

### JCM Validation Report Form

#### A. Summary of validation

##### A.1. General Information

Title of the project	10MW Solar Power Project in Darkhan City
Reference number	MN004
Third-party entity (TPE)	Japan Management Association (JMA)
Project participant contracting the TPE	Sharp Corporation
Date of completion of this report	29 March 2017

##### A.2 Conclusion of validation


Overall validation opinion	<input checked="" type="checkbox"/> Positive <input type="checkbox"/> Negative
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##### 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.	<input checked="" type="checkbox"/>
Project description	The description of the proposed JCM project in the PDD is accurate, complete, and provides comprehension of the proposed JCM project.	<input checked="" type="checkbox"/>
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.	<input checked="" type="checkbox"/>
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.	<input checked="" type="checkbox"/>
	The values for project specific parameters to be fixed <i>ex ante</i> listed in the Monitoring Plan Sheet are appropriate, if applicable.	<input checked="" type="checkbox"/>
Environmental impact assessment	The project participants conducted an environmental impact assessment, if required by Mongolia, in line with Mongolia's procedures.	<input checked="" type="checkbox"/>
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.	<input checked="" type="checkbox"/>

Item	Validation requirements	No CAR or CL remaining
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.	<input checked="" type="checkbox"/>
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.	<input checked="" type="checkbox"/>
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.	<input checked="" type="checkbox"/>
	The MoC has been correctly completed and duly authorized.	<input checked="" type="checkbox"/>
Avoidance of double registration	The proposed JCM project is not registered under other international climate mitigation mechanisms.	<input checked="" type="checkbox"/>
Start of operation	The start of the operating date of the proposed JCM project does not predate January 1, 2013.	<input checked="" type="checkbox"/>

Authorised signatory:	Mr. <input checked="" type="checkbox"/> Ms. <input type="checkbox"/>
Last name: Yasui	First name: Ryouichi
Title: Senior Executive of GHG Certification Center, JMA	
Specimen signature:	Date: 29/03/2017
	

## B. Validation team and other experts

	Name	Company	Function*	Scheme competence*	Technical competence*	On-site visit
Mr. <input checked="" type="checkbox"/> Ms. <input type="checkbox"/>	Motoyuki Matsumoto	JMA	Team Leader	<input checked="" type="checkbox"/>	Technical competence qualified	<input checked="" type="checkbox"/>
Mr. <input checked="" type="checkbox"/> Ms. <input type="checkbox"/>	Kenji Suzuki	JMA	Team Member	<input checked="" type="checkbox"/>	Technical competence qualified	<input checked="" type="checkbox"/>
Mr. <input checked="" type="checkbox"/> Ms. <input type="checkbox"/>	Toshiaki Takeda	JMA	Internal Reviewer	<input checked="" type="checkbox"/>	Technical competence qualified	<input type="checkbox"/>
Mr. <input type="checkbox"/> Ms. <input type="checkbox"/>				<input type="checkbox"/>		<input type="checkbox"/>

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>

PDD (Ref.1) was checked using the "Joint Crediting Mechanism Guidelines for Developing Project Design Document and Monitoring Report (JCM\_MN\_GL\_PDD\_MR\_ver03.0) (Ref.14) ".

Review history of the PDD is as follows.

- PDD version 1: PDD was submitted to validation team on 8th Feb.2017.
- PDD version 2: PDD was revised on 28th Feb. 2017 based on the on-site inspection by validation team..
- PDD version 3: PDD was revised on 13th Mar. 2017 to resolve the remaining issues. PDD version 3 (Ref.1) is final version. The latest version of the PDD form (JCM\_MN\_F\_PDD\_ver03.0) was checked at the website of New Mechanisms Information Platform for Mongolia. Validation team confirmed that the latest version of the PDD form was used for all version of PDD (Ref.1). Also, validation team confirmed that form of Monitoring Spreadsheet (JCM\_MN\_AM003\_ver02.0) which was approved as a methodology (Ref.2) by Joint Committee was used for the proposed project.

