the role of the personnel in the validation activity such as team leader, team member, technical expert, or internal reviewer.*

* *Scheme competence: Check the boxes if the personnel have sufficient knowledge on the JCM.*

* *Technical competence: Indicate if the personnel have sufficient technical competence related to the project under validation.*

C. Means of validation, findings, and conclusion based on reporting requirements

C.1. Project design document form

<Means of validation>

Through a review of the draft PDD, it was checked and confirmed that the PDD was completed using the latest version of the PDD form (JCM_ID_F_PDD_ver01.0) appropriate to the type of project and drafted in line with JCM Guidelines for Developing PDD and MR (JCM_ID_GL_PDD_MR_ver02.0).

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team concluded that the PDD was completed using the valid form in line with the JCM Guidelines for Developing PDD and MR.

C.2. Project description

<Means of validation>

The proposed JCM project aims to improve energy saving in grocery stores in Republic of Indonesia by introducing high-efficiency technologies. The project covers a total of 12 grocery stores owned by PT MIDI UTAMA INDONESIA Tbk located in Special Capital Region of Jakarta and its surrounding districts. Three types of key technologies listed below are implemented in all 12 stores:

(1) Inverter-type air conditioning system (newly installed or installed to replace existing air conditioning system) (methodology used: ID_AM004)
(2) LED lighting (newly installed or installed to replace existing fluorescent lighting) (methodology used: ID_AM005)
(3) Separate type fridge freezer showcase (newly installed or installed to replace existing built-in type fridge freezer showcase) (methodology used: ID_AM008)

The project is expected to achieve the amount of 141 tCO_2e emission reductions per annum, which consist of 36 tCO_2e by inverter-type air conditioning system, 16 tCO_2e by LED lighting and 89 tCO_2e by separate type fridge freezer showcase. The estimated emission reductions of the period between 2014 and 2020 are calculated in the PDD.

The validation team conducted document review, and then conducted a two-day on-site visit during 26-27/11/2015, including follow-up interviews. The location of the proposed JCM project, including coordinates was checked through review of a list of involved stores submitted by the project participants. The project description was also cross-checked through a physical inspection of Store1 (Palmerah Utara), Store 6 (Raden Saleh 3) and a distribution center including its warehouse (Branch Bitung), which were selected by applying a sampling approach. The validation team had in-person interviews with each representative of the entities, listed below, who have been involved in the proposed JCM project:

- PT MIDI UTAMA INDONESIA Tbk, the project participant from the Republic of Indonesia (hereinafter called the “Project Owner”, or the “PO”)
- Lawson, Inc. the project participant from Japan (hereinafter called the “Project Developer”, or the “PD”)
- Panasonic Corporation (hereinafter called the “Manufacturer”)
- The partner companies of the Manufacturer (hereinafter called the “Distributers”)

It was confirmed through interview with the PO that the starting date of project operation was on 21/02/2014, which was the opening date of Raden Saleh (Store1), and verified at the on-site visit. The expected operational lifetime of project was defined as legal durable years of each technology under the regulation of Indonesia, such as eight-year lifetime for inverter-type air conditioning system, eight-year lifetime for LED lightning and eight-year lifetime for separate type fridge freezer showcase, respectively.

It was explained that, for the purpose of knowledge transfer of the advanced technologies, Manufacturer conducted a training session at each store, right after the commercial operation of the project equipment commenced respectively. This finding was confirmed through review of supporting documents and cross-checked through interview with grocery store staffs with a satisfactory result.

As a result, the team determined that the description of the proposed JCM project in the PDD was accurate, complete, and provided an understanding of the proposed JCM project.

<**Findings**>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised.

<**Conclusion based on reporting requirements**>

Please state conclusion based on reporting requirements.

The validation team concluded that the accuracy and completeness of the project description were valid.

C.3. Application of approved methodology(ies)

<**Means of validation**>

Selection of methodology(ies)

Through a review of the draft PDD and Monitoring Plan (MPS and MSS), it was confirmed that the following latest version of methodologies was correctly quoted and applied in the proposed JCM project.

- JCM_ID_AM004_ver.02.0
- JCM_ID_AM005_ver.02.0
- JCM_ID_AM008_ver.02.0

The assessment results regarding the eligibility criteria of the approved methodologies are summarized as below:

[ID_AM004]

Criterion 1: Single split inverter-type air conditioning system is newly installed or installed to replace existing air conditioning system for grocery store whose selling area is less than 400 (four hundred) m^2.

