JCM Validation Report Form

A. Summary of validation

A.1. General Information

Title of the project	Introduction of CNG-Diesel Hybrid Equipment to Public Bus in Semarang
Reference number	ID032
Third-party entity (TPE)	EPIC Sustainability Services Private Limited
Project participant contracting the TPE	Hokusan Co., Ltd.
Date of completion of this report	22/03/2023

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 consultation	The project participants have completed a local stakeholder consultation process and that due steps were taken to engage stakeholders and solicit comments for the proposed	☒

Item	Validation requirements	No CAR or CL remaining
	project 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: R.B.	First name: Venkataramanaiah
Title: Director	
Specimen signature: [redacted]	Date: 22/03/2023

B. Validation team and other experts

	Name	Company	Function*	Scheme competence*	Technical competence*	On-site visit
Mr. ☒ Ms. ☐	A. Prabu Das	EPIC Sustainability Services Pvt. Ltd.	Lead auditor/ Team Leader	☒	Qualified	☐
Mr. ☒ Ms. ☐	Bharath S	EPIC Sustainability Services Pvt. Ltd.	Auditor/ Team Member	☒	Qualified	☒
Mr. ☐ Ms. ☒	Priyanka M S	EPIC Sustainability Services Pvt. Ltd.	Auditor/ Team Member	☒	Qualified	☐
Mr. ☒ Ms. ☐	R Vijaya Raghava	EPIC Sustainability Services Pvt. Ltd.	Technical Reviewer/ Internal Reviewer	☒	Qualified	☐

Please specify the following for each item.

* *Function: Indicate the role of the personnel in the validation activity such as team leader, team member, technical expert, or internal reviewer.*
* *Scheme competence: Check the boxes if the personnel have sufficient knowledge on the JCM.*
* *Technical competence: Indicate if the personnel have sufficient technical competence related to the project under validation.*

C. Means of validation, findings, and conclusion based on reporting requirements

C.1. Project design document form

<Means of validation>

The PDD was checked and confirmed as complete against JCM Guidelines for Developing PDD and MR No. JCM_ID_GL_PDD_MR_ver01.0. A valid form of the JCM PDD Form No. JCM_ID_F_PDD_ver02.0 is used for the PDD Version 2.0. The version is the final version on which the validation is completed.

<Findings>

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

No findings are raised in this section.

<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>

Toyama City has concluded a cooperation agreement between Semarang City to realize low carbon society under inter-city cooperation. Based on the cooperation agreement, this project aims to reduce GHG emissions through fuel switch from diesel to CNG. In the project, 72 diesel buses owned by Trans Semarang, including 25 large-sized buses and 47 mid-sized buses, are retrofitted from diesel engine to hybrid engine with CNG system available.

The proposed project was partially supported by the Ministry of the Environment, Japan (MOEJ) through the financing programme for JCM model projects, which provided financial support of less than half of the initial investment for the projects to acquire JCM credits and this is verified using the document for financial support by Ministry of Environment, Japan. Furthermore, implementation of the proposed project promotes transfer of low carbon technologies in Indonesia. The proposed JCM project also provides local staff with a technical training for maintenance skill.

The validation team assessed the latest version of the PDD (JCM_ID_F_PDD_ver2.0) and the observations are as follows.

- Ownership of the buses are confirmed by reviewing the ownership document and registration certificates of the Project buses by Trans Semarang
- Installation of CNG-Diesel Hybrid engine is confirmed by reviewing the Schematic diagram of the Hybrid system, Testing certificate of the CNG-Diesel hybrid engine, Instruction manual of installation of CNG system into the existing Diesel engine and by on-site assessment
- Agreement between BLU UPTD Trans Semarang and Hokusan Co., Ltd. is verified for the confirmation of project participants.
- Company incorporation certificate of BLU UPTD Trans Semarang is verified.
- Company incorporation certificate of Hokusan Co., Ltd is verified.

Also, the validation team conducted a physical site visit to validate the requirements concerning accuracy and completeness of the project description. Through the processes taken, CAR and CLs were raised and subsequently closed 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.

CL 01 - The CNG-Diesel hybrid system uses both CNG and Diesel as a fuel. However, the ratio of CNG and Diesel used in the project buses per trip is not defined. PP to clarify on the ratio of

usage of CNG and Diesel in the buses.