**<Findings>**

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

No CAR, CL, or FAR were 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 and 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 10MW solar PV system in Darkhan City, Mongolia.

Validation team conducted the assessment with the step below by following "JCM Guidelines for Validation and Verification (JCM\_MN\_GL\_VV\_ver01.0) (Ref.13)".

- Document review was conducted using the checklist based on the "JCM Guidelines for Validation and Verification (Ref.13)". CL1 was raised and informed to project participants (PPs).
- Follow-up interviews and on-site assessment were conducted.
- Remaining issues including the response of CL1 was checked with reference.

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

A.1, 2:

The proposed project is to reduce CO2 emissions by introducing solar PV system. The electrical power generated by the solar PV system displaces the part of electrical power from the national grid. Validation team confirmed that explanation of how the proposed project reduces greenhouse gas emissions was described in the PDD.

Validation team checked the solar PV system described in the PDD with "Specification of solar PV system (Ref.3-1-1)". On-site assessment was conducted on 13-14th Feb.2017. Validation team confirmed that the type of solar PV module described in the PDD was installed at the project site. Also, the electricity generated by solar PV system was supplied to the Central Energy System of Mongolia which is a part of national grid. It was confirmed by the "Power Purchase Agreement (Ref.3-2)" and interviews with National Power Transmission Grid State-owned Joint Stock Company Central Region Branch (Grid Company).

A.3:

Location was confirmed by GPS through on-site assessment to proposed project site and interviews with PPs.

A.4:

PPs of both countries were confirmed by interviews, on-site assessment and checking the

“Modalities of communications (MoC) (Ref.8-1)” and “Organization structure of PP (Ref.3-7)”.

A.5:

“Expected operational lifetime of project (17 years)” was checked and confirmed by raising CL1.

“Starting date of project operation” was checked in the section C.10.

A.6:

Financial support by the Ministry of the Environment, Japan was confirmed by checking “Grant decisions for JCM project (Ref.3-5)”. Also, validation team confirmed through the interviews with PPs the know-how transfer in the various stages of project implementation described in the PDD.

#### <Findings>

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

The following CL1 was raised to check the project description of the PDD.

CL1:

It is necessary to confirm the “Expected operational lifetime of project (17 years)” described in the PDD. Please submit the reference of expected operational lifetime for proposed project.

⇒Summary of Response and Validation team Conclusion :

“Expected operational lifetime of project” was explained by PP.

-“Expected operational lifetime of project” was decided based on the legal durable years under the regulation of Japan (17 years).

-In addition, the followings are more than 17 years.

- Power Purchase Agreement is for 25 years. (Ref.3-2)

- Warranty period of PV panel degradation is 25years. (Ref.3-4)

Validation team confirmed the “Expected operational lifetime of project” was decided based on the Japanese legal durable years of solar PV systems. Also, validation team confirmed the period of the Power Purchase Agreement and Warranty of PV panel degradation were longer than that of Japanese legal durable years.

CL1 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, additional supporting documents were submitted.

Validation team confirmed that the description of the proposed project in the PDD was accurate and complete, and provided an understanding of the proposed project.

C.3. Application of approved methodology(ies)

**<Means of validation>**

Approved methodology “Installation of Solar PV System, Ver. 02.0 (JCM\_MN\_AM003\_ver02.0) (Ref.2)” was applied to the proposed project. The methodology was approved by the Joint Committee on 30th Jan. 2017, 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)”.

- Follow-up interviews and on-site assessment were conducted on 13-14th Feb.2017.

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

**Criterion 1:**

-Description specified in the methodology: “The project newly installs solar PV system(s).”

-Assessment for Criterion 1:

Specification of solar PV system described in the PDD was checked with “Specification of solar PV system (Ref.3-1-1)”. Also, installed solar PV system was checked by on-site inspection and interviews with PPs.

Validation team confirmed that solar PV system described in the PDD was consistent with the actual equipment installed at the project site, and the proposed project satisfied the eligibility criterion 1.

**Criterion 2:**

-Description specified in the methodology: “The PV modules obtained a certification of design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).”

