JCM Validation Report Form

A. Summary of validation

A.1. General Information

Title of the project	Energy Saving for Industrial Park with Smart LED Street Lighting System
Reference number	ID025
Third-party entity (TPE)	Japan Quality Assurance Organization (JQA) (TPE-ID-003)
Project participant contracting the TPE	NTT FACILITIES, INC.
Date of completion of this report	02/04/2021

A.2 Conclusion of validation

Overall validation opinion	☒ Positive ☐ Negative

A.3. Overview of final validation conclusion

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

Item	Validation requirements	No CAR or CL remaining
Project design document form	The TPE determines whether the PDD was completed using the latest version of the PDD forms appropriate to the type of project and drafted in line with the Guidelines for Developing the Joint Crediting Mechanism (JCM) Project Design Document, Monitoring Plan and Monitoring Report.	☒
Project description	The description of the proposed JCM project in the PDD is accurate, complete, and provides comprehension of the proposed JCM project.	☒
Application of approved JCM methodology (ies)	The project is eligible for applying applied methodology and that the applied version is valid at the time of submission of the proposed JCM project for validation.	☒
Emission sources and calculation of emission reductions	All relevant GHG emission sources covered in the methodology are addressed for the purpose of calculating project emissions and reference emissions for the proposed JCM project.	☒
	The values for project specific parameters to be fixed *ex ante* listed in the Monitoring Plan Sheet are appropriate, if applicable.	☒
Environmental impact assessment	The project participants conducted an environmental impact assessment, if required by the Republic of Indonesia, in line with Indonesia'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 unless a local stakeholder consultation has been conducted under an environmental impact assessment.	
Monitoring	The description of the Monitoring Plan (Monitoring Plan Sheet and Monitoring Structure Sheet) is based on the approved methodology and/or Guidelines for Developing the Joint Crediting Mechanism (JCM) Project Design Document, Monitoring Plan, and Monitoring Report. The monitoring points for measurement are appropriate, as well as whether the types of equipment to be installed are appropriate if necessary.	☒
Public inputs	All inputs on the PDD of the proposed JCM project submitted in line with the Project Cycle Procedure are taken into due account by the project participants.	☒
Modalities of communications	The corporate identity of all project participants and a focal point, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories are included in the MoC.	☒
	The MoC has been correctly completed and duly authorized.	☒
Avoidance of double registration	The proposed JCM project is not registered under other international climate mitigation mechanisms.	☒
Start of operation	The start of the operating date of the proposed JCM project does not predate January 1, 2013.	☒

Authorised signatory:	Mr. ☒ Ms. ☐
Last name: Asada	First name: Sumio
Title: Senior Executive	
Specimen signature: [redacted]	Date: 02/04/2021

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 submitted for validation is checked and confirmed to be complete in accordance with the JCM Guidelines for Developing Project Design Document and Monitoring Report (JCM_ID_GL_ PDD_MR_ver03.0). The latest version of the JCM PDD form (JCM_ID_F_PDD_ver02.0) is applied for the PDD of the proposed project (Version 01.0 dated 12/02/2020 for the first edition and Version 02.0 dated 08/03/2021 for the second edition).

<Findings>

No issue was 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 GHG emissions from the electricity consumption of street lighting system, which is connected to Jamali national grid, by replacing the existing high pressure sodium (HPS) street lights with advanced and efficient light emitting

diode (LED) lights. To achieve energy saving, 1,112 units of the LED lights are installed in 15 sections of Karawang International Industrial City (KIIC) park. This intelligent street light is equipped with a remote controlling and monitoring system to detect the failure and trouble of the light and further to dim the light automatically by timers. The street lighting system consists of LED light, Outdoor lighting controller (OLC), Smart Control Box and PC server system. The remote control and the collection of electricity consumption data of LED street light are operated at Data Center in the KIIC through internet transmission. The project LED light is made by Stanley Electric Co., Ltd. and two types of the LED light with a rated power consumption of 190W and 95W are used for the proposed project.

The energy saving of about 8-9% is expected for each type of the project LED light. Therefore, the implementation of the proposed project would contribute to the reduction of GHG emissions from the street lighting system. As a result, the proposed project would reduce the emissions of 29 tCO_2 per year and 123 tCO_2 in total during the monitoring period of 2016 - 2020.