Criterion 2: The installed air conditioning system is wall mounted type and/or ceiling cassette type, and has a COP value higher than that of the value indicated in the table

below.

Cooling Capacity [kW]	Reference COP
2.5 < x ≦ 4.1	4.00
4.1 < x ≦ 5.3	3.59
5.3 < x ≦ 7.1	2.96
7.1 < x ≦ 14.2	2.85

Criterion 3: Ozone Depletion Potential (ODP) of the refrigerant used for the installed air conditioning system is 0 (zero).

Though reviewing supporting documents, including the specifications, and the physical inspection, the Project information of Criterion 1, 2 and 3 described in the PDD, was checked and confirmed with a satisfactory result, as below:

- The project air conditioning system is a single split inverter-type air conditioning system and the selling area of each store is less than 400 m^2.
- The installed air conditioning system is wall mounted type.
- Cooling capacity and COP of the project air conditioning system is 6.25kW and 3.32 respectively.
- The installed air conditioning system uses R410A as the refrigerant, and its ODP is zero.

Criterion 4: A Plan for not releasing refrigerant used for project air conditioning system is prepared. In the case of replacing the existing air conditioning system with the project air conditioning system, a plan is prepared in which refrigerant used for the existing air conditioning system is not released to the air e.g. re-use of the refrigerant. Execution of the prevention plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is not released to the air.

Through interviews with both the PO and Distributors and a review of the relevant documents, the following information were confirmed:

- The prevention plan for release of refrigerant used for project air conditioning systems and replaced air conditioning systems has been prepared, in accordance with "Removal Measures for Existing Equipment and Management Plan of Newly-installed Equipment to Prevent Refrigerant or Mercury Leakage", which was provided by the PO.
- The removal and installation process of air conditioning system is conducted by the Distributers, in accordance with the Manual of Manufacturer.
- According to such rules and procedures, service engineers use pump-down method with sealing the refrigerant to prevent the leakage of refrigerant into the air.
- As a leakage of refrigerant increases the cost of service, the preventive action of

such leakage is expected to be taken properly.

In addition, through a physical inspection and interview at the distribution center (Branch Bitung), the following facts were confirmed;

- The existing air conditioning systems replaced by the project have been kept within the property of the distribution center.
- Some of the air conditioning units replaced by the project may be reused in other stores if their condition is good, and some of them may be sold to second-hand equipment vendors if their condition is not good.
- The actual transaction for reuse of the replaced air conditioning system is evidenced by inventory list of fixed asset, which is summarized for replaced equipment.
- The actual transaction for sales of the replaced air conditioning system is evidenced by two documents, namely, “Sales agreement for the replaced air conditioning system between the PO and the second-hand equipment vendor” and "Request for approval of write-off assets, with a list of replaced equipments attached".

As a result, it was confirmed that a plan for the prevention of refrigerant leakage was prepared appropriately. The execution of the prevention plan is to be checked at the time of verification, and therefore, FAR01 was raised on Criterion 4.

[ID_AM005]

Criterion 1: LED lighting is newly installed or installed to replace existing fluorescent lighting for grocery store whose selling area is less than 400 (four hundred) m^2.

Though reviewing supporting documents, including the specification of the LED lighting, and the physical inspection, the Project information of Criterion 1 described in the PDD, was checked and confirmed with a satisfactory result, as below:

- The project lighting is an LED lighting and the selling area of each store is less than 400 m^2.

Criterion 2: The installed LED lighting is a straight type LED with color temperature between 5,000 and 6,500 K, length between 602.5 and 1,513.0 mm, and luminous efficiency of more than 120 lm/W.

Though reviewing the specifications of two models of the project LED lighting devices, the Project information of Criterion 2 described in the PDD, was checked as below:

- Each model is a straight type LED.
- Each model has color temperature of 5,000K.
- The luminous efficiency is 133.3lm/W and 137.9lm/W respectively.

- The length of NNFK90509/NNU502005KLA9 is 1,225mm.
- The length of NNLK41515/NNL4300EN DZ9 is 1,216mm.

It was confirmed that there was an inconsistency between the description of the length of NNLK41515/NNL4300EN DZ9 in the PDD and that of the specification. Therefore, a clarification request (CL01) was raised on this finding.

Criterion 3: A measurement result of the illuminance (lux (lm/m2)) of the installed LED lighting which is equal or above the minimum value (300 lux) for illuminance of grocery store is obtained. See explanatory note for the measurement method.

