JCM Validation Report Form

A. Summary of validation

A.1. General Information

Title of the project	Introduction of 11MW Solar Power Project in Savannakhet Province
Reference number	LA 003
Third-party entity (TPE)	Japan Quality Assurance Organization (JQA) (TPE-LA-002)
Project participant contracting the TPE	Sharp Energy Solutions Corporation (SESJ)
Date of completion of this report	18/03/2022

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 Lao People's Democratic Republic, in line with Laos's procedures.	☒
Local stakeholder	The project participants have completed a local stakeholder consultation process and that due steps were taken to engage	☒

Item	Validation requirements	No CAR or CL remaining
consultation	stakeholders and solicit comments for the proposed 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 1, 2013.	☒

Authorised signatory:	Mr. ☒ Ms. ☐
Last name: Asada	First name: Sumio
Title: Senior Executive	
Specimen signature:	Date: 18/03/2022

B. Validation team and other experts

	Name	Company	Function*	Scheme competence*	Technical competence*	On-site visit
Mr. ☒ Ms. ☐	Tadashi Yoshida	External Individual	Team Leader	☒	Authorized	☐
Mr. ☒ Ms. ☐	Hiroshi Motokawa	JQA	Internal Reviewer	☒	Authorized	☐

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 form is checked and confirmed to be complete in accordance with the JCM Guidelines for Developing Project Design Document and Monitoring Report (JCM_LA_GL_PDD_MR_ver03.0). The latest version of the JCM PDD form (JCM_LA_F_PDD_ver03.0) is used for the PDD of the proposed project.

<Findings>

No issues are raised to the requirement.

<Conclusion based on reporting requirements>

The validation team concludes that the PDD is completed using the valid version of the PDD form and drafted in line with the JCM Guidelines for Developing Project Design Document and Monitoring Report.

C.2. Project description

<Means of validation>

The purpose of the proposed project is to reduce CO_2 emissions from the consumption of national grid electricity by replacing the grid electricity with the electricity generated by the solar PV power plants. As the source of power supply in the Lao People's Democratic Republic (hereinafter referred to as Laos) heavily depends on hydropower, the installation of

11 MWdc (equivalent to 9 MWac) solar power system contributes to the reduction of electricity imports from Thailand and Vietnam, especially during the dry season. In addition, the introduction of solar PV power project contributes to the diversification of power supply structure in Laos. The proposed project is operated at two sites (Farm1 and Farm 3) located in Savannakhet Province, Laos. The maximum output of power generation at each site is 5 MWac and the model of solar PV module installed is ND-AF330C with a maximum power output of 330 Wp which is made by Sharp Solar Solution Asia Co., Ltd.

All electricity generated by the proposed project is supplied to Lao Power Grid via Kengkok grid substation under the Power Purchase Agreement (PPA) contract between Electricite du Laos (EDL) and Green Energy Laos Development Co., Ltd. (GLD). The project would generate electricity of 15,032 MWh (7,516 MWh x 2 sites) per year, which corresponds to the emission reductions of 4,795 tCO_2 per year and 47,950 tCO_2 in total during the monitoring period of 2021 - 2030.

The proposed project was developed by Khounxay Development Group Sole Co., Ltd (KXN), and implemented by Green Energy Laos Development Co., Ltd. (GLD) from Laos and Sharp Energy Solutions Corporation (SESJ) from Japan. The commissioning tests of the solar PV power system were satisfactorily completed by Sharp Solar Solution Asia Co., Ltd. (SSSA) in Dec. 2021. Electricite du Laos (EDL) has certified that the Commercial Operation Date of the proposed project will be started on 06/12/2020. Thus, it is reasonable that the starting date of project operation is 01/01/2021.

The expected operational lifetime of the project is 17 years, which is based on the legal durable years for the facilities of retailing business issued by Ministry of Finance, Japan.