The proposed project is undertaken in the KIIC Industrial Park, Karawang, Indonesia, and implemented by PT. Maligi Permata Industrial Estate, PT. Harapan Anang Bakri & Sons and PT. Karawang Tatabina Industrial Estate from the Republic of Indonesia and NTT FACILITIES INC. from Japan. The first commissioning of the project LED lighting system was satisfactorily completed at 3 sections of GH-Premium, Miura and Utility 3 on 29/09/2016, which is confirmed by Test and Commissioning Report issued by NTT FACILITIES, INC. The installation of all LED street lights was completed on 07/10/2016. Therefore, it is confirmed that the starting date of project operation is 30/09/2016.

The expected operational lifetime of the project is 10 years, which is based on the legal durable years for the facilities of instrument and equipment 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 02/11/2015, which provides financial support of less than half of the initial investment for the projects in order to acquire JCM credits.

As for technology transfer, NTT FACILITIES INC. has conducted OJT training on the operation and maintenance of the LED street lighting system for the management team of KIIC on 19/10/2016.

The validation team has assessed the PDD and the supporting documents through the desk review and the interview with the PPs, without on-site visit, to validate the accuracy and completeness of the project description based on the relevant requirements. No on-site visit is justified as follows: The validation of the accuracy and completeness of the project description is conducted by the document review and e-mail interview including web meeting

with the PPs. The sufficient evidences and information relevant to the proposed project are provided by the PPs, and the team has determined whether the information and description in the PDD are accurate and complete.

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

Regarding the electricity consumption and the dimming control of the LED lights, the validation team raised CL 01 and CL 02 and these issues were resolved as explained in "Findings".

<Findings>

< *CL 01* >

It is not clearly described in A.2 of the PDD which electricity is saved by the proposed project.

< Comments from the PPs >

The sentence has been revised as follows: "The proposed JCM project aims to reduce electricity consumption of street lighting system by ….".

< Assessment by the TPE >

It is confirmed through the review of the revised PDD that the electricity consumption of street lighting system is saved by introducing an advanced and efficient street lighting system using LED lights. Thus, CL 01 is closed.

< *CL 02* >

The PPs are requested to clarify how the dimming of the LED light in A.2 of the PDD is controlled.

< Comments from the PPs >

The sentence has been revised as follows: "…. and dims the light automatically by timers ".

< Assessment by the TPE >

It is confirmed through the review of the revised PDD that the dimming of the light is controlled by timer, not by reflecting the surrounding environment brightness. Thus, CL 02 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_ID_AM018_ver01.0 "Installation of LED Street Lighting with Lighting Control System" is applied to the proposed project. The methodology is approved by the JC on 07/03/2019 (Electronic decision) 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 one eligibility criterion contained in the approved methodology. The project information for the eligibility criterion and the assessment/conclusion about its applicability to the proposed project are summarized in the following table.

Eligibility criteria	Descriptions specified in the methodology	Project information	Assessment and conclusion
Criterion 1	LED street lighting accompanied by lighting control system are newly installed or installed to replace existing street lighting.	High efficient LED lamps are installed to replace existing 1,112 street light (HPS) in the KIIC Industrial Park. The installed street lighting is accompanied by the remote controlling and monitoring system to monitor the failure and trouble of the lighting system and to control the light intensity of the light output.	It is confirmed through the review of Test and Commissioning Report on the installation of LED lamps and relevant documents, and e-mail interview with the PPs that 1,112 units of the HPS lamps in the KIIC Industrial Park are replaced with the LED street lighting accompanied by the remote controlling and monitoring system. Hence, Criterion 1 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 ID_AM018 and one eligibility criterion is met by the proposed project.

C.4. Emission sources and calculation of emission reductions

<Means of validation>

The proposed project aims to reduce GHG emissions from electricity consumption of the street lighting system by replacing the existing HPS lights with highly efficient LED lights in the KIIC Industrial Park.

As per the methodology ID_AM018_ver. 01.0, reference emissions are sourced from the electricity consumption by reference street lighting and project emissions are sourced from the electricity consumption by project street lighting.

Reference emissions are calculated from electricity consumption of project street lighting, ratio of luminous efficiencies of project/reference lighting and CO_2 emission factor for consumed electricity, which is expressed by Equation (1), in accordance with the methodology ID_AM018:

$$REp = \Sigma (EC_{PJ,i,p} \times \eta_{PJ,I} / \eta_{RE,i} \times EF_{elec}) \quad \text{---------- (1)}$$

Where:

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

$EC_{PJ,i,p}$: Electricity consumption of project street lighting for group *i* during the period *p* (MWh/p)

$\eta_{PJ,i}$: Luminous efficiency of project street lighting for group *i* (lm/W)

$\eta_{RE,i}$: Luminous efficiency of reference street lighting for group *i* (lm/W)

EF_{elec} : CO_2 emission factor for consumed electricity (tCO_2/MWh)

i : Group of LED street lighting installed in the project based on rated power consumption (RPC)

For conservativeness, LED street lighting accompanied by lighting control system, which is more efficient than the existing HPS street lighting, is adopted as reference lighting in this methodology. The luminous efficiency of reference lighting ($\eta_{RE,i}$) is 115 lm/W or 100 lm/W, which depends on the rated power consumption (RPC) of project street lighting as stipulated by the methodology. Namely, the value of luminous efficiency of reference street lighting is 115 lm/W for project street lighting of which the RPC value is less than 90 W and 100 lm/W for more than 90 W, respectively.