Though reviewing "Lux Measurement Report" and the calibration certificate of luminance measurement meter (Chroma Meter) and the physical inspection at Store 6, the Project information of Criterion 3 described in the PDD, was checked and confirmed with a satisfactory result, as below:

- The accuracy class of the Chroma Meter is ±2%, thus it meets the requirement of Explanatory note attached to AM005 (±6%).
- The lux measurement was conducted in accordance with the Explanatory note appropriately, and the result shows that the minimum value (300 lux) is achieved in each store.

Criterion 4: In the case of replacing existing fluorescent lighting with the project LED lighting, mercury contained in existing fluorescent lighting is not released to the environment.

Through interviews with both the PO and Distributors, a review of the relevant documents, and the physical inspection at the distribution center (Branch Bitung), the following information was confirmed with a satisfactory result, as below;

- The prevention plan for releasing mercury contained in the replaced fluorescent lighting into the environment has been prepared, in accordance with "Removal Measures for Existing Equipment and Management Plan of Newly-installed Equipment to Prevent Refrigerant or Mercury Leakage", provided by the PO.
- The removal is conducted by the PO, and the existing fluorescent lighting devices replaced by the project have been kept within the property of the distribution center.
- Some of the fluorescent lighting devices replaced by the project may be reused in other stores if their condition is good.

On the other hand, the following information was also confirmed:

- It is noted that the conditions of the replaced fluorescent lighting devices are managed appropriately so that most of them can be reused. However, if the

condition of the replaced fluorescent lighting devices is not good, the fluorescent lighting devices are continued to be kept within the property of the distribution center, as there is enough space secured for storage purposes during project period.

- A reuse of those fluorescent lightings by reselling in a second-hand market is not realistic.

Therefore, a corrective action request (CAR01) was raised on this finding.

[ID_AM008]

Criterion 1: The project is to install a separate type fridge-freezer showcase by using natural refrigerant or replacing the existing at a grocery store which is equipped with wall mounted type and/or ceiling cassette type air conditioning system and whose selling area is less than 400 (four hundred) m^2.

Though reviewing supporting documents, including the specification of the fridge-freezer showcase, and the physical inspection, the Project information of Criterion 1 described in the PDD, was checked and confirmed with a satisfactory result, as below:

- Each model is the outdoor condensing unit used for a separate type fridge-freezer showcase and the selling area of each store is less than 400 m^2.
- Each model uses CO_2 as refrigerant.

Criterion 2: In the case of replacing the existing fridge-freezer showcase with the project fridge-freezer showcase, the existing one is a built-in type showcase.

Through reviewing the broacher of existing fridge-freezer showcase replaced by the project, it was confirmed that each of them is a built-in type showcase.

Criterion 3: A plan for not releasing refrigerant used for project fridge-freezer showcase is prepared. In the case of replacing the existing fridge-freezer showcase with the project fridge-freezer showcase, a plan is prepared in which refrigerant used in the existing fridge-freezer showcase is not released to the air e.g. re-use of the refrigerant. Execution of the prevention plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is not released to the air.

Through interviews with both the PO and Distributors, review of the relevant documents and the physical inspection at the distribution center (Branch Bitung), the following information was confirmed with a satisfactory result:

- The prevention plan for release of refrigerant used for the replaced fridge-freezer showcase is prepared, in accordance with "Removal Measures for Existing Equipment and Management Plan of Newly-installed Equipment to Prevent Refrigerant or Mercury Leakage", which was provided by the PO.
- The removal process of the existing fridge-freezer showcases is conducted by the PO, and the existing fridge-freezer showcases replaced by the project have been kept within the property of the distribution center.
- Some of the fridge-freezer showcases replaced by the project may be reused in other stores if the condition is good, and some of them may be sold to second-hand equipment vendors if the condition is not good.
- A reuse of the replaced fridge-freezer showcases is evidenced by inventory list of fixed asset, which is summarized for replaced equipment.
- Any sales of the replaced fridge-freezer showcases have not been occurred as of the date of interview (27/11/2015).
- The sales of the project fridge-freezer showcase have been started since 2014.
- The project fridge-freezer showcase uses a natural refrigerant (CO_2), which is not harmful to the environment even if it is leaked.
- It was explained by the PO that there is not relevant regulation for natural refrigerant (CO_2) in Indonesia, in terms of the relevant rules for preventing a release of refrigerant. In addition, CO_2 refrigerant is not also a subject under the relevant rules concerning the discharge and control of fluorocarbons. Therefore there is no need to prepare a prevention plan for release of refrigerant used for the project fridge-freezer showcase.
- It is noted that Manufacturer provided a capacity building on handling of the project fridge-freezer showcase, thus the risk of refrigerant leakage is considerably low in the first place.