The proposed project was partially financed by the Ministry of the Environment (MOE), Japan, through the contract with Global Environment Centre Foundation (GEC) on 28/02/2019, which provides financial support of less than half of the initial investment for the solar power generation facilities of the project in order to acquire JCM credits.

As for the technology transfer, the OJT trainings on the monitoring system, inverter operation, DC cable insulation test, etc. were conducted for the engineering staffs of KXN and GLD by SSSA during the period of October and December 2020.

The validation team has assessed the PDD and the supporting documents to validate the accuracy and completeness of the project description based on the relevant requirements, without on-site visit due to COVID-19 pandemic. No on-site visit is justified as follows: The validation of the accuracy and completeness of the project description has been conducted by the document review and the e-mail interviews with the PPs. The sufficient evidences and information relevant to the proposed project and technology are provided by the PPs, and the team has determined that the information and description in the PDD are accurate and complete.

The persons interviewed and documents received are provided in Section E of this report.

Regarding the coordinates of the project sites in A.3 and the project description in A.2, the validation team raised CAR 01 and CL 01, and these issues were resolved as explained in "Findings".

<Findings>

< *CAR 01* >

The coordinates of the project site in A.3 are not consistent with those given in the Feasibility Study Report (FSR) and the Power Purchase Agreement (PPA). Please provide coordinates of two project sites (Farm1 and Farm 3) separately.

< Comments from the PPs >

The coordinates of two project sites (Farm1 and Farm 3) are provided separately based on the FSR and PPA.

< Assessment by the TPE >

It is confirmed through the review of the revised PDD and the FSR/PPA of the proposed project that the coordinates of two project sites (Farm1 and Farm 3) are correctly provided separately based on the information in the FSR and PPA. Thus, CAR 01 is closed.

< *CL 01* >

The PPs are requested to clarify why the proposed project is able to supply electricity to Thailand, because Laos is importing electricity from Thailand and Vietnam.

< Comments from the PPs >

Laos relies heavily on hydropower and imports electricity from Thailand and Vietnam especially during the dry season. In this regard, this project enables to reduce those electricity imports.

< Assessment by the TPE >

It is confirmed through the review of the relevant documents and the interview with the PPs that Laos is suffering from the electricity shortage especially during dry season and hence is unable to supply electricity to Thailand. The sentence in the original PDD is properly deleted in the revised PDD. Thus, CL 01 is closed.

<Conclusion based on reporting requirements>

The validation team concludes that the description of the proposed project in the revised PDD is consistent with the supporting documents and information obtained through the desk

review and the interview with the PPs, and the description is accurate and complete.

C.3. Application of approved methodology(ies)

<Means of validation>

The approved methodology JCM_LA_AM002_ver01.0 "Installation of Solar PV System" is applied to the proposed project. The methodology is approved by the JC on 10/08/2018 (JC4, Annex 1) and valid at the time of submission of the proposed JCM project for validation.

The validation team has assessed whether the selected methodology is applicable to the proposed project. The project applicability was checked against three eligibility criteria contained in the approved methodology. The project information for the eligibility criteria and the assessment/conclusion about its applicability to the proposed project are summarized in the table below.

Eligibility criteria	Descriptions specified in the methodology	Project information	Assessment and conclusion by the validation team
Criterion 1	The project installs solar PV system(s).	The project installs a total of 9 MWac/ 11 MWdc at two locations in Savannalhet Province.	It is confirmed through the review of the Feasibility Study Report, Commissioning Test Report and Environment Management and Mitigation Plan that the solar PV power plant with a capacity of 11 MWdc in total is newly installed at two sites and operated in Savannalhet Province. Hence, Criterion 1 is satisfied.
Criterion 2	The PV modules are certified for design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).	The PV modules installed in the project have been certified for IEC 61215 for design qualifications and IEC 61730-1 and IEC 61730-2 for safety qualification.	It is confirmed through the review of Certificate issued by TUV SUD that the PV module (ND-AF330C) made by Sharp Solar Solution Asia Co., Ltd. is certified for design qualification IEC 61215 and safety qualification IEC 61730-1/ IEC 61730-2 on 25/07/ 2019 (valid until 22/07/2024). Hence, the Criterion 2 is satisfied.
Criterion 3	The equipment used for monitoring output power of the solar PV system(s) and irradiance is installed at the project site.	Electricity meter and pyranometer have been installed at the project site to monitor output power and irradiance respectively.	It is confirmed through the review of relevant documents including monitored data and the interview with the PPs that electricity meter and pyranometer are installed at the project site and have been operated to monitor output power and irradiance. Hence, the

