

JCM Validation Report Form

A. Summary of validation

A.1. General Information

Title of the project	Introduction of 0.5MW Solar Power System to Aroma and Food Ingredients Factory
Reference number	ID017
Third-party entity (TPE)	Lloyd's Register Quality Assurance Limited (LRQA)
Project participant contracting the TPE	Next Energy and Resources Co., Ltd.
Date of completion of this report	07/12/2018

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 the Republic of Indonesia, in line with Indonesia'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	<input checked="" type="checkbox"/>

Item	Validation requirements	No CAR or CL remaining
	project unless a local stakeholder consultation has been conducted under an environmental impact assessment.	
Monitoring	The description of the Monitoring Plan (Monitoring Plan Sheet and Monitoring Structure Sheet) is based on the approved methodology and/or Guidelines for Developing the Joint Crediting Mechanism (JCM) Project Design Document, Monitoring Plan, and Monitoring Report. The monitoring points for measurement are appropriate, as well as whether the types of equipment to be installed are appropriate if necessary.	<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: Chiba	First name: Michiaki
Title: Climate Change Manager - Asia & Pacific	
Specimen signature	Date: 07/12/2018

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"/>	Michiaki Chiba	LRQA Ltd.	Team leader	<input checked="" type="checkbox"/>	Technical competence authorised	<input checked="" type="checkbox"/>
Mr. <input checked="" type="checkbox"/> Ms. <input type="checkbox"/>	Cholid Bafagih	LRQA Indonesia	Team member	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Mr. <input checked="" type="checkbox"/> Ms. <input type="checkbox"/>	Xianxin Yan	LRQA China	Internal reviewer	<input checked="" type="checkbox"/>	N/A	<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>

The validation process commenced with reviewing of the project design document (PDD) Version 01.0 dated 15/02/2018 submitted by the project participants (PPs) while the process to invite public inputs was under preparation. The PDD Version 01.1 dated 30/08/2018 was posted for public inputs and it was further revised to Version 01.2 dated 19/11/2018 reflected the resolution of the validation findings. The PDD was checked and confirmed as complete against the JCM Guidelines for Developing Project Design Document (PDD) and Monitoring Report (MR) No. JCM_ID_GL_PDD_MR_ver02.1 and the later version No. JCM_ID_GL_PDD_MR_ver03.0. A valid form of the JCM PDD Form No. JCM_ID_F_PDD_ver02.0 is used for the PDD Version 01.2 dated 19/11/2018.

Through the processes taken, CAR 4 was raised as the resolution detailed below.

The details of the persons interviewed and the documents reviewed are shown in the Section E of this report.

<Findings>

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

Grade / Ref: CAR 4

Nature of the issue raised: Revised PDD needed to be completed the table of revision history

with the updated information of version number, date and the contents revised.

Nature of responses provided by the PPs: The PPs completed the relevant part of the PDD for the revisions.

Assessment of the responses: The validation team confirmed that the revised versions of the PDD were submitted by the PPs completed with the table of revision history as requested. The CAR was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the PDD was completed using the valid form of the JCM PDD Form and in accordance with the JCM Guidelines for Developing PDD and MR.

C.2. Project description

<Means of validation>

The project is to introduce 500 kW (based on AC power output) rooftop solar photovoltaic (PV) systems at the manufacturing facility of PT. Indesso Aroma in Cileungsi, West Java, Indonesia.

PT. Indesso Aroma produces Indonesian essential oils for food, flavour and fragrance ingredients and is exporting to 40 countries. The factory in Cileungsi produces nature based aroma ingredients and extraction from botanical sources. The factory is operated in 3 shifts and 24 hours a day.

The electricity produced by the project solar PV systems will displace consumption of grid electricity by PT. Indesso Aroma generated using fossil fuels and reduce GHG emissions.

The project solar PV systems employ the solar module NER660M290A of Next Energy and Resources Co., Ltd., Japan. Total 1,952 panels are installed on the rooftop of Aromatic and Extract factory and warehouse buildings. The solar PV modules are connected to 2 x 250 kW inverters of Meidensha Corporation, Japan. The monitoring system Solajit transmits the generation data to enable remote monitoring.