On the other hand, since there is no relevant regulation for natural refrigerant (CO_2) in Indonesia, a clarification request (CL02) was raised on this finding.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

(Issue raised as CL01)

As for Criterion 2 of AM005 in the draft PDD, it is requested to clarify an inconsistency of the specific length of the project LED lighting devices accordingly.

(Summary of the response on CL01)

The inconsistency is resolved by correcting the project information of AM005 Criterion 2 in the PDD.

(Assessment result of the responses on CL01)

It was confirmed through the response provided by the PD that the PDD was revised accordingly. Therefore, CL01 was closed.

(Issue raised as CAR01)

As for criterion 4 of AM005 in the draft PDD, it is requested to resolve the inconsistency in terms of handling of fluorescent lighting devices, which are under no good conditions.

(Summary of the response on CAR01)

The inconsistency was resolved by correcting the project information of AM005 Criterion 4 in the PDD as follows:

"After the removal process, the fluorescent lighting is either reused in other grocery stores or stored in warehouse without being dismantled."

(Assessment result of the responses on CAR01)

It was confirmed through the response provided by the PD that the PDD was revised accordingly. Therefore, CAR01 was closed.

(Issue raised as CL02)

As for Criterion 3 of AM008 in the draft PDD, it is requested to provide the description on the host country regulation on the natural refrigerant in the PDD.

(Summary of the response on CL02)

The project information of AM008 Criterion 3 in the PDD is corrected as follows:

“CO_2 refrigerant is an environmental-friendly refrigerant which has 0 ODP and a low GWP (1). In Indonesia, there are no regulations for CO_2 refrigerant. Likewise in Japan, it is also not a subject of regulation under the Japanese law concerning the discharge and control of fluorocarbons. Hence, consideration of refrigerant leakage prevention plan for such equipment is not necessary.”

(Assessment result of the responses on CL02)

It was confirmed through the response provided by the PD that the PDD was revised accordingly. Therefore, CL02 was closed. Instead, JQA raise a FAR for Criterion 3 of AM008 as the execution of the prevention plan is to be checked during the verification.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team reached the conclusion that the relevant information contained in the PDD is in compliance with the eligibility criterion listed in the approved methodology applied. The issues raised by the team were fully clarified, which resulted in revision of the PDD.

C.4. Emission sources and calculation of emission reductions

<Means of validation>

It was confirmed that the emission sources and GHGs, which were described in the draft PDD, were based on evidential documents and the assessment results were corroborated through an on-site inspection. All emission sources and their associated GHGs relevant to the proposed JCM project were exactly in line with the applied methodologies, since all of three methodologies did not allow the PPs to choose any source or gas to be included. Through the physical inspection, the validation team checked the emission sources and the monitoring points, which were illustrated in the draft PDD, with a satisfactory result. It was also confirmed that each Monitoring Spreadsheet form, defined in the applied methodologies, was used and the Monitoring Spreadsheet of the proposed JCM project was not altered, and its required fields were appropriately filled in.

<u>Parameters to be fixed ex ante</u>

Through cross-check of the following project specific parameters fixed ex ante by using the supplemental information, the validation team determined that all data sources and assumptions were appropriate and calculations were correct as applicable to the proposed JCM project, except several fixed parameters, relevant to AM008, for the project fridge-freezer showcase. Therefore, a clarification request (CL03) was raised on this finding.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

(Issue raised as CL03)

As for parameters to be fixed ex ante relevant to AM008, in the draft PDD/Monitoring Spreadsheet, it is requested to clarify inconsistencies between the value applied for and the provided specification documents..

(Summary of the response on CL03)

The inconsistency is resolved by clarifying or correcting the relevant parameters. Also, evidences for the parameters have been replaced with the correct versions so that the parameters are traceable. Along with correction of parameters, estimated value of total GHG emission reduction have been revised from 145tCO_2/year to 141tCO_2/year.

(Assessment result of the responses on CL03)

It was confirmed through the response provided by the PD that the PDD was revised correctly, which resulted in a revision of the estimated total amount of GHG emission reductions. Therefore, CL03 was closed.

<**Conclusion based on reporting requirements**>

Please state conclusion based on reporting requirements.

The validation team reached the conclusion through the validation that the selected emission sources and GHG types were justified for the JCM project. The validation team assessed values for project-specific parameters to be fixed ex ante in the Monitoring Plan Sheet and intermediate processes to derive the values. As a result, those were considered reasonable in the context of the proposed JCM project. The issue raised by the team was fully clarified, which resulted in a revision of the PDD and the Monitoring Plan Sheet.