			Criterion 3 is satisfied.

<Findings>

No issue was raised to the requirement.

<Conclusion based on reporting requirements>

The validation team concludes that the proposed project is eligible for applying the valid version of the approved methodology LA_AM002 and all eligibility criteria are met by the proposed project.

C.4. Emission sources and calculation of emission reductions

<Means of validation>

The proposed project aims to reduce CO_2 emissions from the consumption of national grid electricity by replacing the grid electricity with the electricity from the solar power system newly installed in Savannakhet Province, Laos.

As per the methodology LA_AM002_ver. 01.0, reference emissions are sourced from the consumption of grid electricity and project emissions are sourced from the generation of electricity from the solar PV power system(s).

Reference emissions in the proposed project are calculated on the basis of the AC output of the solar PV power system(s) multiplied by the conservative emission factor of the grid, which is expressed by Equation (1), in accordance with the methodology LA_AM 002:

$$REp = \Sigma (EG_{i,p} \times EF_{RE,i}) \quad \text{---------- (1)}$$

Where:

RE_p : Reference emissions during the period *p* (tCO_2/p)

$EG_{i,p}$: Quantity of the electricity generated by the project solar PV system *i* during the period *p* (MWh/p)

$EF_{RE,i}$: Reference CO_2 emission factor for the project solar PV system *i* (tCO_2/MWh)

The quantity of electricity generated by the project solar PV system ($EG_{i,p}$) is estimated *ex-ante* based on the solar irradiance data from Meteonorm database, which gives the power output of 15,032 MWh/y in total. As the solar PV system in the proposed project is connected to Lao Power Grid, PV Case I in the methodology is selected to determine the reference emission factor for the project solar PV system *i* ($EF_{RE,i}$), *i.e.*, 0.319 tCO2/MWh. Thus, it is confirmed through the review of relevant documents that the project-specific parameter to be fixed *ex-ante* such as $EF_{RE,i}$ is correctly applied in the calculation of reference emissions.

Project emissions are the emissions from the solar PV system, which are assumed to be zero as per the methodology LA_AM 002. Therefore, it is expressed by Equation (2):

$PE_p = 0$ ---------- (2)

Where:

PE_p : Project emissions during the period *p* (tCO_2/p)

Thus, the emission reductions (ER_p) during the period *p* are calculated by the following equation, in line with the methodology:

$$ER_p = RE_p - PE_p$$
$$= \Sigma (EG_{i,p} \times EF_{RE,i}) - PE_p$$
$$= (15{,}032 \text{ MWh} \times 0.319) - 0$$
$$= 4{,}795 \text{ } tCO_2/p$$

The GHG annual emission reductions are estimated to be 4,795 tCO_2 and the sum of the emission reductions for the period of 2021 – 2030 is estimated to be 47,950 tCO_2.

It is confirmed through the review of relevant documents and the e-mail interview with the PPs that all GHG emission sources specified by the applied methodology are identified, and the reference emissions (RE_p), project emissions (PE_p) and emission reductions (ER_p) in the revised PDD (ver02.0) and Monitoring Plan Sheet are correctly calculated, in accordance with the methodology LA_AM002_ver01.0.

<Findings>

No issue was raised to the requirement.