CL 02 - PP to clarify the basis of unique identification of each project buses from each corridor through documental evidence.

CL 03 - In the submitted document titled “CNG Convertor for bus rapid transit Trans Semarang”, in page 12, the Solar is referred as a part of fuel testing. PP to clarify relevance of Solar in fuel testing in the project technology.

CAR 01 - PP to provide detailed information on the working of the CNG-Diesel hybrid equipment in the public buses.

CAR 06 - PP to provide the schematic diagram of the engine in the baseline scenario i.e, 100% diesel as a fuel. Also, provide the details of the difference in the working of engine in Project scenario in comparison to the baseline scenario.

CAR 07 - As per the document titled “CNG Convertor for bus rapid transit Trans Semarang”, under the project plan, it is quoted that “Trans Semarang has 7 corridors, and the plan is to expand to 12 corridors by the year 2021”. PP to confirm the number of corridors that are part of the JCM project and identify them in Section A.2 of the PDD. Also, PP to confirm on the number of buses in the Project activity during the operational lifetime of the Project.

CAR 08 - PP to provide the agreement document between Toyama City and Semarang City as specified in the Section A.2 of the PDD.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

From PP’s explanation and by the supporting documents like project implementation plan, retrofit engine design specifications and the fuel (CNG and diesel) consumption records, it is evident that the project buses run with the following fuel ratio i.e 80% diesel and 20% CNG, however, they can operate with 100% diesel also by design, but this scenario is applicable in case of exigencies. The CL 01 is closed.

Vehicle inspection certificate of each bus and the list of project buses for each corridor have been submitted by the PP. List of project buses for each corridor is submitted under the file name “01. REPORT BBG-BBM JANUARI 2022.xlsx” and the CL 02 is closed.

Solar is a term of "diesel fuel" used in Trans Semarang and it is cross verified by the Validation team and the CL 03 is closed.

Detailed information on the working of the CNG-Diesel hybrid equipment in the public buses is provided by the PP through the file "DDF_JCM_Indonesia_En.pdf" and this is verified by the Validation team and the CAR 01 is closed.

The document for the schematic diagram of the engine in the baseline scenario is provided by the PP as file "DDF_JCM_Indonesia_En.pdf" and this is verified by the Validation team and the CAR 06 is closed.

The number of corridors under the JCM project is four and the PP has revised Section A.2 of the PDD to clarify the number of corridors. The CAR 07 is closed.
The document of agreement between the cities has been submitted by the PP (Cooperation agreement between Semarang city and Toyama city_2017.12.14.pdf") and the CAR 08 is closed.

The validation team assessed the project description provided in the PDD with the supporting documents and conducted a physical site visit to validate 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_AM026_ver01.0 "Introduction of CNG-Diesel Hybrid Equipment to Public Buses" Version 01.0. The methodology is approved by the JCM on and valid as of the time of the validation. The validation team assessed if the selected methodology is applicable to the proposed project. The project applicability was checked against each criterion in the approved methodology selected. The steps taken to validate the eligibility criterion and conclusions about its applicability to the proposed project are as follows.

Criterion 1 – "CNG-diesel hybrid equipment is newly installed to the public transport buses which have already been in operation or are newly procured".
CNG-diesel hybrid equipment was newly installed to 72 public transport buses owned by Trans Semarang in total which had already been in operation at the time of installation. This is

verified by the Validation team by physical site inspection and with the document review of ownership document and registration certificates of the Project buses by Trans Semarang.

<Findings>

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

No findings are raised in 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>

Reference emissions are calculated with CNG consumption and diesel fuel consumption by project buses, net calorific value of CNG and diesel fuel, CO2 emission factor of diesel fuel, and fuel efficiency of project bus and reference bus. Fuel efficiency of project bus is determined ex-post based on monitored data, which reflect actual fuel efficiency.

The fuel efficiency of reference bus is determined ex-ante from the options available in the methodology in a conservative manner to ensure net emission reductions. The project emissions are calculated for each bus by the Diesel fuel consumption and CNG consumption by project buses. The distance travelled by the buses during the reference and project scenario are same as the buses belong to the Public transportation of Semarang city and the route and number of trips are fixed.

The validation team assessed the documented evidence and by means of onsite visit 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 project emissions and reference emissions for the proposed project comply with the requirements of the approved methodology.