C.5. Environmental impact assessment

<**Means of validation**>

It was confirmed through review of AMDAL (Environmental Impact Assessment in Indonesia) process in the Republic of Indonesia that the proposed JCM project was not required to conduct AMDAL, as the project type (installation of electronic equipment in retail stores) was not included as a target in it.

<**Findings**>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised.

<**Conclusion based on reporting requirements**>

Please state conclusion based on reporting requirements.

The validation team concluded that the project design of the proposed JCM project was in accordance with the regulation in the Republic of Indonesia.

C.6. Local stakeholder consultation

<Means of validation>

Through document review and interviews with local stakeholders, the following information was confirmed with a satisfactory result:

(a) Comments have been invited from local stakeholders that are relevant for the proposed project?

The relevant local stakeholders have been identified by PD, and a face-to-face LSC meeting was held with inviting the following local stakeholders respectively:

- Managers of PT MIDI UTAMA INDONESIA Tbk (04/08/2015)
- Chairman of Indonesian Retail Merchants Association (APRINDO) (05/08/2015)
- Employees of Alfamidi Stores (06/08/2015)

(b) The summary of the comments received as provided in the PDD is complete?

The summary of the comments received has been described in the PDD. Through interview with Technical Support & Maintenance Manager of PT MIDI, it was confirmed that his comment had been described in the PDD properly. Meanwhile, through interview with Area Coordinator and/or Chief of store of Store 1 and 6, it was confirmed that they agreed with the comments provided in the LSC meeting, and furthermore, the following additional comments were provided:

- A lighting unit of the installed equipment is well-functioning for displays in the stores, as lighting intensity is sufficient to show store products nicely.
- The showcase is well-designed for setting and controlling the temperature of store products, and it is also easy for store staffs to display store products as well as easy for customers to pick them up.
- To sum up, the sales revenue of the store has increased after installation of the project equipments.

(c) The project participants have taken due account of all comments received and have described this process in the PDD?

JQA determined that the relevant local stakeholders were identified appropriate and the information on the LSC meeting was described in the PDD properly. As a result, it was concluded that no additional actions were required as the comments received had been well considered by PD.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team concluded that the local stakeholder consultation of the proposed JCM project was adequate.

C.7. Monitoring

<Means of validation>

Through document review and interviews with the project participants, the following information was confirmed:

(a) Assessment of compliance of the monitoring plan with the approved methodology and/or PDD and Monitoring Guidelines

The same parameters, required in the applied methodology, have been defined in Monitoring Plan Spreadsheet (MPS). With respect to the description regarding the means of monitoring, JQA conducted interview with Manufacturer to confirm the following information with a satisfactory result:

- MTBF (Mean Time Between Failure, namely a predicted timing of equipment to malfunction) of electric meters used in the proposed JCM project are 9-10 years, indicating that these electric meters are not likely to malfunction (including accuracy deterioration) during the above-mentioned period. Since this period is greater than the project operation period of 8 years, the project participants have neither need to calibrate the electric meters nor to replace them instead of calibration.

The following information was also confirmed through the physical inspection:

- The electric meters have been installed under stable circumstances in the backyard of each store, where the ambient temperature and humidity are stable and no direct sunlight is reachable.
- The electricity meters are always under a continuous remote monitoring system, and maintenance and management services are provided on a steady basis, especially in case that malfunction occurs.

Therefore, it was confirmed that compliance of the monitoring plan with the approved methodology and/or PDD and Monitoring Guidelines was reasonable.

(b) Assessment of the implementation of the plan

Through interview with PD, it was explained that the proposed JCM project was going to assign two engineers, who were stationed in Japan and Indonesia respectively. It was also confirmed that Monitoring Structure Sheet (MSS) of the proposed JCM project

described a single engineer, stationed in Jakarta, who had responsibility for both installation/settings of electric meter and maintenance of installed air conditioning system. Meanwhile, through interview with Manufacturer during the on-site visit, it was confirmed that different personnel should been assigned for the electricity meters and the installed air conditioning system. Therefore, a corrective action request (CAR02) was raised on this finding.

<**Findings**>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

(Issue raised as CAR02)

As for MSS, it was requested to define responsible personnel and its role for installation/settings of the electric meter, and those for maintenance of the installed air conditioning system, separately and according to practical monitoring and maintenance activities.