-Assessment for Criterion 2:

Criterion 2 was checked with “Specification of solar PV system (Ref. 3-1-1)” and “Certificate for design qualifications (IEC 61215) and safety qualification (IEC 61730-1 and IEC 61730-2) (Ref.3-6)”. Validation team confirmed that solar PV module installed in this project obtained design qualifications (IEC 61215) and safety qualification (IEC 61730-1 and IEC 61730-2), and the proposed project satisfied the eligibility criterion 2.

**Criterion 3:**

-Description specified in the methodology: “The equipment used to monitor output power of the

solar PV system(s) and irradiance is installed at the project site.”

-Assessment for Criterion 3:

The equipment to monitor the output power of solar PV system and the irradiance was checked through on-site assessment. Electrical power meter of solar PV system was checked by on-site inspection and “Specification of electrical power meter (Ref.3-1-2)”. Also, pyranometer was checked by on-site inspection and “Specification of pyranometer (Ref.3-1-3)”.

Validation team confirmed that the equipment to monitor output power of the solar PV system and irradiance was installed at the proposed project site, and the proposed project satisfied the eligibility criterion 3.

**<Findings>**

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

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

**<Conclusion based on reporting requirements>**

*Please state conclusion based on reporting requirements.*

Validation team assessed the application of approved methodology of the proposed project with the supporting documents and on-site visit. Validation team confirmed the proposed project was in compliance with the eligibility criteria listed in the applied methodology.

Validation team confirmed that the proposed project was eligible for applying selected methodology “Installation of Solar PV System, Ver. 02.0 (Ref.2)”, and that the applied methodology was valid at the time of submission of the proposed 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 national grid in Mongolia 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.

Validation team confirmed that relevant GHG emission sources, GHG types 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 regarding the estimated solar PV output (Ref.9). Validation team conducted the assessment for GHG emission sources and GHG types 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)”.
- Follow-up interviews and on-site assessment were conducted on 13-14th Feb.2017.
- Remaining issues including the response of CAR1 was checked with reference.

The description of the PDD including Monitoring spreadsheet was checked through 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 solar PV system (Ref.3-1-1)”, interviews with PPs, and on-site inspection.

Solar PV system was connected to the national grid (the Central Grid). It was confirmed by “Power Purchase agreement (Ref.3-2)”, interviews with Grid Company and on-site inspection. Also, validation team confirmed that there was no captive power generator in internal grid through on-site inspection. Validation team confirmed that the value of “Reference CO2 emission factor based on the national grid (CES) ” (0.797 tCO2/MWh) in the applied methodology was used in the PDD appropriately.

The estimated quantity of electricity generated by the proposed project was checked by validation team. The estimated quantity of electricity generated by solar PV system was calculated with “Reference regarding estimated solar PV output (Ref 9)”. CAR1 was raised because the estimated quantity described in the Monitoring spreadsheet was inconsistent with the quantity calculated in “Reference regarding estimated solar PV output (Ref 9)”..

In addition, validation team checked the emission source that was not addressed by the applied methodology. Inverter for solar PV system consumes AC grid power when solar power is not available. Validation team confirms inverters consume 1.6 kW when solar power is not available. In addition, electricity of the monitoring room is consumed at night time. Validation team confirmed that there was no significant emission source that would be affected by implementation of the proposed project but not addressed by the applied methodology.

Validation team confirmed that project emissions, reference emissions and emission reductions for the proposed project were calculated properly.

#### <Findings>

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

The following CAR1 was raised to check the emission reductions of the PDD.

CAR1:

The estimated quantity of the electricity generated by the proposed project described in the Monitoring spreadsheet is inconsistent with the quantity calculated in “Reference regarding estimated solar PV output (Ref 9)”.

⇒Summary of response and validation team conclusion

PP corrected the estimated quantity of electricity described in the Monitoring spreadsheet.

Validation team confirmed that the estimated quantity of electricity was revised using the value of “Reference regarding estimated solar PV output (Ref 9)” appropriately.

