JCM Validation Report Form

A. Summary of validation

A.1. General Information

Title of the project	Small scale solar power plants for commercial facilities in island states
Reference number	PW001
Third-party entity (TPE)	Japan Management Association (JMA)
Project participant contracting the TPE	Pacific Consultants Co., Ltd. (PCKK)
Date of completion of this report	6 April 2015

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 impact assessment	The project participants conducted an environmental impact assessment, if required by the Republic of Palau in line with Palauan 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	☒

Item	Validation requirements	No CAR or CL remaining
	project.	
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 13, 2014.	☒

Authorised signatory:	Mr. ☒ Ms. ☐
Last name: Takenaka	First name: Kazuaki
Title: Senior Executive of GHG Certification Center, JMA	
Specimen signature:	Date: 06/04/2015

B. Validation team and other experts

	Name	Company	Function*	Scheme competence*	Technical competence*	On-site visit
Mr. ☒ Ms. ☐	Kenji Suzuki	JMA	Team Leader	☒	Technical competence qualified	☒
Mr. ☒ Ms. ☐	Masahiro Hirakawa	JMA	Team Member	☒		☐
Mr. ☒ Ms. ☐	Motoyuki Matsumoto	JMA	Internal Reviewer	☒	Technical competence qualified	☐
Mr. ☒ Ms. ☐	Masao Tomizawa	JMA	Internal Reviewer	☒	Technical competence qualified	☐

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>

The PDD was checked using the "JCM Guidelines for Developing Project Design Document (PDD) and Monitoring Report (MR) (JCM_PW_GL_PDD_MR_ver01.0) (Ref.14) ".

Review history of the PDD is as follows.

-1st Edition: PDD version 1 was submitted to JMA on 3 Mar.2015.

-2nd Edition: PDD was revised on 17 Mar.2015 based on the document review and on-site assessment by JMA.

-3rd Edition: Monitoring plan sheet was revised on 26 Mar.2015 based on the document review and on-site assessment by JMA.

The latest version of the PDD form was used for the PDD. Also, validation team confirmed that form of Monitoring Spreadsheet (JCM_PW_AM001_ver01.0) which was approved as a methodology (Ref.2) by Joint Committee was used for the proposed JCM project.

<Findings>

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

No CAR, CL, or FAR is raised for this section.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Validation team confirmed that the PDD was completed using the latest version of the PDD form in accordance with the "JCM Guidelines for Developing PDD and MR (Ref.14)".

C.2. Project description

<Means of validation>

The proposed project is to install new solar PV systems in Republic of Palau. Solar PV system was installed at two sites (Subproject 1 and 2). Subproject 1 is to install 220.5kW solar PV system on top of the ACE warehouse buildings of Western Caroline Trading Company, and Subproject 2 is to install 150kW on top of the Surangel Supercenter building of Surangel and Sons Company. Validation team conducted the assessment with the step below by following "JCM Guidelines for Validation and Verification (JCM_PW_GL_VV_ver01.0) (Ref.13)".

- Document review was conducted using the checklist based on the "JCM Guidelines for Validation and Verification (Ref.13)". CLs were raised and informed to project participants (PPs).
- Follow-up interviews and on-site assessment were conducted on 9-10 Mar.2015.
- Remaining issues including the response of CLs were checked with reference.

Each section in the PDD was checked as follows during document review and on-site assessment to confirm the project description.

A.1-2:

CL1 was raised for checking A.2.

Solar PV systems were confirmed by on-site inspection, checking "Specification of equipment (Ref.3-1-1～3, 3-2-1～3)" and "Supporting materials (Ref.6)", and interviews with PPs and local engineering company (project manager of engineering company which installed solar PV systems). In addition, net-metering scheme in Palau was confirmed by checking "Connection agreement (Ref.3-1-4, 3-2-4)" and "Document of the Senate for Palau Net Metering Act (the Senate EIGHTH OLBIIL ERA KELULAU (RPPL No.8-39) (Ref.3-3)".

A.3:

CL9 was raised for checking A.3.

Location was confirmed by on-site visit to Subproject 1 and 2, interviews with PPs and checking Google map.

A.4:
Project participants of both countries were confirmed by interviews, on-site assessment and checking the Modalities of communications (MoC).