There are diesel engine and gas engine generators that are maintained to back-up the grid electricity.

The project is implemented by PT. Indesso Aroma and Next Energy and Resources Co., Ltd.

The start date of project operation is 02/04/2018 and the expected operational lifetime of the project is for 10 years. The PPs referred to the Statutory useful life for the calculation of depreciation and amortization for machinery and equipment issued by Japan's Ministry of Finance for the basis of the expected operational lifetime of the project solar power systems indicated as for 10 years (for Food products manufacturing industries). The project solar PV systems applying the state-of-art design of the Japanese manufacturer will have a longer operational lifetime with sound operation and maintenance activities, but the PPs selected shorter lifetime specified by the applicable regulations. That is conservative and considered

acceptable as it fulfils the duration of the crediting period.

The project receives financial support for JCM model projects from the Ministry of the Environment, Japan. The PP from Japan contributes in transfer of know-how on operation and monitoring of solar power generation.

The validation team assessed the PDD and the supporting documents, interviewed the PPs to validate the requirements concerning accuracy and completeness of the project description.

Through the processes taken, CAR 1 and CL 1 were raised as the resolution detailed below.

The details of the persons interviewed and the documents reviewed are shown in the Section E of this report.

<Findings>

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

Grade / Ref: CAR 1

Nature of the issue raised: The start date of the project operation was indicated as 18/02/2018 in the Section A.5. of the initial version of the PDD but the commissioning test was on going and the project solar system had not been started the operation when the validation site visit took place on 06/03/2018.

Nature of responses provided by the PPs: The PPs provided the commissioning acknowledgement letter dated 29/03/2018 as the evidence of start date of the project operation.

The start date of project operation is corrected to 02/04/2018 in the revised PDD.

Assessment of the responses: The validation team confirmed that the start date of project operation has been corrected in the revised PDD taking into account the actual status of the project. The CAR was closed.

Grade / Ref: CL 1

Nature of the issue raised: The PPs were requested to clarify whether the project displaces electricity generation by the public grid or captive power plants and confirm the emission reductions are estimated for the respective conditions.

Nature of responses provided by the PPs: Revised PDD was submitted by the PPs for review by the validation team.

Assessment of the responses: The validation team reviewed the revised PDD and confirmed that project displaces grid electricity and the estimated emission reductions was corrected. The CL was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team assessed the project description provided in the PDD with the supporting documents to the requirements on the accuracy and completeness. The validation team confirmed that the proposed JCM project in the PDD is described in accurate and complete

manners that is understandable the nature of the proposed project activity.

C.3. Application of approved methodology(ies)

<Means of validation>

The project applied the approved methodology JCM_ID_AM013_ver01.0 "Installation of Solar PV System" Ver 01.0.

LRQA assessed if the selected methodology is applicable to the proposed project. The project applicability was checked against each eligibility criterion in the selected approved methodology. The steps taken to validate each eligibility criterion and the conclusions about its applicability to the proposed project are summarised as below.

Criterion 1: The project newly installs solar PV system(s).

Justification in the PDD: The proposed project installs a new solar PV system.

Steps taken for assessment: Document review was conducted on the project documentation, technical specification, and the on-site visit and interviews were conducted at the project site.

Conclusion: Based on the validation processes taken, the validation team confirmed that the project installed new rooftop solar PV systems at the facilities of PT. Indesso Aroma and the criterion is met.

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).

Justification in the PDD: The PV modules installed in the proposed project are certified for design qualifications (IEC 61215) and safety qualification (IEC 61730-1 and IEC 61730-2).

Steps taken for assessment: Document review was conducted on the technical specification, certificates of design qualifications and safety qualification, and the on-site visit and interviews were conducted at the project site.

Conclusion: Based on the validation processes taken, the validation team confirmed that the PV modules of the project solar PV system have obtained the certificates in compliance with the international standards IEC61215, IEC61730-1 and IEC61730-2 as appropriate. The criterion was therefore fulfilled.