CAR1 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 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 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>**

PDD stated that an Environmental Impact Assessment (EIA) was required by Mongolian laws and regulations. EIA Report (Ref.4) was submitted to Ministry of Environmental, Mongolia and it was evaluated in line with Mongolian procedure. Validation team checked the evaluation result of EIA Report (Ref.4), and it was confirmed that there were no negative comments and specific mitigation measures regarding the proposed project.

##### **<Findings>**

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

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

##### **<Conclusion based on reporting requirements>**

*Please state conclusion based on reporting requirements.*

Validation team confirmed that the PP conducted EIA in line with procedure as required by Mongolia.

#### C.6. Local stakeholder consultation

##### **<Means of validation>**

PPs conducted a stakeholder consultation meeting of this project activity to solicit comments from local stakeholders on 12th December 2016.

The place of project activity is in the Darkhan City in Mongolia. The green field was prepared for installing equipment of solar PV system. PPs identified the relevant government agencies and utility company as local stakeholders for the project activity. The stakeholder consultation

meeting was informed to relative stakeholders by sending invitation letter via e-mail and telephone to invite to the meeting. Validation team checked “Local stakeholder consultation Meeting memo (Ref.5)”. Comments at the local stakeholder consultation meeting were all supportive and no negative comment received.

Also, on-site assessment was conducted on 13-14th February 2017. As one of the on-site assessment processes, validation team interviewed the people of National Dispatching Center and National Power Transmission Grid Central Region Branch. Validation team confirmed the comment was supportive.

**<Findings>**

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

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

**<Conclusion based on reporting requirements>**

*Please state conclusion based on reporting requirements.*

Validation team confirmed that the PPs invited comments to the proposed project from the relevant local stakeholders, and the summary of the comments received was described in the PDD appropriately. Also, validation team confirmed that the local stakeholder consultation of the proposed project was adequate.

C.7. Monitoring

**<Means of validation>**

The description of the PDD including monitoring plan was checked as follows through document review and on-site assessment to confirm the Monitoring. Monitoring plan consists of the Monitoring Plan Sheet and Monitoring Structure Sheet.

The description of Monitoring Plan Sheet was checked with the approved methodology. Monitoring point for measurement was checked by on-site inspection and “Specification of electrical power meter for monitoring point No.1 (Ref.3-1-2)”.

Total quantity of the electrical power generated by the proposed project is measured by electrical power meter. The description regarding the electrical power meter of table 1 in Monitoring Plan Sheet (Input sheet) was checked by raising CAR2. Also, the description of table 2 in Monitoring Plan Sheet was checked by raising CAR3.

The electrical power meter was installed according to “Power Purchase Agreement (Ref.3-2)” signed between National Power Transmission Grid State-owned Joint Stock Company (Grid Company) and PP. The electrical power meter was selected in accordance with the requirement of Grid Company and National Dispatching Center limited liability company (NDC). (NDC is a public corporation established to manage and operate the electrical power system of Mongolia.) According to the requirement of NDC, same type of electrical power meter was installed both at solar power system (which is monitoring point No.1) and at substation to connect to national

grid.

Monitoring structure was confirmed by interviews with the operator described in the Monitoring Structure sheet. Validation team confirmed the role and responsibility for monitoring were assigned to the personnel in accordance with the Monitoring Structure sheet. Also, measuring record was checked with “Energy Reports output from SCADA (Ref.10)”, “Daily report of electricity generation (Ref.3-3-2)” and “Monthly spread sheet of electricity generation (Ref.3-3-3)”. Electrical power generated by solar PV system is recorded by “Energy Reports (Ref.10)” automatically via SCADA system. Also, it is recorded using “Daily report (Ref.3-3-2)” and “Monthly spread sheet (Ref.3-3-3)” by operator manually. The result of manual recording is used when the data by SCADA is not available. Monitoring plan was revised to add the description of an alternative monitoring method required when the SCADA data is not available .

Validation team confirmed that PPs have the ability to implement the monitoring plan described in the Monitoring Plan Sheet and Monitoring Structure Sheet.

**<Findings>**

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

The following CAR2 and CAR3 were raised to check the Monitoring Plan.