As the grid electricity is consumed by the project lighting, the most recent CO_2 emission factor of Jamali grid (EF_{elec}), 0.877 tCO_2/MWh (*ex-post* value), is applied in the calculation of reference emissions. The value is sourced from "Emission Factor of Electricity Interconnection Systems (2016)", Indonesia Joint Crediting Mechanism (JCM) website, based on data obtained by Directorate General of Electricity, Ministry of Energy and Mineral Resources, Indonesia.

It is confirmed through the review of relevant documents and the interview with the PPs that the project-specific parameters to be fixed *ex-ante* such as $\eta_{PJ,i}$, $\eta_{RE,i}$ and EF_{elec} are correctly applied in the calculation of reference emissions.

Project emissions are calculated from electricity consumption of project lighting and CO_2 emission factor for consumed electricity, which is expressed by Equation (2):

$$PE_p = \Sigma EC_{PJ,i,p} \times EF_{elec} \quad \text{----------} \quad (2)$$

Where:

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

$EC_{PJ,i,j,p}$: Electricity consumption of project street lighting for group *i* during the period *p* (MWh/p)

FF_{elec} : CO_2 emission factor for consumed electricity (tCO_2/MWh)

The *ex-ante* value of $EC_{PJ,i,p}$ in the MPS(input) is based on the actual data measured throughout a year of 2019.

Thus, the GHG emission reductions during the period *p* are calculated by Equation (3), in line with the approved methodology:

$$ER_p = RE_p - PE_p \quad \text{----------} \quad (3)$$

Where:

ERp : Emission reductions during the period *p* (tCO_2/p)

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

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

As a result, the annual emission reductions estimated *ex-ante* for 1,112 units of project street lighting installed in the KIIC Industrial Park are calculated as follows:

$$ER_p = RE_p - PE_p$$

$$= \Sigma (EC_{PJ,i,p} \times \eta_{PJ,i} / \eta_{RE,i} \times EF_{elec}) - \Sigma EC_{PJ,i,p} \times EF_{elec}$$

$$= 352.0 \times 109.47/100.00 \times 0.877 - 352 \times 0.877$$

$$= 29\ tCO_2$$

The GHG annual emission reductions are estimated to be 29 tCO_2 and the sum of the emission reductions for the period of 2016 – 2020 is estimated to be 123 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 ID_AM018_ver01.0.

Regarding the description of figures in the table and CO_2 emission factor of the grid, the validation team raised CAR 01 and CAR 02 and these issues were resolved as explained in "Findings".

<Findings>

< *CAR 01* >

The values of reference emissions and project emissions in the table of C.3 of the PDD should be given with the first place after the decimal point.

< Comments from the PPs >

The PPs have corrected the values of reference emissions and project emissions with the first place after the decimal point.

< Assessment by the TPE >

It is confirmed through the review of the revised PDD that the values of reference emissions and project emissions in the table of C.3 are appropriately corrected and described with the first place after the decimal point. Thus, CAR 01 is closed.

< *CAR 02* >

The PPs are requested to provide the latest CO2 emission factor and the name of the national grid connected to the proposed project in Table 2 of the MPS.

< Comments from the PPs >

The PPs have corrected the value of CO_2 emission factor based on the evidence and provided the name of the national grid.

< Assessment by the TPE >

It is confirmed through the review of the revised MPS(input) that the value of CO_2 emission factor (EF_{elec}) for Java-Madura-Bali (JAMALI) grid connected to the proposed project is corrected to 0.877 tCO_2/MWh (*ex-post* value) based on the latest data obtained by Directorate General of Electricity, Ministry of Energy and Mineral Resources, Indonesia. Thus, CAR 02 is closed.