<Conclusion based on reporting requirements>

The validation team confirms that all emission sources and GHG types specified in the approved methodology are appropriately justified. The validation team concludes that the value of parameter to be monitored *ex-post* ($EG_{i,p}$) in the MPS is correctly estimated based on the total quantity of electricity generated by the proposed project and the value for the project-specific parameter to be fixed *ex-ante* listed in the MPS ($EF_{RE,i}$) is also correctly determined as per the methodology. In addition, the equations to calculate reference emissions, project emissions and emission reductions for the proposed project are also appropriately derived and the annual emission reductions are correctly calculated using parameters and data in the MPS, in accordance with the applied methodology. As a result, the values are considered reasonable in the context of the proposed project.

C.5. Environmental impact assessment

<Means of validation>

The purpose of the proposed project is to reduce CO_2 emissions from the consumption of grid electricity by replacing the grid electricity with the electricity generated by the solar PV system newly installed in Savannakhet Province, Laos.

Pursuant to the Law on Environmental Protection (revised version) No. 29/NA, dated 18/12/2012, and Ministerial Instruction on the Process of Environmental and Social Impact Assessment of the Investment Projects and Activities No. 8030/MONRE, dated 17/12/2013, Green Energy Laos Development Co., Ltd. submitted the Report entitled "Environment Management and Mitigation plan" for the proposed project to Natural Resources and Environment, Savannakhet Province, in September 2020, and the proposed project was approved on 27/10/2020.

Regarding the information on EIA, the validation team raised CAR 02 and the issue was resolved as explained in "Findings".

<Findings>

< *CAR 02* >

The PPs are requested to provide information on EIA report submitted to the authority and its approval letter in F. Reference of the PDD.

< Comments from the PPs >

The information on EIA report submitted to the authority and its approval letter is correctly provided in the section F. Reference of the revised PDD.

< Assessment by the TPE >

It is confirmed through the review of the revised PDD and the supporting documents that "Environment Management and Mitigation Plan" was submitted to Natural Resources and Environment, Savannakhet Province, in September 2020 and the proposed project was approved by the issuance of "Certificate of Environment" on 27/10/2020. These documents are appropriately provided in the section of F. Reference of the revised PDD. Thus, CAR 02 is closed.

<Conclusion based on reporting requirements>

The validation team confirms that the PPs have conducted an environmental impact assessment and submitted the Report entitled Environment Management and Mitigation plan for the proposed project to the local government, in line with procedures as required by the Lao People's Democratic Republic. The proposed project was approved by the local government

on 27/10/2020.

C.6. Local stakeholder consultation

<Means of validation>

The PPs conducted a local stakeholder consultation through on-line meeting on 26/10/2021. Prior to the meeting, the invitation letter was delivered to the stakeholders.

Following public and private entities are identified as stakeholders and they were invited for Local Stakeholders' Consultation Meeting:

- Electricite du Laos (EDL)
- Department of Natural Resources and Environment (DNRE)

The local stakeholders provided positive comments for the proposed project. No negative issues that require actions to be taken by the PPs were raised through the consultation. It is confirmed through the review of the relevant documents and the e-mail interview with the PPs that the stakeholder consultation process was appropriately conducted to collect stakeholders' opinions on the project. The summary of the comments received in the consultation and due account of all comments taken by the PPs are fully described in the PDD.

Regarding the abbreviation of stakeholders and further action to the comments, the validation team raised CL 02 and the issue was resolved as explained in "Findings".

<Findings>

< CL 02 >

1) The PPs are requested to give the full name of EDL and DNRE.

2) The PPs are requested to clarify whether further actions are needed or not to the comments received.

< Comments from the PPs >

1) The full names of EDL and DNRE are provided in the revised PDD.
2) "No further action is needed" is added to each comment received from the stakeholder in the revised PDD.