CAR2 :

In the monitoring plan, it is described that the electricity meter is certified according to IEC62053-22. During on-site assessment, validation team confirmed that the electricity meter has certified from Mongolian Agency for Standardization and Metrology Government Regulatory Agency. Also, this certification is required from the “Power Purchase Agreement (Ref.3-2)”. Description of the PDD needs to be corrected.

⇒Summary of Response and Validation team Conclusion :

Validation team checked “Power Purchase Agreement (Ref.3-2)” and “Certification of test report of Electricity meter (Ref. 6)”. It was confirmed that electrical power meter was installed according to “Power Purchase Agreement (Ref.3-2)”, and the electrical power meter was certified for the assurance of electrical power measurement by Mongolian Agency. Validation team confirms that this certification is valid for 8 years which is until 27th Feb. 2022.

Validation team confirmed that the description of table 1 in Monitoring Plan Sheet was revised appropriately.

CAR2 was closed.

CAR3 :

Regarding the item (e) of table 2 in Monitoring Plan Sheet, the description is the same as that of methodology. It is necessary to describe the source of data for the proposed project.

⇒Summary of Response and Validation team Conclusion :

PP revised the description of table 2 in Monitoring Plan Sheet. Validation team confirmed it by checking “Power Purchase Agreement (Ref.3-2)” and interviews with Grid Company.

CAR3 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)”.

Also, 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\_MN\_F\_MoC\_ver02.0”. Validation team confirmed that the latest form was used for MoC.

MoC was submitted by Sharp Corporation (Sharp). Validation team ensured that the “MoC (Ref.8-1)” was received from Sharp with whom JMA has a contractual relationship. 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 Sharp (Ref.8-2)” and interviews with all PPs. Validation team confirmed that “Written confirmation (Ref.8-2)” was issued by Mr. Tatsuya Sato who is primary authorised by Sharp in the “MoC (Ref.8-1)”. “Written confirmation (Ref.8-2)” indicates that all corporate and personal details of MoC of the proposed project, including specimen signatures, are valid and accurate.

**<Findings>**

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

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

**<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 confirmed that all corporate and personal details including specimen signatures were valid and accurate as requested in the “JCM Guidelines for Validation and Verification (Ref.13)”.

Validation team confirmed the “MoC (Ref.8-1)” had 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 (Ref.8-2)” indicates that the proposed project is not registered under other international climate mitigation mechanisms. Also, “Written confirmation (Ref.8-2)” was issued by Mr. Tatsuya Sato who is primary authorised by Sharp Corporation in the “MoC (Ref.8-1)”. 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)
- 3) Website of Verified Carbon Standard

Validation team confirmed that there was no registered project with similar technology and location.

**<Findings>**

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

No CAR, CL, or FAR were 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>**

“Start of operation date” described in the PDD was checked through on-site assessment which was conducted on 13-14th Feb.2017. Validation team confirmed that the proposed project had already started power generation during on-site inspection. Also, validation team had the interviews with operator engineers of solar PV systems to confirm the “Start of operation date”. Validation team checked “The reference regarding to use of new energy facility (Ref.3-3-1))” which permits the power generation from 1st of Jan. 2017. In addition, validation team confirmed the “Document to confirm the amount of power sent to the national grid in January 2017 (Ref.11)”.

Validation team confirmed that the "Start of operation date" is 1st of Jan. 2017 by checking “Daily report of electricity generation (Ref.3-3-2))” through on-site assessment.

**<Findings>**

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

No CAR, CL, or FAR were 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 project was on 1st

of January 2017 as described in the PDD. “Start of operation date” is not before 1st January 2013. Hence, validation team confirmed that the proposed project satisfied the requirement of the “JCM Guidelines (Ref.13, 14, 15,16)”.

#### 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 “Joint Crediting Mechanism Project Cycle Procedure (JCM\_MN\_PCP\_ver04.0) (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 9th Feb. 2017 to 10th Mar.2017 on the following URL.

<https://www.jcm.go.jp/mn-jp/projects/22>

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

One public input was received below during the above period.