<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 the parameter to be monitored ($EC_{PJ,i,p}$) *ex-post* in the MPS are determined based on the actual data measured throughout a year of 2019 and the values for the project-specific parameters to be fixed *ex-ante* listed in the MPS are also correctly determined. 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 electricity consumption of street lighting system by replacing the HPS lights with project LED street lights. The PDD states that an Environmental Impact Assessment (EIA) is not required, because the proposed project does not conduct a physical development with an impact to the society as well as the environment around the project site. According to the Ministry of Environment decree no 05 year 2012, there is no stipulation which requires EIA to such kind of the technology implementation. Therefore, the validation team confirms that EIA is not required.

<Findings>

No issue was raised to the requirement.

<Conclusion based on reporting requirements>

The validation team concludes that no EIA is required to the proposed project. The implementation of the project is in line with the regulations in the Republic of Indonesia and the requirements of the JCM.

C.6. Local stakeholder consultation

<Means of validation>

The PPs conducted a local stakeholder consultation (LSC) at the office of Indonesian JCM Secretariat on 31/10/2016 and at the operation office of KIIC on 07/11/2016. The LSC was notified to the stakeholders by e-mail prior to the meeting.

Following public and private entities are identified as stakeholders and they were invited

for Local Stakeholders' Consultation Meeting:

- Indonesia JCM Secretariat
- Project participants of KIIC
- Autonomy and Cooperation Bureau

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.

<Findings>

No issue was raised to the requirement.

<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>

The electricity consumption of each LED street light is continuously measured with Outdoor Lighting Controller (OLC) and then the monitored data is transmitted to Data Center via Smart Control Box. The data is summed up to obtain the electricity consumption of all project street lights for group *i* during the period *p* ($EC_{PJ,j,p}$), in accordance with Method I given by the registered monitoring plan, and recorded on a monthly basis.

The monitoring point (1) for electricity consumption of project LED light is located at the right position between LED street light pole and Smart Control Box, as illustrated by the figure in C.2 of the PDD. The manufacturer's specification of OLC with an accuracy of 2% (made by Echelon) has been prepared by the time of installation.

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 (NTT FACILITIES, INC), Project Deputy Manager (Indonesia office of NTT FACILITIES, INC), Facility Manager (Indonesian

PP). Project Manager is responsible for entire project management and reporting, and Project Deputy Manager is in charge of approval and archiving of the monitored data. Facility Manager is responsible for data collection and storage, and staff training.

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 data, the monitoring point, the monitoring method and the affiliation of each personnel, the validation team raised CAR 03, 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 in the MSS.

< Comments from the PPs >

The information on the archiving of the monitored data is newly added as a role of Project Deputy Manager in the MSS.

< Assessment by the TPE >

It is confirmed through the review of the revised MSS and the interview with the PPs that Project Deputy Manager (Indonesia office of NTT FACILITIES, INC.) is responsible for the archiving of monitored data for 2 years after the final issuance of credits. Thus, CAR 03 is closed.

< *CL 03* >

The monitoring point (1) of OLC to measure electricity consumption of each street light is not appropriately illustrated in C.2 of the PDD

< Comments from the PPs >

The monitoring point (1) of OLC is revised in the figure of C.2 of the PDD.

< Assessment by the TPE >

It is confirmed through the review of the revised PDD and the interview with the PPs that the monitoring point (1) of OLC is correctly illustrated in the figure of C.2 of the PDD. Thus, CL 03 is closed.

< *CL 04* >

The PPs are requested to clarify which method (Method I or Method II) is applied to measure electricity consumption in Table 1 of the MPS.

< Comments from the PPs >

Method I is applied to measure electricity consumption of each street light in the proposed project.

< Assessment by the TPE >

It is confirmed through the review of the revised MPS (input) and the interview with the PPs that Method I is selected as a measurement method, *i.e*., the measure instrument (Outdoor Lighting Controller) is installed in each LED street light to monitor its electricity consumption and then recorded data are summed up to obtain the electricity consumption of all project street light for group *i* ($EC_{PJ,i,p}$). Thus, CL 04 is closed.

< *CL 05* >

The PPs are requested to describe the affiliation of each personnel in the MSS to clarify the responsibility of each PP.

< Comments from the PPs >

The affiliation of each personnel is added in the MSS.

< Assessment by the TPE >

It is confirmed through the review of the revised MSS that the affiliation of each personnel is appropriately added in the MSS to clarify the role of each PP. 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 points as well as measuring equipment are 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 08/12/2020, in the valid form (JCM_ID_F_MoC_ver01.0) at the time of validation, in which NTT FACILITIES, INC. is nominated as the focal point. The MoC was signed by the authorized representatives of PT.