< Assessment by the TPE >

It is confirmed through the review of the revised PDD that the full names of EDL and DNRE are properly provided, *i.e.*, Electricite du Laos and Department of Natural Resources and Environment, respectively, and that further action is not necessary for each comment received. Thus, CL 02 is closed.

<Conclusion based on reporting requirements>

The validation team concludes that the PPs have completed a local stakeholder consultation process and invited comments on the proposed project from the local stakeholders. The summary of the comments received is provided in the PDD in a complete manner and the PPs have taken due account of all the comments and described this process in the PDD.

C.7. Monitoring

<Means of validation>

All electricity generated by the proposed project is supplied to the national grid according to the Power Purchase Agreement (PPA) contracted between GLD and EDL on 06/05/2020. One monitoring parameter, *i.e.*, quantity of the electricity generated by the project solar PV system *i* during the period *p* ($EG_{i,p}$), is monitored by two electricity meters located at the project site (Backup meter) and Kengkok grid substation (Main meter). The quantity of electricity supplied to the national grid is determined with invoice or receipt which is prepared based on the Monthly Electricity Supply Data issued by EDL (Option B). At the same time, as illustrated by the figure in C.2 of the PDD, the quantity of electricity generated by the solar PV system is continuously measured by the backup meter at the project site for cross-checking with Monthly Electricity Supply Data.

The model of the main meter at the grid substation is Itron SL7000 with accuracy class of 0.2S. The meter is operated and managed by EDL, which is out of control of GLD. The model of the backup meter at the project site is Mk6E with accuracy class of 0.2S, made by EDMI. The meter was calibrated by EDMI at the time of shipment from the factory on 24/06/2019.

All monitored data which are required for verification and issuance will be kept and archived electronically for two years after the final issuance of the credits.

The roles and responsibilities of the personnel are described in Monitoring Structure Sheet. The monitoring structure consists of Project Manager (SESJ), Operation and Maintenance Manager (GLD) and Administration and Support (GLD). Project Manager is responsible for project planning, implementation, monitoring results and reporting. Operation and Maintenance Manager is responsible for the operation and maintenance of the power plant and the witness and check of a monthly meter reading by EDL. Administration and Support checks the recorded/archived data and invoice issued by EDL.

It is confirmed through the review of the relevant documents and e-mail interview with the PPs that the monitoring plan complies with the requirements of the approved methodology

and the PPs are able to implement the monitoring activity appropriately according to the monitoring plan.

Regarding the archiving of the monitored data, monitoring point, change of monitoring option, method selection of reference emission factor and monitoring structure, the validation team raised CAR 03, CAR 04 and CL 03- CL 05 and these issues were resolved as explained in "Findings".

<Findings>

< *CAR 03*>

The information on the archiving of the data for two years after the final issuance of credits is not provided. The PPs are requested to clarify the archiving procedures.

< Comments from the PPs >

The sentence “Archive all documents for the project electronically on a server of SESJ for two years after the final issuance of credits” is added as the role of Project Manager (SESJ) in the MSS.

< Assessment by the TPE >

It is confirmed through the review of the revised MSS that the information on the archiving of the data for two years after the final issuance of credits is properly added on the request of Para. 26 of JCM Guideline for Developing PDD and MR (ver03.0). Thus, CAR 03 is closed.

< *CAR 04*>

According to the PPA, the quantity of electricity supplied to the grid is monitored by the main meter located at the grid substation, but the Monitoring Point in the figure of C.2 of the PDD is located at the project site. The PPs are requested to correct the location of the Monitoring Point properly.

< Comments from the PPs >

The location of the Monitoring Point is revised from the project site to the grid substation in the figure of C.2 of the PDD.

< Assessment by the TPE >

It is confirmed through the review of the PPA and the revised PDD that the location of the main meter, *i.e.*, Monitoring Point (1), is revised from the project site to the grid substation correctly. Thus, CAR 04 is closed.

< *CL 03*>

The PPs are requested to explain the reason why the monitoring option is changed from Option C to Option B/C in the MPS.