Criterion 3: The equipment to monitor output power of the solar PV system(s) and irradiance is installed at the project site.

Justification in the PDD: The equipment to monitor output power of the solar PV system(s) and irradiance is installed at the proposed project site.

Steps taken for assessment: Document review was conducted on the technical specification, and the on-site visit and interviews were conducted at the project site.

Conclusion: Based on the validation processes taken, the validation team confirmed that the monitoring equipment has been installed for output power of the solar PV systems as well as irradiance at the project sites. Thus the criterion was confirmed as satisfied by the project.

<Findings>

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

No issue was raised to the requirements of this section.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the project applied the valid version of the approved methodology and the applicability was demonstrated to the eligibility criteria as appropriate.

C.4. Emission sources and calculation of emission reductions

<Means of validation>

The project supplies electricity generated by 500 kW solar PV systems installed on the rooftop of factory facilities for the self-consumption and displaces electricity purchased from the public power grid system.

The source of GHG emissions is consumption of grid electricity and CO₂ emissions in the reference scenario are considered to determine the reference emissions (REs), while the project emissions (PEs) are assumed to be zero for the solar PV system in accordance with the applied methodology. The annual electricity generation of the project is estimated ex-ante at 660 MWh as average during the crediting period. The default CO₂ emission factor for the PV system connected to the Jamali (Java-Madura-Bali) grid of 0.616 t-CO₂/MWh is applied. The annual GHG emission reductions (ERs) are calculated using the estimated annual electricity generation of the project: $ERs = REs - PEs = 660 \text{ MWh} \times 0.616 - 0 = 406 \text{ t-CO}_2\text{e}$. The estimated ERs in each calendar year during the crediting period are calculated based on the project start from April 2018 to its end in March 2028 with annual decrease of power generation by 0.7% and the total ex-ante estimated ERs during the crediting period are 4,059 tCO₂e as indicated in the PDD C.3.

The validation team assessed the documented evidence and confirmed that all the relevant GHG emission sources covered in the applied methodology are addressed, and the steps taken and the equations applied to calculate REs for the proposed project comply with the requirements of the approved methodology.

The details of the persons interviewed and the documents reviewed are shown in the Section E of this report.

<Findings>

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

Please refer to CL1 and its resolution in the above Section C.2.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that:

- The methodology was applied correctly to calculate PEs and REs and no other significant emission source was identified that would be affected and reasonably attributed by implementation of the proposed project but not addressed by the applied methodology;
- The choice of whether an emission source or gas is to be included where the applied methodology allows was reasonably justified by the PPs;
- The Monitoring Plan Sheet (MPS) was not altered and the fields were filled in as required so that all estimates of the REs could be replicated using the data and parameter values provided in the PDD;
- The values for the project specific parameters fixed ex ante listed in the MPS were appropriate with all the data sources and assumptions and the calculations were correct to the proposed JCM project;
- All assumptions and data used by the PPs were listed in the PDD, including their references and sources; and
- All values used in the PDD were considered reasonable in the context of the proposed JCM project.

C.5. Environmental impact assessment

<Means of validation>

The proposed project is to install 500 kW rooftop solar power systems at the existing factory buildings and an environmental impact assessment is not required by laws of the host country. The validation team assessed the applicable legal requirements in the host country using its local sources/expertise and confirmed that an environmental impact assessment is not required to be conducted for implementation of the project.

The details of the persons interviewed and documents reviewed are provided in the Section E of this report.

<Findings>

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

No issue was raised to the requirements of this section.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed by assessing the relevant documents and using the local sources/expertise that the project does not need an environmental impacts assessment to be conducted to meet the legal requirement of the host country and the PDD satisfies the requirements of the JCM.

C.6. Local stakeholder consultation

<Means of validation>

The PPs identified the government of the host country, local government, international development agency, financial institutions, industrial associations, EPC contractor, clients and staff of PT. Indesso Aroma as the local stakeholders and held a consultation meeting. Representatives of the local stakeholders attended the meeting provided comments mainly related to the implementation of the project and no negative issue was raised through the process.