A.5:
Following reasons were explained for the "Expected operational lifetime of project (20 years)" by PPs.
-Warranty period of solar PV module is equal or more than 20 years.
-Also, warranty period of inverter can be extended to 20 years.
-In addition, purchase guarantees of feed-in tariff in Japan are 20 years.
CL6 was raised for checking A.5.
Validation team confirmed the "Expected operational life time of project" by checking "Specification of equipment(Ref.3-1-1～3, 3-2-1～3)" and "Warranty period from manufacturer (Ref.3-4)", and interviews with PPs and local engineering company.

A.6:
Financial support by the Ministry of the Environment, Japan was confirmed by checking "Financing programme for JCM model projects (Ref.3-5)". And the role of Pacific Consultants Co., Ltd. (PCKK) described in the PDD was confirmed by interviews with PPs and local engineering company.

<Findings>
Please state if CARs, CLs, or FARs are raised, and how they are resolved.
The following CLs were raised to check the project description of the PDD.

CL1:
"Supporting materials (Ref.6)" were submitted with PDD for public input. However, this document is not referred in chapter F of the PDD. Is this document included in chapter F of the PDD? In addition, it is necessary to confirm that the equipment described in "Supporting materials (Ref.6)" is installed to the proposed JCM project.

⇒Summary of Response and Validation team Conclusion：
Validation team confirms that "Supporting materials (Ref.6)" is not included in chapter F of the PDD. Also, validation team confirmed that the following equipment described in (Ref.6) was installed as solar PV system.
(☑PV module, ☑Sunny boy, ☑Green Class meter, ☑Sunny webbox, ☑Sunny sensorbox)
It was confirmed by on-site inspection, checking "Specification of equipment (Ref.3-1-1～3,

3-2-1～3)”, and interviews with PPs and local engineering company. CL1 was closed.

CL9:
The latitude and longitude of the "Location of the project" for Subproject 1 and 2 are slightly different from the latitude and longitude which are indicated by the Google map. Please confirm the values of latitude and longitude of Subproject 1 and 2.

⇒Summary of Response and Validation team Conclusion：
The values of latitude and longitude of Subproject 1 and 2 were revised by PP. Validation team confirms that latitude and longitude in the PDD indicates the correct location. CL9 was closed.

CL6:
Ordinary warranty information of solar PV module and inverter from the manufacturer was submitted. In addition, please submit the warranty period information of solar PV module and inverter applied to subproject 1 and 2.

⇒Summary of Response and Validation team Conclusion：
Warranty period of power output of solar PV module (20 years) and inverter (10 years) were confirmed by checking “Warranty period from manufacturer (Ref.3-4)”. In addition, validation team confirms that warranty of inverter can be extended to 20 years. "Expected operational life time" was confirmed by checking the manufacturers' information regarding warranty period. CL6 was closed.

<Conclusion based on reporting requirements>
Please state conclusion based on reporting requirements.
Validation team assessed the project description provided in the PDD with supporting documents and on-site visit. As a result of raising CL1, 6, 9, supporting documents were submitted and the project description was revised appropriately.
Validation team confirms that the proposed JCM project description in the PDD is accurate and complete, and is understandable for the proposed JCM project activity.

C.3. Application of approved methodology(ies)

<Means of validation>
Approved methodology "Displacement of Grid and Captive Genset Electricity by a Small-scale Solar PV System, Ver. 01.0" is applied to the proposed JCM project. The methodology was approved by the Joint Committee on 20 Feb 2015, and valid as of the time of the validation.
Validation team assessed if the project is eligible for applying selected methodology.

Validation team conducted the assessment for each criterion with the step below by following "JCM Guidelines for Validation and Verification (Ref.13)".

- Document review was conducted using the checklist based on the "JCM Guidelines for Validation and Verification (Ref.13)". CLs were raised and informed to PPs.
- Follow-up interviews and on-site assessment were conducted on 9-10 Mar.2015.
- Remaining issues including the response of CLs were checked with reference.

Each criterion in the PDD was checked as follows during document review and on-site assessment.

Criterion 1:

CL2 was raised for checking Criterion 1.

Criterion 1 was confirmed by on-site inspection, checking "Specification of equipment (Ref.3-1-1～3, 3-2-1～3)", and interviews with PPs and local engineering company.

Criterion 2:

The following descriptions of the PDD were confirmed during on-site assessment.

-The system of Subproject 1 displaces grid electricity.

-The system of Subproject 2 displaces grid electricity and captive electricity at the project site.

Criterion 2 was confirmed by on-site inspection, checking "Connection agreement (Ref.3-1-4, 3-2-4)" and "Specification of equipment (Ref.3-1-1～3, 3-2-1～3)", and interviews with PPs and local engineering company.