< Comments from the PPs >

As the Commercial Operation Date (COD, 06/12/2020) for the proposed project is officially certified by EDL on 13/01/2022, which means that EDL issues Monthly Electricity Supply Data on a monthly basis, GLD has decided to take Option B in addition to Option C. Accordingly, the quantity of electricity generated by the project solar PV system is determined with invoice or receipt which is prepared based on the Monthly Electricity Supply Data.

< Assessment by the TPE >

It is confirmed through the review of COD Certificate from EDL for the proposed project (dated 13/01/2022) and the interview with the PPs that, in addition to Option C, GLD has decided to take Option B where the quantity of electricity generated by the project solar PV system ($EG_{i,p}$) is determined with invoice or receipt which is prepared based on the Monthly Electricity Supply Data issued by EDL on a monthly basis. Thus, CL 03 is closed.

< *CL 04* >

The PPs are requested to clarify which PV Case is applied for $EF_{RE,i}$ of the proposed project in the cell of (e) Source of data of Table 2.

< Comments from the PPs >

The following sentence "PV Case I is applied in this project" is added in the cell of (e) Source of data of Table 2.

< Assessment by the TPE >

It is confirmed through the review of the revised Table 2 of MPS that the PV Case I to determine the reference emission for the project solar PV system ($EF_{RE,i}$) applied for the proposed project is correctly selected from three PV Cases in the methodology. Thus, CL 04 is closed.

< *CL 05* >

1) The PPs are requested to add the affiliation (PP's name) of each personnel to clarify the responsibility of each PP.

2) The roles of Maintenance Manager and Technical Support are not clearly explained. In addition, it is not clear who is responsible for the maintenance of measuring equipment

< Comments from the PPs >

1) The affiliation of each personnel is added in the MSS, *i.e.*, Project Manager (SESJ), Operation and Maintenance Manager (GLD) and Administration and Support (GLD).
2) The roles of Operation and Maintenance Manager and Administration and Support Project Manager are properly explained as follows: Operation and Maintenance Manager is responsible for the operation and maintenance of the power plant, and the witness and cross-checking of monthly meter reading by EDL. Administration and Support is for the check of recorded data, archived data and invoice issued by GLD.

< Assessment by the TPE >

It is confirmed through the review of the revised MSS and the interview with the PPs that 1) the affiliation of each personnel is properly added to clarify the responsibility of each PP in the proposed project, and 2) the roles of Operation and Maintenance Manager and Administration and Support in the monitoring activities are clearly explained. Thus, CL 05 is closed.

<Conclusion based on reporting requirements>

The validation team concludes that the description of the MPS and MSS complies with the requirements of applied methodology and JCM Guidelines for Developing Project Design Document and Monitoring Report, and the monitoring point as well as measuring equipment is also appropriate. Thus, the PPs have demonstrated feasibility of the monitoring structure and their abilities to implement the monitoring activity appropriately.

C.8. Modalities of Communication

<Means of validation>

The MoC was provided to JQA for review on 13/12/2021, in the valid form (JCM_LA_F_MoC_ver01.0) at the time of validation, in which Sharp Energy Solutions Corporation (SESJ) is nominated as the focal point. The MoC was signed by the authorized representatives of SESJ on 24/11/2021, KXN on 29/11/2021 and GLD on 29/11/2021, along with the contact details.

The validation team has checked the personal identities and employment status of the authorized signatories through the review of their business cards with signature. Primary authorized signatory of SESJ is Deputy General Manager of Overseas Business Development Division II, and alternate authorized signatory is Senior Manager of the same Division. Primary authorized signatory of KXN/GLD is President of both companies, and alternate authorized signatory is Executive Manager for KXN and Project Manager for GLD.

It is confirmed through the check of business cards and the e-mail interview with the PPs that all corporate and personal details including specimen signatures and the information in the

MoC are valid and accurate as requested in the JCM Guidelines for Validation and Verification.