MALIGI PERMATA INDUSTRIAL ESTATE, et al. on 13/03/2020 and by the authorized representatives of NTT FACILITIES, INC. on 20/02/2020, 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. Primary authorized signatory of NTT FACILITIES, INC. is Deputy Senior Executive Manager of Global Business Headquarter, and alternate authorized signatory is Manager of the same Department. Primary authorized signatory of PT. MALIGI PERMATA INDUSTRIAL ESTATE is Director and alternate authorized signatory is Head of Estate Management Division.

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 issue was 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 Senior Executive Manager of NTT FACILITIES, INC., 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 issue was 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>

For the proposed project, the first installation of the project LED street lighting system was satisfactorily completed at 3 sections of GH-Premium, Miura and Utility 3 on 29/09/2016 and the project operation started on 30/09/2016. It is confirmed through the review of Test and Commissioning Report issued by NTT FACILITIES, INC. and the e-mail interview with the PPs that the monitoring activity of the proposed project was actually commenced on 30/09/2016.

<Findings>

No issue was raised to the requirement.

<Conclusion based on reporting requirements>

The validation team concludes that the starting date of project operation, 30/09/2016, is correct 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 05/11/2020 and 04/12/2020 to invite public comments on the following JCM website:

https://www.jcm.go.jp/id-jp/projects/79

No public comments were 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. Yohei Ishihara	Assistant Chief Representative, Indonesia Public Work Representative Office, NTT FACILITIES, INC.
− Mr. Irwansyah	Head of Estate Management Division, PT. Maligi Permata Industrial Estate, PT. Harapan Anang Bakri & Sons and PT. Karawang Tatabina Industrial Estate

E.2. List of documents received

1. PDD, ver. 01.0, 12/02/2020 and ver. 02.0, 08/03/2021
2. Monitoring Plan Sheet and Monitoring Structure Sheet, 12/02/2020 and ver. 02.0, 08/03/2021
3. JCM Modalities of Communication Statement Form (MoC) submitted for JC, dated 30/06/2020
4. Business cards of Primary authorised signatory, Alternate authorised signatory from Japanese and Indonesian sides along with Contact person
5. JCM Approved Methodology ID_AM018_ver01.0, 07/03/2019
6. Monitoring Spreadsheet ID_AM018_ver01.0
7. JCM Modalities of Communication Statement Form (JCM_ID_F_MoC_ver01.0)
8. JCM Glossary of Terms (JCM_ID_Glossary_ver02.0)
9. JCM Project Cycle Procedure (JCM_ID_PCP_ver05.0)
10. JCM Project Design Document Form (JCM_ID_F_PDD_ver02.0)
11. JCM Guidelines for Developing Project Design Document and Monitoring Report (JCM_ID_GL_PDD_MR_ver03.0)
12. JCM Validation Report Form (JCM_ID_F_Val_Rep_ver01.0)
13. JCM Guidelines for Validation and Verification (JCM_ID_GL_VV_ver01.0)
14. Layout diagram of the LED street lighting system installed in KIIC Industrial Park

15-1. Overview of the intelligent street light system

15-2. Specification of Smart Server 2.0 issued by Echelon

15-3. Specification of Outdoor Lighting Controller (OCL) issued by Echelon on 17/03/2015

15-4. Confirmation comment on OLC from the manufacturer's agent
16. Introduction of KIIC Industrial Park activity
17. Company profile of NTT Facilities, Inc.
18. Test and commissioning report of the LED lighting system installed in the KIIC industrial park in 2016, to demonstrate the starting date of project operation
19. Legal durable year list issued by Ministry of Finance, Japan, to demonstrate the expected operational lifetime (10 years) of the instrument and equipment
20. Contract of the proposed project between NTT Facilities, Inc. and Global Environment Centre Foundation (GEC) dated 02/11/2015
21-1. Records of the staff training for operation and maintenance of the smart lighting system on 19/10/2016, implemented by NTT Communications
21-2. Training material on the time control of LED street lighting system
21-3. Training material on the cloud system of LED street lighting system
22-1. Specification of LED light 190W, issued by Stanley Electric Co., Ltd.
22-2. Specification of LED light 95W, issued by Stanley Electric Co., Ltd.
23. Minutes of the local stakeholder consultation meeting held on 07/11/2016
24. Presentation material used at the local stakeholder consultation meeting
25. Electricity consumption data of LED street lighting system measured in 2019
26. 2016 CO_2 emission factor of the national grid, issued by Directorate General of Electricity, Ministry of Energy and Mineral Resources, Indonesia
27. Monitoring structure with monitoring data flow
28. Ministry of Environment decree no 05 year 2012
29. Photos of LED street light, OLC and Smart Server installed at 3 sections of GH-Premium, Miura and Utility 3

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	-