Criterion 3:

CL7 was raised for checking Criterion 3.

Criterion 3 was confirmed by checking "Specification of equipment (Ref.3-1-1～3, 3-2-1～3)" and "Certificate for design qualifications (IEC 61215) and safety qualification (IEC 61730-1 and IEC 61730-2) (Ref.3-6)", and interviews with PPs and local engineering company.

Criterion 4:

The following equipment to monitor the output power of solar PV system and irradiance was confirmed during on-site assessment.

・Sunny Sensor Boxes
・Sunny WebBoxes
・A Green Class Meter

Criterion 4 was confirmed by on-site inspection, checking "Specification of equipment

(Ref.3-1-1～3, 3-2-1～3)”, and interviews with PPs and local engineering company.

<Findings>

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

The following CLs were raised to check the application of approved methodology.

CL2:

In the criterion 1 of the approved methodology, it is described that "The project installs solar PV system(s)". In the text of PDD, there is no detail explanation of the equipment except for solar PV module. It is necessary to confirm that necessary equipment for solar PV system is installed for subproject 1 and 2.

⇒Summary of Response and Validation team Conclusion：

The equipment for solar PV system such as PV module, inverter and etc. described in the “Specification (Ref.3-1-1～3, 3-2-1～3)” was confirmed during on-site inspection. Validation team confirmed that the solar PV system was installed at subproject 1 and 2. CL2 was closed

CL7:

Please submit the following certifications of Kyocera KD250GX-LFB2 to confirm the requirement of Criterion 3.

-Certification of design qualifications (IEC 61215, IEC 61646 or IEC 62108)

-Certification of safety qualification (IEC 61730-1 and IEC 61730-2)

⇒Summary of Response and Validation team Conclusion：

“Certificate for design qualifications (IEC 61215) and safety qualification (IEC 61730-1 and IEC 61730-2) (Ref.3-6)” were submitted by PP. Validation team confirms that the proposed JCM project (subproject 1 and 2) satisfies the requirement of Criterion 3. CL7 was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Validation team assessed the application of approved methodology of the proposed JCM project with the supporting documents and on-site visit. As a result of raising CL2 and CL7, supporting documents were submitted.

Validation team confirms that the project is eligible for applying selected methodology "Displacement of Grid and Captive Genset Electricity by a Small-scale Solar PV System, Ver. 01.0", and that the applied methodology is valid at the time of submission of the proposed JCM

project for the validation.

C.4. Emission sources and calculation of emission reductions

<Means of validation>

The electricity generated by solar PV system is supplied to the power grid in Palau to replace existing electricity generation. Reference emissions are calculated using the quantity of the electricity generated by the project solar PV system. Emission sources of the reference emissions are consumption of grid electricity and/or captive electricity.

Validation team confirmed that relevant GHG emission sources and parameters to be fixed ex ante in the applied methodology were addressed in the PDD. Also, validation team checked the calculation of emission reductions with reference. Validation team conducted the assessment for GHG emission sources with the step below by following JCM Guidelines for Validation and Verification (Ref.13).

- Document review was conducted using the checklist based on the "JCM Guidelines for Validation and Verification (Ref.13)". CAR was raised and informed to PPs.
- Follow-up interviews and on-site assessment were conducted on 9-10 Mar.2015.
- Remaining issues including the response of CAR were checked with reference.

The description of the PDD including Monitoring spreadsheet was checked during document review and on-site assessment to confirm the emission sources and calculation of emission reductions.

The emission sources were confirmed by checking "Specification of equipment (Ref.3-1-1～3, 3-2-1～3)" and "Connection agreement (Ref.3-1-4, 3-2-4)", interviews with PPs and local engineering company, and on-site inspection for checking grid connection and captive electricity generation.

Validation team confirmed that the value of "Reference CO2 emission factor of grid and captive electricity" (0.533 tCO2/MWh) in the applied methodology was used in the PDD.

Also, the values of generated electrical power by solar PV systems were confirmed by checking "Records of measured data of power meter (Revenue meter) (Ref.11-1-2, 11-2-2)"and "Reference regarding estimated solar PV output (estimation is submitted by ISLAND ENGINEERING AND DESIGN (Ref.11-1-1, 11-2-1))". CAR3 was raised for checking the estimated value of emission reductions.