(Summary of the response on CAR02)

The MSSs of all applied methodologies AM004, AM005 and AM008 were revised as follows:

- Engineer 1 (stationed in Japan): Personnel responsible for compiling monitored data from remote server to be reported to person-in-charge of the project.
- Engineer 2 (stationed in Jakarta, Indonesia): Personnel responsible for installation and settings of electric meter.
- Engineer 3 (stationed in Jakarta, Indonesia):
  (1) [ID_AM004] Personnel responsible for maintenance of installed air conditioning system should any technical difficulties occur.
  (2) [ID_AM005] Personnel responsible for maintenance of installed lighting should any technical difficulties occur.
  (3) [ID_AM008] Personnel responsible for maintenance of installed fridge-freezer showcase should any technical difficulties occur.

(Assessment result of the responses on CAR02)

It was confirmed through the response provided by the PD that the MSS was revised correctly, which resulted in a revision of the estimated total amount of GHG emission reductions. Therefore, CL03 was closed.

<**Conclusion based on reporting requirements**>

Please state conclusion based on reporting requirements.

The validation team concluded that Monitoring Plan of the proposed JCM project complied with the requirements of the methodology and/or PDD and Monitoring Guidelines, and the project participants had ability to implement the described Monitoring Plan including feasibility of Monitoring Structure Sheet.

C.8. Modalities of Communication

<**Means of validation**>

Through document review, it was confirmed that the Modalities of Communication (MoC), provided by PD, had applied the latest version of MoC form. The date of submission indicated in the MoC was 15/09/2015, and it was considered to be valid. JQA also conducted interviews with the signatories of the Modalities of Communication (MoC), and then identified the personnel and their employment status, including the specimen signatures. Therefore, JQA determined that the information of all project participants, including the focal point provided in the MoC and its correctness of authority, was appropriate.

<**Findings**>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised.

<**Conclusion based on reporting requirements**>

Please state conclusion based on reporting requirements.

The validation team concluded that the MoC complied with all relevant forms and requirements.

C.9. Avoidance of double registration

<**Means of validation**>

It was confirmed preliminarily through review of the relevant website (e.g. UNFCCC website, Markit Environmental Registry, etc.) that the proposed JCM project had not been registered under other international climate mitigation mechanisms. The written confirmation of the avoidance of double registration was also provided through the signed MoC, and was cross-checked through interview with PD and PO, with a satisfactory result.

<**Findings**>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team concluded that the proposed JCM project was not registered under the other international climate mitigation mechanisms at the stage of validation.

C.10. Start of operation

<Means of validation>

Through interview with PD and PO, it was explained that the starting date of operation of each store was identified as the opening date for a new store and the starting date of operation of the newly installed equipment for an existing store, respectively. In this context, the starting date of operation of the proposed JCM project was identified as the opening date of Store 1 (21/02/2014), where the store was the earliest one to start commercial operation of the project equipment among twelve stores. The opening date of Store 1 was cross-checked through evidential documents.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team concluded that the start of the operating date of the proposed JCM project did not predate 01/01/2013, and it had been defined appropriately.

C.11. Other issues

<Means of validation>

No other issue was identified.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Not applicable.

D. Information on public inputs

D.1. Summary of public inputs

The PDD of the proposed JCM project, which was submitted in line with the Project Cycle Procedure, was made publicly available through the JCM website for public inputs. The duration of call for public inputs on the PDD was 30 calendar days subsequent to the publication of the PDD, and it started from 01/12/2015. The specific JCM website is as below:

- https://www.jcm.go.jp/id-jp/information
- http://www.jcmindonesia.com/id/proyek/komentar-publik

D.2. Summary of how inputs received have been taken into account by the project participants

No comment was received during the period of the public comments, covering 01/12/2015 to 30/12/2015; therefore, no action was required to be taken into due account by the project participants.

E. List of interviewees and documents received

E.1. List of interviewees

- Frankie Poedjiharto, Technical Support & Maintenance Manager, PT MIDI UTAMA INDONESIA Tbk
- Agus Wibowo, Building Development Regional Manager, PT MIDI UTAMA INDONESIA Tbk
- Gendis.S.Samodra, Building Coodinator, PT MIDI UTAMA INDONESIA Tbk
- Atsushi Ota, Head of Cold Chain, Indonesia PT Panasonic Gobel Indonesia
- Tsuyoshi Maeki, Advisor, PT. Panasonic Gobel Eco Solutions (Sales Indonesia Lighting Project Group)
- Hiroshi Matsuda, Advisor, PT. Panasonic Gobel Eco Solutions (Sales Indonesia Energy System Group)
- Hiroyuki Matsutani, Manager, Lawson, Inc. (Store Construction Dept., Franchisee Operation Support Division)
- Jestro, Project System Sales, PT. Gobel Dharma Nusantara
- Ronny M., Project System Sales, PT. Gobel Dharma Nusantara
- Iwan S., Project System Sales, PT. Gobel Dharma Nusantara
- Armand M., PT. Sigma Bimed
- Wahyv. S., Area Coordinator, PT MIDI UTAMA INDONESIA Tbk (Alfa MIDI Palmerah Utara)