Through the processes taken, CL 2 was raised as the resolution detailed below.

The details of the persons interviewed and documents reviewed are provided in the Section E of this report.

<Findings>

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

Grade / Ref: CL 2

Nature of the issue raised: The PDD E.2. should explain how due account has been taken in consideration of the comments received from the relevant local stakeholders.

Nature of responses provided by the PPs: Revised PDD was submitted by the PPs for review by the validation team.

Assessment of the responses: The validation team confirmed the information added to the revised PDD as appropriate. The CL was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the PPs have invited comments to the proposed project from the relevant 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 received from the local stakeholders as the processes described in the PDD.

C.7. Monitoring

<Means of validation>

The MP consisting of the MPS and Monitoring Structure Sheet (MSS) is based on the approved methodology.

The electricity generated by the project solar power systems is directly and continuously measured. The reading is taken by electricity meters installed to measure electricity generation from the solar PV modules connected to each inverter.

Accuracy class of the electricity meters are 0.5s.

The roles and responsibilities of the persons are described in the MSS in accordance with the

requirements of the applied methodology. The reading results of electricity meters are monthly recorded and checked by responsible persons.

The validation team confirmed that the MP complied with the requirements in the approved methodology and that the PPs will be able to apply the MP following the monitoring arrangements described in it. CAR 2 and CAR 3 were issued that the details of resolution are as described below.

The details of the persons interviewed and the documents reviewed are shown in the Section E of this report.

<Findings>

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

Grade / Ref: CAR 2

Nature of the issue raised: The Monitoring Plan needed to be completed with the specific information of the project including:

- 1) The QA/QC procedures,
- 2) The details of the measuring equipment on accuracy level and calibration information, and
- 3) Responsible persons for monitoring including the roles to produce and ensure quality of the monitoring report and to maintain and control measuring instruments (including calibration/regular inspection) at the monitoring point.

Nature of responses provided by the PPs: The PPs submitted the revised MP and the calibration certificates as the supporting evidence.

Assessment of the responses: The revised MP addresses that the calibration frequency of electricity meters will not exceed 5 years from the latest calibration and PV Operations Manager is responsible for quality of the MR and the measuring instruments at the monitoring point. Accuracy class of two electricity meters is 0.5s and calibration was conducted on 11/09/2017 and 19/02/2018 respectively. Relevant information is included in the revised MPS. The CAR was closed.

Grade / Ref: CAR 3

Nature of the issue raised: How the procedures for calibration of the measuring equipment fulfil the requirements needed to be demonstrated with supporting evidence.

Nature of responses provided by the PPs: The PPs submitted the revised MP and the calibration certificates as the supporting evidence.

Assessment of the responses: The revised MP addresses that the calibration frequency of electricity meters will not exceed 5 years from the latest calibration.

The two electricity meters were calibrated on 11/07/2017 and 30/08/2017 respectively in conformance with IEC 62053-22. The CAR was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the MP was described in compliance with the requirements of the approved methodology and the Guidelines for developing PDD and MR, and the PPs have demonstrated feasibility of the monitoring structure and their ability to implement the MP.

C.8. Modalities of Communication

<Means of validation>

The MoC was prepared in the form JCM_ID_F_MoC_ver01.0. The MoC nominates Next Energy and Resources Co., Ltd. as the focal point and is signed by the authorized representatives of all the PPs with the contact details. The form used is the latest one as of the time of validation.

CAR 5 was issued that the details of resolution are as described below.

The details of the persons interviewed and the documents reviewed are shown in the Section E of this report.

<Findings>

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

Grade / Ref: CAR 5

Nature of the issue raised: Completed MoC and the relevant evidence to confirm information in the MoC had not been provided.

Nature of responses provided by the PPs: Signed MoC and the declaration letters on the MoC from both PPs were submitted for review by the validation team.

Assessment of the responses: The validation team confirmed that the completed MoC has been submitted from the PPs and the declaration letter on MoC was submitted as the evidence. The CAR was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the MoC was completed using the latest form after assessment conducted on relevance of the MoC in compliance with the requirements of the JCM Guidelines.