In addition, validation team checks the emission source that is not addressed by the applied methodology. Inverter for solar PV system consumes AC grid power when solar power is not available. Validation team confirms one inverter consumes 0.15W for night time only (totally, 24 inverters for subproject1 and 15 inverters for subproject2). It was confirmed that the emission source that would be affected by the implementation of the proposed JCM project was

not significant.

<Findings>

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

The following CAR3 was raised to check the emission reductions of the PDD.

CAR3:

The value of "Estimated Emission Reductions" in 2014 was different from the references (estimated value (Ref.11-1-1, 11-2-1) and measured data (Ref.11-1-2, 11-2-2)). It assumes that values were counted until Mar. 2015. Please re-calculate the value.

⇒Summary of Response and Validation team Conclusion：

The value of "Estimated Emission Reductions" in 2014 was corrected by PP. Validation team confirmed that the value was consistent with the value of "Records of measured data of power meter (Revenue meter) (Ref.11-1-2, 11-2-2)". CAR3 was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Validation team confirmed that:

-All relevant GHG emission sources covered in the approved methodology were 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 were appropriate;

- The Monitoring Spreadsheet was not altered and its required fields were appropriately filled in;

-The emission sources and GHG types were confirmed through the on-site assessment and document review;

- Significant emission sources which were not addressed by the applied approved methodology and would be affected by implementation of the proposed JCM project were not identified;

-The approved methodology was applied correctly to calculate project emissions and reference emissions.

C.5. Environmental impact assessment

<Means of validation>

CL3 was raised to check the necessity of the legal requirement of Environmental Impact Assessment (EIA) for the proposed JCM project.

Validation team finds that there are Palau’s laws and regulations which require the permits of

Environmental Consideration issued by Environmental Quality Protection Board (EQPB). Validation team checked the “Guide to Environmental Impact Assessment, issued by Republic of Palau EQPB (Ref.4)". In addition, validation team had the interview with executive officer of EQPB in Palau to confirm the requirements of EIA. In the interview, it was confirmed that EIA was not necessary for the proposed JCM project by following “Guide to Environmental Impact Assessment (Ref.4)”.

<Findings>

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

The following CL3 was raised to check the requirement of EIA.

CL3:

It is necessary to confirm that the there is no legal requirement of EIA for the proposed JCM project.

Also, validation team will confirm that the proposed JCM project does not need to apply for the following requirement.

-Palau’s laws and regulations require the permits of Environmental Consideration issued by EQPB.

⇒Summary of Response and Validation team Conclusion：

Validation team confirmed that the proposed JCM project (subproject 1 and 2) had no requirement of EIA. It was confirmed by the interview with EQPB and checking the “Guide to Environmental Impact Assessment (Ref.4) " which was published by EQPB. CL3 was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Validation team confirmed that the proposed JCM project did not need EIA against the legal requirement of Republic of Palau.

C.6. Local stakeholder consultation

<Means of validation>

The PPs conducted a stakeholder consultation meeting of this project activity to collect opinions from local stakeholders on 28 - 29 October 2014. The PPs identified the relevant stakeholders, a member of renewable energy manager of Palau Public Utilities Company (PPUC) and a member of official of Palau energy office as local stakeholders for the project activity. On-site assessment was conducted on 9-10 March 2015, however it could not be obtained the appointment to meet the person of PPUC and official of Palau energy office.

CL 4 was raised to check the process of local stakeholders consultation and comments from

local stakeholders. As a result of raising CL4, validation team checked “Minutes of meeting of Local stakeholder consultation (Ref.5)”. Also, the steps taken for the local stakeholder consultation was checked by interviews with PPs.

<Findings>

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

The following CL4 was raised to check the process of local stakeholders consultation and comments from local stakeholders.

CL4:

How were the stakeholders selected for local stakeholders consultation? In addition, how were the interviewees selected? Also, please provide the minutes of local stakeholders consultation.

⇒Summary of Response and Validation team Conclusion：

The proposed JCM project is to install solar PV systems and generating electricity. PPs decided to have local stakeholders consultation with relating government offices. The stakeholder consultation meeting was informed to both offices by direct contact to invite the person for local stakeholders consultation.

Pacific Consultants Co., Ltd. (PCKK) provided the copy of "Minutes of meeting (Ref.5)" to JMA. The comments from the minutes of meeting were checked and validation team found that there was no negative comment received from the local stakeholders. CL4 was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Validation team confirmed that the PPs invited comments to the proposed JCM project from the relevant local stakeholders, and the summary of the comments received was provided in the PDD appropriately.