- Andi Kurniawan, Chief of store, PT MIDI UTAMA INDONESIA Tbk (Alfa MIDI Raden Saleh 3)
- Budi Setiawan, Area Coordinator, PT MIDI UTAMA INDONESIA Tbk (Alfa MIDI Raden Saleh 3)
- Ryo Seike, Consultant, myclimate Japan Co.,Ltd (Carbon Project Group)
- Ruo Lin Yaw, myclimate Japan Co.,Ltd (Carbon Project Group)

E.2. List of documents received

- Project Design Document(draft) (JCM_ID_F_PDD_Lawson_151120.docx)
- JCM_ID_F_PDD_Lawson_Annex_151120(draft) (JCM_ID_F_PDD_Lawson_Annex_151120.docx)
- Project Design Document with Annex (final) (JCM_ID_F_PDD_Lawson_final.docx)
- Monitoring Plan Sheet and Monitoring Structure Sheet (draft) (JCM_ID_AM004_ver02.0_Lawson (Store xx).xlsx for 12 stores)
- Monitoring Plan Sheet and Monitoring Structure Sheet (draft) (JCM_ID_AM005_ver02.0_Lawson (Store xx).xlsx for 12 stores)
- Monitoring Plan Sheet and Monitoring Structure Sheet (draft) (JCM_ID_AM008_ver02.0_Lawson (Store xx).xlsx for 12 stores)
- Monitoring Plan Sheet and Monitoring Structure Sheet (final) (JCM_ID_AM004_AM005_AM008_ver02.0_final.xlsx)
- Modalities of communications statement (submitted with the draft PDD for publication)
- JCM Approved Methodology ID_AM004 "Installation of Inverter-Type Air Conditioning System for Cooling for Grocery Store Version 2.0" (JCM_ID_AM004_ver02.0.pdf)
- Form of Monitoring Plan Sheet and Monitoring Structure Sheet (ID_AM004) (JCM_ID_AM004_ver02.0.xlsx)
- JCM Approved Methodology ID_AM005 "Installation of LED Lighting for Grocery Store Version 2.0" (JCM_ID_AM005_ver02.0.pdf)"
- Form of Monitoring Plan Sheet and Monitoring Structure Sheet (ID_AM005) (JCM_ID_AM005_ver02.0.xlsx)
- JCM Approved Methodology ID_AM008 Installation of a separate type fridge-freezer showcase by using natural refrigerant for grocery store to reduce air conditioning load inside the store, version 2.0 (JCM_ID_AM008_ver02.0.pdf)
- Form of Monitoring Plan Sheet and Monitoring Structure Sheet (ID_AM008) (JCM_ID_AM008_ver02.0.xlsx)

- JCM Glossary of Terms(JCM_ID_Glossary_ver02.0.pdf)
- JCM Guidelines for Developing Project Design Document and Monitoring Report (JCM_ID_GL_PDD_MR_ver02.0.pdf)
- JCM Project Cycle Procedure(JCM_ID_PCP_ver02.0.pdf)
- JCM Guidelines for Validation and Verification(JCM_ID_GL_VV_ver01.0.pdf)
- JCM Modalities of Communication Statement Form(JCM_ID_F_MoC_ver01.0.pdf)
- Company profile of PT MIDI UTAMA INDONESIA Tbk
- A list of 12 stores, involved in the proposed project, including the location of project, starting date of project operation, and other information for eligibility criteria
- A list of the store profile, including the type and the amount of equipment (newly-installed or replacement) per store
- Indonesian Pocket Tax Book 2015, issued by PwC Indonesia
- Product brochure of the project air conditioning system, including the specifications (model No: CS-S24PKP)
- A floor plan view of selling area of each store
- A label sample which shows the type of refrigerant used in the project air conditioning system
- Company profile of PT Gobel Dharma Nusantara
- Removal Measures for Existing Equipment and Management Plan for Newly-installed Equipment to Prevent Refrigerant or Mercury Leakage, issued on 07/08/2015 by PT MIDI UTAMA INDONESIA Tbk
- Panasonic Corp regulation on air conditioning system refrigerant management (confidential)
- Specifications of installed LED lighting (frame No. NNFK90509 and light bar No. NNU502005KLA9, frame No. NNLK41515 and light bar No. NNL4300EN LA9)
- A list of model number, manufacturers and specifications of the removed existing fluorescent lighting
- Calibration certificate of illuminance measurement meter (Chroma Meter), issued on 25/05/2015 by KONICA MINOLTA, INC
- Lux Measurement Report, including illuminance measurement results of each store, issued on 24/08/2015 by PT Panasonic Gobel Eco Solutions Sales Indonesia
- Specifications of the project fridge showcase (model No. RAS-CZ673LAGE and model No.CC-CP4000TLN) and CO2 outdoor condensing unit (model No. OCU-CR1000VF)
- Specifications of the project freezer showcase (model No.RIF-CZ2LLD) and CO2 outdoor condensing unit (model No. OCU-CR200VLF)
- A list of the removed existing chillers, showcases, and freezers