Name: M.Natsagbadam

Organization: Low Carbon Technology Center

E-mail address: natsagbadam@lowcarbon.mn

Country: Mongolia

Receipt date: 10th Mar 2017

Comment;

There are some points in the Monitoring plan, could describe more clearly, even the Project implementation has been adjusted with the Mongolia’s electricity supplying requirements of the

produced electricity, to the Central Energy System:

1; QA&QC requirements or country specific regulations and national standard for the electricity meter used in this kind operation, besides the International standard,

2; In the Monitoring Plan Sheet, the “Monitoring option C” has described as the monitoring option, but in the Monitoring Report Sheet, the Monitoring option is different, such as “Monitoring option B/C” why?

⇒Summary of Response and Validation team Conclusion :

Validation team checked there is no doubt of the authenticity and relevance information in this comment. PPs took account the public comment below.

1: "Measurement methods and procedures" section in the monitoring spreadsheet has been revised to clearly indicate that the electricity meter used in the project adheres to the national regulation of Mongolia.

2: Only the Monitoring Plan Sheet is to be filled out in the validation stage. Monitoring Report Sheet will be updated at the time of verification.

Validation team confirmed that the description regarding the electricity meter in the Monitoring Plan was revised through the validation, and that revised Monitoring Plan was in line with the regulation of Mongolia. Also, the description of Monitoring option in the Monitoring Report Sheet will be revised at the time of verification in line with the JCM Project Cycle Procedure (Ref.15). Hence, validation team confirmed that PPs took account the comment adequately.

## E. List of interviewees and documents received

### E.1. List of interviewees

National Dispatching Center limited liability company:

Mr. Burentogtokh Sereenendorj

National Dispatching Center limited liability company:

Ms. Chimed Enhjargol

National Power Transmission Grid State-owned Joint Stock Company Central Region Branch:

Mr. Jamiyan Munkhjargal

National Power Transmission Grid State-owned Joint Stock Company Central Region Branch:

Mr. Chuluun Baatar

Solar Power International limited liability company:

Mr. Baldan Mandalbayar

Solar Power International limited liability company:

Mr. I.Galkhuu

Solar Power International limited liability company:

Mr. D.Bat-Ulzii

Solar Power International limited liability company:

Mr. Sh.Batbold

Sharp Corporation:

Ms. Shoko Fukahori

Sharp Corporation:

Mr. Junichi Hara

Sharp Corporation:

Mr. Kazuki Murasawa

Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.:

Ms. Kikuko Shinchi

## E.2. List of documents received

Ref.1: Project Design Document for JCM project

- 1st Edition (8/2/2017) : PDD was submitted to the secretariat of JCM for public inputs.
- 2nd Edition (28/2/2017) : PDD was revised by the result of document review and on-site assessment.
- 3rd Edition (13/3/2017) : PDD was revised to resolve the remaining issues.

Ref.2: Approved Methodology "Installation of Solar PV System, Ver. 02.0 "

Ref.3-1-1: Specification of solar PV system

- 1) Specification of solar PV module (25/9/2015, SHARP CORPORATION)
- 2) SCADA System Diagram (2016, SHARP CORPORATION)
- 3) Single line diagram (2016, SHARP CORPORATION)
- 4) Specification of power conditioner (SUNNY CENTRAL SMA Solar Technology)
- 5) Layout Drawing (2016, SHARP CORPORATION)

Ref.3-1-2: Specification of electrical power meter for monitoring point No.1 :

A1800 ALPHA® meter style numbers (elster ([www.elster.com](http://www.elster.com)))

Ref.3-1-3: Specification of pyranometer at the installed site of the solar PV system (CAMPBELL SCIENTIFIC)

Ref.3-2: Power Purchase Agreement (2015, NATIONAL POWER TRANSMISSION GRID



STATE-OWNED JOINT STOCK COMPANY and SOLAR POWER INTERNATIONAL LLC)

Ref.3-3: Reference of "Starting date of project operation":

1) The reference regarding to use of new energy facility (Prepared by Darkhan-Uul province, 28/12/2016)

2) Daily report of electricity generation from 1/1/2017

Operation note (1/1/2017 SOLAR POWER INTERNATIONAL LLC)

3) Monthly spread sheet of electricity generation in January, confirmed between SOLAR POWER INTERNATIONAL LLC and National Dispatching Center limited liability company)

Ref.3-4: Reference of "Expected operational lifetime of project":

PV MODULE PURCHASE AND SUPPLY AGREEMENT BETWEEN SOLAR POWER INTERNATIONAL LLC. AND SHARP SOLAR SOLUTION ASIA CO., LTD.