C.7. Monitoring

<Means of validation>

The description of the PDD including the Monitoring Plan was checked as follows during document review and on-site assessment to confirm the Monitoring. The Monitoring Plan is consist of the Monitoring Plan Sheet and Monitoring Structure Sheet. The description of Monitoring Plan Sheet was checked with the approved methodology. Monitoring points for measurement were confirmed by on-site inspection and checking “Specification of equipment (Ref.3-1-1～3, 3-2-1～3)”. Validation team confirmed that the actual monitoring points were consistent with the description in the PDD. However, the description of chapter (h) in the table 1 of Monitoring Plan Sheet was not described the project information. CAR1 and CL5 were

raised to check the measurement methods and procedures for monitoring point (1).
Monitoring structure was confirmed by interviews with the following people described in the Monitoring Structure sheet.
-Subproject 1: Maintenance Manager, Technical Support
-Subproject 2: Project manager, Chief Electrician
Also, the consistency of the description between Monitoring structure and "Monitoring manual prepared by PCKK (Ref.12)" was checked.
CL8 was raised to check the description of monitoring structure.

<Findings>
Please state if CARs, CLs, or FARs are raised, and how they are resolved.
The following CAR1 and CL5, 8 were raised to check the Monitoring Plan.

CAR1:
In chapter (h) of table 1 of Monitoring Plan Sheet (Input sheet), there is no explanation of applied standard and the calibration method. Also, the information of accuracy level of electricity meter and QA/QC procedure is not described.
Please refer to Para.29-32 of JCM_PW_GL_PDD_MR_ver01.0.
In para.30, it is described that "The project participants confirm whether national laws and regulations on measurement exist for parameters under Option C."
Please inform the result of checking above para.30 regarding the measuring of Monitoring point (1).

⇒Summary of Response and Validation team Conclusion：
The proposed JCM project has one monitoring point for each subproject. The total quantity of the electricity generated in the project is measured by electricity meter.
There is no national law or regulation for the measurement of electrical power in the proposed JCM project. It was confirmed by interviews with PPs and local engineering company. According to "Installation manual of output power meter (Ref.3-7)", it is described as follows regarding maintenance.
"The Green Class kWh/Demand meter is shipped in a calibrated, tested and fully functional condition.
- No field adjustments are required.
- No preventative or scheduled maintenance is required.
- No cleaning or decontamination procedures are required for this instrument."
Regarding the calibration frequency, there is no description in the manufacturer's specification and manual because adjustments and maintenance are not required.

The manufacturer of meter provides five years warranty in accordance with (Ref.3-7). PPs decided the calibration frequency by the warranty period of the meter. JMA confirms that there is no regulation for the calibration frequency in Palau. Also, the meter itself is not required maintenance and adjustments. JMA confirmed that calibration method was decided appropriately based on the manufacturer's specification.
The accuracy described in the Monitoring Plan Sheet was confirmed by "Specification of output power meter (Ref.3-1-2, 3-2-2). Also, QA/QC procedure was confirmed by checking monitoring structure. JMA confirmed that Monitoring Plan Sheet was revised appropriately. CAR1 was closed.

CL5:
It is necessary to confirm that the power meter for monitoring point (1) is appropriate to the description of chapter (h) of table 1 of Monitoring Plan Sheet (Input sheet).

⇒Summary of Response and Validation team Conclusion：
JMA confirmed that the description of chapter (h) of table 1 of Monitoring Plan Sheet (Input sheet) was revised appropriately. Specification and warranty period of the power meter were confirmed by (Ref.3-1-2, 3-2-2) and (Ref.3-7). JMA confirmed that the power meter for monitoring point (1) was appropriate to the description of chapter (h) of table 1 of Monitoring Plan Sheet (Input sheet). CL5 was closed.

CL8:
The following role is described for Technical support or Chief electrician 2 in the Monitoring Structure Sheet.
"Also tasked to monitor the performance of the solar PV system through the monitoring system."
What will be monitored to check the performance?

⇒Summary of Response and Validation team Conclusion：
PPs have explained that information such as irradiance and inverter output is monitored to check the performance of solar PV system operation. However, this information is not related to the monitoring item for the proposed JCM project directly. Validation team confirmed that monitoring structure sheet was revised to describe the monitoring point for the proposed JCM project. CL8 was closed.

<Conclusion based on reporting requirements>
Please state conclusion based on reporting requirements.