<Findings>

No issues are raised to the requirement.

<Conclusion based on reporting requirements>

The validation team concludes that the MoC is completed using the valid version of the form, and the information and the specimen signature of the PPs provided in the MoC are correct and sufficient, in compliance with the requirements of the JCM Guidelines.

C.9. Avoidance of double registration

<Means of validation>

The representative of focal point entity in the MoC, Deputy General Manager of Overseas Business Development Division II of Sharp Energy Solutions Corporation, declares that the proposed project is not registered under any other international climate mitigation mechanism other than the JCM. It is confirmed through the check of publicly available information (e.g. CDM/JI website, etc.) that the proposed project is not registered under any other international climate mitigation mechanisms in terms of the name of entity, applied technology, scale and location.

<Findings>

No issues are raised to the requirement.

<Conclusion based on reporting requirements>

The validation team concludes that the proposed project is not registered under any other international climate mitigation mechanisms and hence it will not result in double counting of GHG emission reductions.

C.10. Start of operation

<Means of validation>

Electricite du Laos has certified that the commercial operation date (COD) of the proposed project will be started on 06/12/2020 based on the electrical and mechanical testing report. Therefore, the project start of 01/01/2021 is reasonable and it is confirmed through the review of the monitoring data that project operation actually commenced on 01/01/2021.

<Findings>

No issues are raised to the requirement.

<Conclusion based on reporting requirements>

The validation team concludes that the starting date of project operation, 01/01/2021, is correct and reasonable, and does not predate 01/01/2013 as required by the Guideline of the JCM project.

C.11. Other issues

<Means of validation>

No more issues are raised in the validation of the proposed project.

<Findings>

Not applicable.

<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, the PDD was made publicly available for 30 days between 14/12/2021 and 12/01/2022 to invite public comments on the following JCM website:

https://www.jcm.go.jp/la-jp/projects/98

No public comments are received.

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

Not applicable.

E. List of interviewees and documents received

E.1. List of interviewees

-	Mr. Ikuo TAKAFUJI,	Supervisor, Overseas Business Dev. Div. II, Sharp Energy Solution Corporation
-	Mr. Hiroya Ota,	Senior manager, Overseas Business Dev. Div. I Sharp Energy Solution Corporation
-	Mr. Khounpaseuth Silaxa,	Executive Management Member, Khounxay Construction Development Group Sole Co., Ltd.

E.2. List of documents received

1. PDD, ver. 01.0 dated 22/11/2021 and revised PDD, ver. 02.0 dated 03/02/2022
2. MPS and MSS, 13/12/2021 and revised MPS and MSS, 03/02/2022
3. JCM Modalities of Communication Statement Form (MoC) submitted for JC, dated 01/12/2021
4. Business cards of Primary authorised signatory, Alternate authorised signatory and Contact person from Japan and Laos
5. JCM Approved Methodology (JCM_LA_AM002_ver01.0), 10/08/2018
6. Monitoring Spreadsheet (JCM_LA_AM002_ver01.0)
7. JCM Modalities of Communication Statement Form (JCM_LA_F_MoC_ver01.0)
8. JCM Glossary of Terms (JCM_LA_Glossary_ver02.0)
9. JCM Project Cycle Procedure (JCM_LA_PCP_ver03.0)
10. JCM Project Design Document Form (JCM_LA_F_PDD_ver03.0)
11. JCM Guidelines for Developing Project Design Document and Monitoring Report (JCM_LA_GL_PDD_MR_ver03.0)
12. JCM Validation Report Form (JCM_LA_F_Val_Rep_ver01.0)
13. JCM Guidelines for Validation and Verification (JCM_LA_GL_VV_ver01.0)

14-1. Feasibility study Report on Houayxay Solar Farm Project 5 MW in Songkhone District, Savannakhet Province, Lao PDR