C.9. Avoidance of double registration

<Means of validation>

The validation team assessed and confirmed relevance of the written confirmation in the MoC from the PPs that the proposed JCM project was not registered under the other international climate mitigation mechanisms.

The team in addition to the interviews with the PPs checked publicly accessible information of Clean Development Mechanism (CDM), Joint Implementation (JI), Verified Carbon Standard

(VCS) and Gold Standard (GS) and found no identical project as the proposed JCM project in terms of the name of entities, applied technology, scale and the location. The result of researches confirmed that the proposed project was not registered under the other international climate mitigation mechanisms than JCM and it will not result in a double counting of GHG emission reductions.

The details of the persons interviewed and the documents reviewed are shown in the Section E of this report.

<Findings>

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

Please refer to CAR 5 and its resolution in the above Section C.8.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the proposed JCM project was not registered under the other international climate mitigation mechanisms.

C.10. Start of operation

<Means of validation>

The start date for the operation of the proposed JCM project is indicated in the PDD as 02/04/2018. The validation team confirmed correctness/relevance of the information by reviewing the supporting evidence, including but not limited to assessing of the contracts, and that the date is not before 01/01/2013 as required to be eligible as a JCM project.

<Findings>

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

Please refer to CAR 1 and its resolution in the above Section C.2.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the start date of operation of the proposed JCM project is not before 01/01/2013 as required to be eligible as a JCM project.

C.11. Other issues

<Means of validation>

No issue was identified as relevant element not covered above.

<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, the PDD is to be made publicly available for 30 days to invite public comments. The PDD was made publicly available in line with the requirements of the procedure for the period of 01/09/2018 to 30/09/2018 as per <https://www.jcm.go.jp/id-jp/projects/50>.

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

No comment was received during the above period to receive public inputs.
Thus no action was required to be taken by the PPs to satisfy the JCM requirement.

E. List of interviewees and documents received

E.1. List of interviewees

PT. Indesso Aroma

Feri Agustian Soleh, Senior Manager, External Relation and Customer Service

Endar Fitrianto, Manager, Maintenance

R. Edwin Jarot, QHSE

Next Energy and Resources Co., Ltd.

Tadashi Yoshida, General Manager, Sales and Marketing Department, Plant Construction Division

Hikaru Nojiri, Sales Executive, Sales and Marketing Department, Plant Construction Division

PT. Meiden Engineering Indonesia

M. Faktaruddin, Senior Manager, Construction No.2 - MNT

Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.

Atsuko Nuibe, Senior Consultant, Clean Energy Finance Division

Ricky Tagar Risnauli, Senior Consultant, Clean Energy Finance Division

E.2. List of documents received

Category A documents (documents prepared by the PP)

- PDD Version 01.0 dated 15/02/2018 with the monitoring spreadsheet
- Revised PDD Version 01.1 dated 30/08/2018 with the monitoring spreadsheet
- Revised PDD Version 01.2 dated 19/11/2018 with the monitoring spreadsheet
- JCM Sustainable Development Implementation Plan Version 01.0 dated 15/02/2018
- Layout Solar Panel on the roof
- Single Line Diagram PLN Parallel to PV system
- Single Line Diagram from TR to solar panel
- Technical specification of system components
- PT. Indesso Aroma profile, overview of solar PV project
- Block plan
- Electrical wiring diagram
- Electricity usage (2014-2016)
- Project outline
- Project schedule
- Contract for rooftop PV system installation (incl. warranty clauses)
- EDM I Mk6 (GENIUS) Class 0.5s & Class 1 Meters for all HVCT and MVCT applications specification
- SINGENIEURBURO Mencke & Tegmeyer GmbH Silicon Irradiance Sensor specification
- Solajit specification
- Layout of panel
- Simulation of solar power generation
- Act of Japan's Ministry of Finance for calculation of useful lifetime for depreciation and amortization
- Draft certificate of warranty, Next Energy and Resources, Co., Ltd.
- Certificate of IEC 61215, IEC 61730-1 and IEC 61730-2 issued by TUV Nord dated 12/01/2018
- Law No. 02 year 1981 on legal metrology
- Government decree No. 02 year 2985
- Minister of Trade decree No. 08 year 2010
- Minister of Trade decree No. 95 year 2015
- Minister of Trade decree No. 69 year 2012