Validation team confirmed that the Monitoring Plan was described in compliance with the approved methodology and “JCM Guidelines for developing PDD and MR (Ref.14)”.
PPs have demonstrated the ability to implement the described monitoring plan including feasibility of monitoring structure.

C.8. Modalities of Communication

<Means of validation>

Modalities of communications (MoC) was developed using the form of "JCM_PW_F_MoC_ver01.0". Validation team confirmed that the latest form was used for MoC.
MoC was submitted by Pacific Consultants Co., Ltd. (PCKK). However, CAR2 was raised because MoC was not completed. As the result of CAR2 raised, MoC was revised. Validation team assessed the corporate identity of all project participants and a focal point, as well as the personal identities including specimen signatures and employment status of the authorised signatories through reviewing the “Written confirmation from the PP (Ref.8-2)”.
Validation team ensured that the MoC (Ref.8-1) was received from PCKK with whom JMA has a contractual relationship. Also, “Written confirmation from the PP (Ref.8-2)” was issued by Mr. Hiromu Matsui who is primary authorised by PCKK in the MoC (Ref.8-1).

Validation team confirmed the corporate information of PPs by interviews with all PPs. Validation team confirms that all corporate and personal details including specimen signatures are valid and accurate as requested in the “JCM Guidelines for Validation and Verification (Ref.13)”.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.
The following CAR2 was raised to indicate the insufficiency of description in the MoC.

CAR2:
The column of specimen signature for "Alternate authorised signatory" in the MoC is blank . Totally, four signatures of "Alternate authorised signatory" are not written in the MoC.

⇒Summary of Response and Validation team Conclusion：
Validation team confirmed that the signatures for "Alternate authorised signatory" were added to the MoC. CAR2 was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.
Validation team confirmed that the MoC (Ref.8-1) was completed using the latest form. Also, validation team confirms the MoC (Ref.8-1) has been completed correctly in compliance with the requirements of the "JCM Guidelines (Ref.13, 15)".

C.9. Avoidance of double registration

<Means of validation>

"Written confirmation from the PP (Ref.8-2)" indicates that the proposed JCM project is not registered under other international climate mitigation mechanisms. In addition, the following websites of CDM, JI and VCS were checked whether the projects with similar technology and location had been registered.

1) Website of UNFCCC (Project Search for CDM, JI Projects)
2) Website of IGES (IGES CDM Project Database, IGES JI Project Database)
3) Website of Verified Carbon Standard

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.
No CAR, CL, or FAR is raised for this section.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.
Validation team confirmed that the proposed JCM project was not registered under other international climate mitigation mechanisms.

C.10. Start of operation

<Means of validation>

The "Start of operation date" of the proposed JCM project is indicated in the PDD as 23 October 2014 for subproject 1 and 4 December 2014 for subproject 2.
The description of the PDD was checked by the following references during document review and on-site assessment to confirm the "Start of operation date".

・Document of Commissioning completion of Solar PV Power Plant (Ref.3-1-5, 3-2-5)
・Records of measured data of power meter (Revenue meter) (Ref.11-1-2, 11-2-2)

After the completion of commissioning, the solar PV system was started operation. The finishing date of commissioning was checked with (Ref.3-1-5, 3-2-5). In addition, the records of measured data of power meter (Ref.11-1-2, 11-2-2) were checked for "Start of operation date".

<Findings>

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

No CAR, CL, or FAR is raised for this section.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Validation team confirmed that the "Start of operation date" of the proposed JCM project was 23 October 2014 for subproject 1, and 4 December 2014 for subproject 2 as described in the PDD. "Start of operation dates" for both subprojects are not before 13 January 2014. Hence, validation team confirms that the proposed JCM project satisfies the requirement of the “JCM Guidelines (Ref.13, 14, 15)”.

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.

Not applicable

<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

In line with the JCM Project Cycle Procedure (JCM_PW_PCP_ver01.0) (Ref.15), the PDD is to be made publicly available for 30 days to invite public comments. The PDD was made publicly available for the period of 04 Mar. 2015 to 02 Apr. 2015 on the following URL. https://www.jcm.go.jp/pw-jp/projects/4.

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

No comment was received during the period to receive public inputs.

Hence, no action was required to be taken by the PPs to satisfy the requirement of JCM Project Cycle Procedure (Ref.15).