(Warranty period of PV panel degradation (25years))

Ref.3-5: Financing programme for JCM model projects by the Ministry of the Environment, Japan (29/2/2016)

Ref.3-6: Certificate for design qualifications (IEC 61215) and safety qualification (IEC 61730-1 and IEC 61730-2) Date of issue:28/10/2015

Ref.3-7 : Organization structure of SOLAR POWER INTERNATIONAL LLC

Ref.4: Environmental impact assessment including the permission of Ministry of Environment, Mongolia

Environmental impact assessment (2015, SOLAR POWER INTERNATIONAL LLC)

Ref.5: Local stakeholder consultation Meeting memo (12/12/2016)

Ref.6: Certification of test report of Electricity meter (27/2/2014, Mongolian Agency for Standardization and Metrology Government Regulatory Agency)

Ref.8-1: JCM Modalities of Communications Statement Form (Submitted on 3/2/2017)

Ref.8-2: Written confirmation (Declaration from Mr.Tatsuya Sato on 24/2/201)

Ref.9: Reference regarding estimated solar PV output:

Result of the estimated output power from the 10,004.94 kW Solar PV system (7/10/2015, SHARP CORPORATION)

Ref.10: Energy Reports (ENERGY REPORTS-DAILY REPORT output from SCADA 14/2/2017)

Ref.11: Document to confirm the amount of power sent to the national grid in January 2017

Calculation Sheet of January 2017 (1/2/2017 confirmed between SOLAR POWER INTERNATIONAL LLC and NATIONAL POWER TRANSMISSION STATE-OWNED JOINT STOCK COMPANY)

Ref.13: Joint Crediting Mechanism Guidelines for Validation and Verification (JCM\_MN\_GL\_VV\_ver01.0)

Ref.14: Joint Crediting Mechanism Guidelines for Developing Project Design Document and

Monitoring Report (JCM\_MN\_GL\_PDD\_MR\_ver03.0)

Ref.15: Joint Crediting Mechanism Project Cycle Procedure (JCM\_MN\_PCP\_ver04.0)

Ref.16: Joint Crediting Mechanism Glossary of Terms (JCM\_MN\_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 Competence  
for Validation/Verification team**

GHG Certification Center  
Japan Management Association



Scheme:

**The Joint Crediting Mechanism (JCM)**

Project Title:

10MW Solar Power Project in Darkhan City

Validation or Verification:


**Validation**

Name	Qualification <sup>*1</sup>	Leader/Member/ Technical expert/ Technical Reviewer(TR)	Qualification of Technical area (Renewables) <sup>*2</sup>	JCM scheme competence
Mr. Motoyuki Matsumoto	Lead Validator/ Verifier	Leader	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Mr. Kenji Suzuki	Lead Validator/ Verifier	Member	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Competence of Validation Team</b>	-	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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

<sup>\*2</sup>Competence Requirement in accordance with Competence for Technical area sheet (GA-110-08)

Date 16. Jan. 2017

  
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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:

**10MW Solar Power Project in Darkhan City**

Validation or Verification:

**Validation**

Name	Qualification <sup>*1</sup>	Leader/Member/ Technical expert/ Technical Reviewer(TR)	Qualification of Technical area (Renewables) <sup>*2</sup>	JCM scheme competence
Mr. Toshiaki Takeda	Lead Validator/ Verifier	Technical Reviewer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Competence of Technical Review Team</b>	-	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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

<sup>\*2</sup>Competence Requirement in accordance with Competence for Technical area sheet (GA-110-08)

Date *20. Feb. 2017.*



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