- SNI ISO IEC 17025 2008 standard
- KAN TN LK 01 Technical Notes
- KAN P 08 Policy on Traceability of Measurement Results
- Summary of Guidelines for Calibration in Indonesia
- O&M summary for the PV system, Next Energy and Resources, Co., Ltd.
- Ministry of Environment decree 05/2012
- LSC minutes of meeting at PT. Indesso Aroma
- Agenda of LSC dated 25/09/2017
- LSC invitation letter
- LSC list of invitees
- LSC attendance list
- Calibration certificate for EDM electricity meter S/N 217216164 dated 11/07/2017
- Acknowledgement letter for commissioning of the project dated 29/03/2018
- Domicile permit for PT. Indesso Aroma dated 05/12/2017
- Calibration certificate for EDM electricity meter S/N 217216467 dated 30/08/2017
- Declaration letter on MoC, Next Energy and Resources Co., Ltd.
- Declaration letter on MoC, PT. Indesso Aroma dated 15/03/2018
- Environmental permit dated 18/10/2016
- E-mails on local stakeholders' consultation
- Meter recording form
- Diesel Genset Logsheet 2016, 2017
- Gas Engine Logsheet 2015, 2016, 2017
- PLN Electricity Bill 2015, 2016, 2017
- Electricity Supply Agreement
- PLN Premium Services
- Calibration Report for EDM electricity meter S/N 217216164 dated 11/09/2017
- Calibration Report for EDM electricity meter S/N 217216467 dated 19/02/2018
- JCM MoC Statement Form dated 31/08/2018
- Operation & Maintenance Outline, Next Energy & Resources Co., Ltd.
- Estimated electricity generation and emission reductions for each year

Category B documents (other documents referenced)

- JCM_ID_AM013_ver01.0 Installation of Solar PV System Ver 1.0
- Additional Information on calculating the emission factors of Indonesia for the JCM
- JCM Project Cycle Procedure JCM_ID_PCP_ver05.0
- JCM Guidelines for Validation and Verification JCM_ID_GL_VV_ver01.0
- JCM Guidelines for Developing PDD and MR JCM_ID_GL_PDD_MR_ver02.1 and

JCM_ID_GL_PDD_MR_ver03.0

- JCM Glossary of Terms JCM_ID_Glossary_ver02.0
- JCM PDD Form JCM_ID_F_PDD_ver01.1 and JCM_ID_F_PDD_ver02.0
- JCM MoC Statement Form JCM_ID_F_MoC_ver01.0
- JCM Validation Report Form JCM_ID_F_Val_Rep_ver01.0
- Approved Small Scale CDM Methodology AMS I.D. Version 18.0 Grid connected renewable electricity generation
- Approved CDM Methodological Tool to calculate the Emission Factor for an electricity system
- Proposed and registered projects under CDM, VCS, Gold Standard, and the other international schemes
- IEC 62053-22:2003, Electricity metering equipment (ac) - Particular requirements. Part 22: Static meters for active energy (classes 0,2 S and 0,5 S)

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 Appointment is attached to this report.

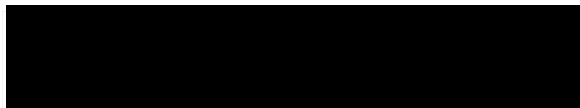
Joint Crediting Mechanism Certificate of Appointment

Title of Project: Validation for Introduction of 0.5MW Solar Power System to Aroma and Food Ingredients Factory

We hereby certify that the following personnel have engaged in the validation process that has fully satisfied the competence requirements of the validation of the JCM project.

Name of Person	Assigned Roles
Michiaki Chiba	Team Leader
Cholid Bafagih	Team Member
Xianxin Yan	Technical Reviewer

Signed by



Michiaki Chiba
Climate Change Manager – Asia & Pacific
28/02/2018