14-2. Feasibility study Report on Oumnamkhong Solar Farm Project 5 MW in Songkhone District, Savannakhet Province, Lao PDR

15. Outline of the proposed project “Lao PDR/11 MW Solar Power Project in Savannakhet Province”, issued on 15/02/2019
16. Layout drawing of solar power Farm 1 & 3
17. Power Purchase Agreement between Electricite du Laos and Green Energy Laos Development Co., Ltd. for Oumnamkhong Solar Power Project 5 MW (Farm 1 & 3) in Songkhone District, Savannakhet Province, dated 06/05/2020

18. Company profile of Khounxay Construction Development Group Sole Co., Ltd.
19. Company profile of Green Energy Laos Development Co., Ltd.
20. Company profile of Sharp Energy Solutions Corporation
21. Commercial Operation Date (COD) Certificate issued by Electricite du Laos (EDL), dated 13/01/2022
22. Legal durable year list issued by Ministry of Finance, Japan, to demonstrate the expected operational lifetime (17years) of the solar PV module
23. Contract of the proposed project between Sharp Energy Solutions Corporation and Global Environment Centre Foundation (GEC) dated 28/02/2019
24. Records of the staff training for installation, monitoring and maintenance of the solar PV system conducted in Oct. - Dec. 2020
25. Commissioning Test Report on KXN Solar Farm Project 11 MWdc, tested by Sharp Solar Solution Asia Co., Ltd. in Oct. - Dec. 2020
26. Location of monitoring points in Farm 1 & 3
27. Certificates of design qualification (IEC 61215) and safety qualification (IEC 61730-1, 61730-2) of ND-AF330C, issued by TUV SUD on 25/07/2019
28. Specification of solar PV module ND-AF330C made by SSSA
29. Single line diagram of the proposed project
30. Specification of electricity meter Mk6E (Class 0.2S) made by EDMI Limited
31. Calibration certificate of Mk6E tested by EDMI at the time of shipment, 24/06/2019
32. Specification of pyranometer SMP6 made by Kipp & Zonen
33. Specification of inverter SG2500HV-MV-20 made by SUNGROW Power Supply Co., Ltd.
34. “Environment Management and Mitigation Plan (EMP)” submitted for Division of Natural Resources and Environment, dated Sep. 2020
35. Certificate of Environment for EMP, issued by Division of Natural Resources and Environment, dated 27/10/2020
36. Minutes of local stakeholder consultation meeting (on-line) held on 26/10/2021
37. List of attendee for local stakeholder consultation meeting
38. Invitation letter for local stakeholder consultation meeting
39-1. Presentation by KXN/GLD at the LSC meeting
39-2. Presentation by SESJ at the LSC meeting
40. Source of *ex-ante* calculation of 7,516 MWh generated by the solar PV system (Farm 1)
41. Estimation of irradiance at the project site using Meteonorm data
42. Diagram of monitoring structure for the proposed project
43. Copy of minutely monitored data downloaded from the server
44. Monthly Electricity Supply Data for 02/2022 which is confirmed between EDL and

GLD

45. Monthly Invoice 02/2022 issued by GLD

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

Name: Dr. Tadashi Yoshida

Qualified and authorized by Japan Quality Assurance Organization.

Function

	Date of qualification
Validator	2014/12/22
Verifier	2014/12/22
Team leader	2014/12/22

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 4.1. Cement and lime production	2015/11/12
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
TA 14.1. Afforestation and reforestation	-

Statement of competence

Name: Mr. Hiroshi Motokawa

Qualified and authorized by Japan Quality Assurance Organization.

Function

	Date of qualification
Validator	2014/12/22
Verifier	2014/12/22
Team leader	2014/12/22

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 4.1. Cement and lime production	2014/12/22
TA 5.1. Chemical industry	-
TA 10.1. Fugitive emissions from oil and gas	-
TA 13.1. Solid waste and wastewater	2014/12/22
TA 14.1. Afforestation and reforestation	-