E. List of interviewees and documents received

E.1. List of interviewees

Pacific Consultants Co., Ltd. (PCKK):
Mr.Shigezane Kidoura
Mr.Hirofumi Ishizaka
InterAct Inc.:
Mr.Kazuhito Yamada
Western Caroline Trading Company:
Mr.Clement Gbewonyo
Mr.Samuel Palingcod
Surangel and Sons Company:
Mr.Eric Ksau Whipps
Mr.Fernando V. Gamboa
Environmental Quality Protection Board(EQPB):
Ms.Roxanne Y. Blesam
Island Engineering and Design (local engineering company which installed solar PV systems):
Mr.Stephen Swords

E.2. List of documents received

Ref.1: Project Design Document for JCM project "Small scale solar power plants for commercial facilities in island states"
Ref.1-1: 1st Edition (3 Mar.2015) : PDD was submitted to the secretariat of JCM for public inputs.
Ref.1-2: 2nd Edition (17 Mar.2015) : PDD was revised by the result of document review and on-site assessment.
Ref.1-3: 3rd Edition (26 Mar.2015) : Monitoring plan sheet was revised by the result of document review and on-site assessment.
Ref.2: Approved Methodology "Displacement of Grid and Captive Genset Electricity by a Small-scale Solar PV System, Ver. 01.0 "

Reference for Subproject 1 (Western Caroline Trading Company)
Ref.3-1-1:Specification of solar PV system:

(Project documents: JCM model project 220.5kWp PV solar grid tied power plant
(Contractor: Island Engineering and Design, Meketii, Koror, Palau,
Commissioned: 23 October 2014, Submitted in Dec.2014))
Ref.3-1-2: Specification of output power meter of the solar PV system
(Green Class Meter specification, made by Energy Monitoring Products, Effective date:18/Nov./2013 (Contractor: Island Engineering and Design, Submitted in Dec.2014))
Ref.3-1-3: Specification of irradiance meter at the installed site of the solar PV system by Sunny Sensor Boxesand Sunny WebBoxes (Specification sheet from SMA America,LLC
(Contractor: Island Engineering and Design, Submitted in Dec.2014))
Ref.3-1-4: Reference regarding grid connection: Connection agreement (Palau Public Utilities Corporation Date:29 May 2014)
Ref.3-1-5: Reference of "Starting date of project operation" :
Commissioning of WCTC Ace Hardware Warehouse Solar PV Power Plant (Island Engineering and Design (:System is commissioned and operating as per design. Warranty is in effect as of October 23, 2014))
Ref.3-1-6: Organization structure of Western Caroline Trading Company, Mar.2015
Ref.11-1-1: Reference regarding estimated solar PV output:
Estimation is submitted by ISLAND ENGINEERING AND DESIGN (Date:14 Apr.2014)
Ref.11-1-2: Records of measured data of power meter(Revenue meter) (From Oct. 2014):
WCTC ACE HARDWARE SOLAR POWERPLANT MONTHLY KWH READING

Reference for Subproject 2 (Surangel and Sons Company)
Ref.3-2-1: Specification of solar PV system:
(Project documents: JCM model project 150.0kWp PV solar grid tied power plant
(Contractor: Island Engineering and Design, Meketii, Koror, Palau,
Commissioned: 4 December 2014, Submitted in Dec.2014))
Ref.3-2-2: Specification of output power meter of the solar PV system
(Green Class Meter specification, made by Energy Monitoring Products, Effective date:18/Nov./2013 (Contractor: Island Engineering and Design, Submitted in Dec.2014))
Ref.3-2-3: Specification of irradiance meter at the installed site of the solar PV system by Sunny Sensor Boxes and Sunny WebBoxes (Specification sheet from SMA America,LLC
(Contractor: Island Engineering and Design, Submitted in Dec.2014))
Ref.3-2-4: Reference regarding grid connection:
Connection agreement (Palau Public Utilities Corporation Date:29 May 2014)
Ref.3-2-5: Reference of "Starting date of project operation" :
Commissioning of SAS Supercenter Solar PV Power Plant (ISLAND ENGINEERING AND DESIGN (:System is commissioned and operating as per design. Warranty is in effect as of

December 4, 2014))
Ref.11-2-1: Reference regarding estimated solar PV output:
Estimation is submitted by ISLAND ENGINEERING AND DESIGN (Date:15 Apr.2014)
Ref.11-2-2: Records of measured data of power meter(Revenue meter) (From Dec. 2014):
SURANGEL BLDG Solar Power Monthly Reading