- Product brochure of the project fridge-freezer showcase (built-in type)
- Conceptual diagram of the project monitoring system
- Type of business plan and/or activity, which is required to have an analysis of environmental impact, issued by Ministry of Environment of the Republic of Indonesia (No. 5 of 2012 Activities Mandatory Environmental Impact Assessment)
- Minutes of local stakeholder consultation (held on 4 - 6 Aug 2015)
- Source of data for value estimated for parameters to be monitored
- Panasonic Corp catalogue for electricity meter (model No.AKW2010G, AKW1111, AKW4801C and AKW4802C) (http://www3.panasonic.biz/ac/e_download/fasys/eco/common/catalog/energy_consumption_e_cata.pdf?f_cd=401154)
- Factory test specifications for electricity meter, issued on 26/08/2015 by Panasonic Industrial Devices SUNX Tatsuno Co., Ltd.
- Data of the Mean Time Between Failures (MTBF) published by Panasonic Corporation(http://ac-faq.industrial.panasonic.com/jp/faq_detail.html?id=10054)
- The latest CO2 emission factor for grid electricity (http://www.jcmindonesia.com/en/projects/projref/emifact)
- CO_2 emission factor for captive electricity (AMS-I.A.: Electricity generation by the user Version 16.0)
- Participants records of training sessions conducted by Panasonic Corporation
- An inventory list of fixed asset, which is summarized for replaced equipment
- Sales agreement for the replaced air conditioning system between PT. MIDI and CV KURNIA JAYA TEKNIK (Second-hand equipment vendor)
- Request for approval of write-off assets, with a list of replaced equipments attached
- Notice of opening date of Raden Saleh (Store 1)
- Project Design Document published for public comments (JCM_ID_F_PDD_151130_MYCJ__with_Annex_.pdf)
- Monitoring Plan Sheet and Monitoring Structure Sheet published for public comments (JCM_ID_AM004_AM005_AM008_ver02.0_Store_1-12_2015.xlsx)

Annex Certificates or curricula vitae of TPE's validation team members, technical experts and internal technical reviewers

Please attach certificates or curricula vitae of TPE's validation team members, technical experts and internal technical reviewers.

Statement of competence of TPE's personnel is attached to this report.

Statement of competence

Name: Mr. Koichiro Tanabe

Qualified and authorized by Japan Quality Assurance Organization.

Function

	Date of qualification
Validator	-
Verifier	2014/12/22
Team leader	2015/3/24

Technical area within sectoral scopes

	Date of qualification
TA 1.1. Thermal energy generation	2014/12/22
TA 1.2. Renewables	2014/12/22
TA 3.1. Energy demand	2014/12/22
TA 4.6. Other manufacturing industries	2014/12/22
TA 5.1. Chemical industry	2014/12/22
TA 10.1. Fugitive emissions from oil and gas	2014/12/22
TA 13.1. Solid waste and wastewater	2014/12/22

Statement of competence

Name: Ms. Sachiko Hashizume

Qualified and authorized by Japan Quality Assurance Organization.

Function

	Date of qualification
Validator	2015/11/20
Verifier	2015/11/20
Team leader	-

Technical area within sectoral scopes

	Date of qualification
TA 1.1. Thermal energy generation	2015/11/20
TA 1.2. Renewables	2015/11/20
TA 3.1. Energy demand	2015/11/20
TA 13.1. Solid waste and wastewater	2015/11/20