Ref.3-3: Reference regarding Net-metering scheme in Palau:
The Senate EIGHTH OLBIIL ERA KELULAU (RPPL No.8-39)
Approved by Johnson Toribiong President Republic of Palau: 6 Jan.2012
Ref.3-4: Reference of "Expected operational lifetime of project": Warranty period of PV module (20years) and Inverter (10years) for this project is confirmed by the followings.
-Limited Warranty for Kyocera Photovoltaic Module(s) (KKM-SE-00001-07: 190713)
-SMA America LLC Factory Warranty (US SO 107-0080-001 rev.06)
Ref.3-5: Financing programme for JCM model projects by the Ministry of the Environment, Japan
・Application for carbon dioxide emission control measures business subsidies 2013 fiscal year, Submitted to the Minister of the Environment, 30 April 2014
・Grant decisions for carbon dioxide emission control measures business subsidies(for private entity) 2014 fiscal year (Carryover from 2013 fiscal year), Issued by the Minister of the Environment, 1 May 2014）
Ref.3-6: Certificate for design qualifications (IEC 61215) and safety qualification (IEC 61730-1 and IEC 61730-2) (Date of issue: 2 June 2014, Japan Electrical Safety & Environment Technology Laboratories)
Ref.3-7: Green Class Meter (Output power meter of the solar PV system) Installation Manual
Ref.4: Guide to Environmental Impact Assessment (Republic of Palau Environmental Quality Protection Board : Latest revision-August 2000)
Ref.5: Minutes of meeting of Local stakeholder consultation (28-29. Oct.2014)
Ref.6: Supporting materials of PDD for public inputs (Small solar power plants for commercial facilities in island states (submitted by PCKK))
Ref.8-1: JCM Modalities of Communications Statement Form
Ref.8-2: Written confirmation from PCKK (Declaration from Mr.Hiromu MATSUI, PCKK on 20 Mar.2015)

Ref.12: Monitoring Manual (Prepared by Pacific Consultants Co., Ltd., Revised on 16.March 2015)
Ref.13: Joint Crediting Mechanism Guidelines for Validation and Verification (JCM_PW_GL_VV_ver01.0)

Ref.14: Joint Crediting Mechanism Guidelines for Developing Project Design Document and Monitoring Report (JCM_PW_GL_PDD_MR_ver01.0)

Ref.15: Joint Crediting Mechanism Project Cycle Procedure (JCM_PW_PCP_ver02.0)

Ref.16: Joint Crediting Mechanism Glossary of Terms (JCM_PW_Glossary_ver01.0)

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.

Certificate of validation team and technical review team is attached to this report.

Certificate of Competence
for Validation/Verification team

GHG Certification Center
Japan Management Association

Scheme:

The Joint Crediting Mechanism (JCM)

Project Title:

Small scale solar power plants for commercial facilities in island states

Validation or Verification:

Validation

Name	Qualification*1	Leader/Member/ Technical expert/ Technical Reviewer(TR)	Qualification of Technical area (Renewables)*2	JCM scheme competence
Mr. Kenji Suzuki	Lead Validator/ Verifier	Leader	☑	☑
Mr.Masahiro Hirakawa	Lead Validator/ Verifier	Member	☐	☑
Competence of Validation Team	-	-	☑	☑

*1Qualification in accordance with "JMACC's Procedures for Contract and Evaluation of Validators/Verifiers and Technical Experts (GA-110)"

*2Competence Requirement in accordance with Competence for Technical area sheet (GA-110-08)

Date 6. Feb. 2015

Kenji Suzuki
Director of Validation & Verification Dept.
GHG Certification Center
Japan Management Association

Certificate of Competence for Technical Review team

GHG Certification Center
Japan Management Association

Scheme:
The Joint Crediting Mechanism (JCM)
Project Title:
Small scale solar power plants for commercial facilities in island states
Validation or Verification:
Validation

Name	Qualification*1	Leader/Member/ Technical expert/ Technical Reviewer(TR)	Qualification of Technical area (Renewables)*2	JCM scheme competence
Mr. Motoyuki Matsumoto	Lead Validator/ Verifier	Technical Reviewer	☑	☑
Dr.Masao Tomizawa	Technical expert	Technical Reviewer	☑	☑
Competence of Technical Review Team	-	-	☑	☑

*1 Qualification in accordance with "JMACC's Procedures for Contract and Evaluation of Validators/Verifiers and Technical Experts (GA-110)"
*2 Competence Requirement in accordance with Competence for Technical area sheet (GA-110-08)

Date 23. Mar. 2015

Kenji Suzuki
Director of Validation & Verification Dept.
GHG Certification Center
Japan Management Association