<Findings>

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

CAR 02 - PP to provide the records of Diesel fuel consumptions, CNG consumption and number of trips per day from each corridor for the Project buses.

CAR 03 - PP to provide the records of the fuel consumption of buses before the implementation of the CNG-Diesel hybrid equipment.

CAR 04 - PP to provide the document for the fuel efficiency of the all the bus types identified in

the PDD (from different manufacturers, model and year of production specified as per the PDD).

CAR 05 - PP to provide the document for value of CNG fuel efficiency of the all the bus types identified in the PDD.

CAR 10 - As per the section C.3 of the submitted PDD, the ER values calculated for the years 2019, 2020, 2021 and 2022 are 346, 628, 915 and 2318 respectively. PP to explain the variation in the ER calculation over the years and submit the retrofit schedule from 'Diesel' to 'CNG-Diesel hybrid engine' for all the project buses.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The records of the fuel consumption of buses before the implementation of the CNG-Diesel hybrid equipment is provided by the PP and the CAR 03 is closed.

The project participants have adopted Option 1 to determine fuel efficiency of reference buses (ηRE,i) in line with the approved methodology. The document provided by the PP is verified by the Validation team and CAR 04 is closed.

The term "CNG fuel efficiency" rerfers to the hybrid fuel efficiency of CNG and diesel together, those values have been provided in the Monitoring Plan Sheets and the CAR 05 is closed.

The variation has been observed due to COVID-19 and short supply of CNG. Retrofit of all buses for the proposed JCM project activity for all 72 buses were completed by the end of March 2019 through the financing programme for JCM model projects by the Ministry of Environment, Japan. This is verified by the Validation team and CAR 10 is closed.

The validation team confirmed that the methodology was applied correctly to calculate project emissions and reference emissions and no other significant emission source was identified that would be affected and reasonably attributed by implementation of the proposed project.

The Monitoring Plan Sheet was not altered, and the fields were filled in as required so that all estimates of the reference emissions 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 Monitoring Plan Sheet 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 PP

were listed in the PDD, including their references and sources.

C.5. Environmental impact assessment

<Means of validation>

The PDD provided by the PP (JCM_PDD_F_ver02.0) states that there is no legal requirement of environmental impact assessment for the proposed project activity. The validation team assessed the applicable legal requirements in the host country with the document by Regulation of State Minister of environment of the republic of Indonesia Number 05 of 2012 published on 12/04/2012 to confirm that the environmental impact assessment is not required for the project activity.

<Findings>

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

No findings are raised in this section.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed 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>

A local stakeholder consultation has been conducted on 12th October with participation of the local stakeholders listed in the table below. The list of participants has been consulted to the JC secretariat of Indonesia side prior to invitation, and the local stakeholders to be invited have been fixed. The project participants sent invitation letters to those stakeholders who work at the project site to notify of convening local stakeholder consultation meeting. Newspaper announcements were also done, and they are verified by the Validation team.

The following were the participants of the local stakeholder consultation process,

- Head of Economic Planning Division, Semarang city
- Head of Section for Insider Route Transport, Semarang City Transportation Service, Semarang city,
- Head of Indonesia JCM Secretariat
- Analysts, CMEA/Indonesia JCM Secretariat
- Senior Advisor, Indonesia JCM Secretariat

The overall opinion from the stakeholders were found to be positive about the implementation of the Project activity.

<Findings>

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

CL 06 - As per the Stakeholder (Semarang city) comments (no 2 & 3) indicated in the stakeholder section of the submitted PDD249 no of converter kits are installed, but the total no of buses in the project activity as indicated in the PDD is only 72. PP to clarify on the number of buses and number of converter kits in the project activity.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The number of converter kits in the project activity is 72 supported by the Ministry of the Environment, Japan (MOEJ) through the financing programme for JCM model projects as stated in Section A.2. and A.6 of PDD. Remaining 177 were installed by Trans Semarang itself after the technology was transferred from the Japanese project participant. The justification provided by the PP is accepted by the validation team and the CL 04 is closed.

The validation team confirmed that the PP 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 PP 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 Monitoring Plan consisting of the Monitoring Plan Sheet and Monitoring Structure Sheet is based on the approved methodology.

The parameters which are fixed ex-ante are Net Calorific Value of CNG, Net Calorific Valur of Diesel, CO2 Emission factor of CNG, CO2 Emission factor of diesel, Fuel efficiency of reference buses.

The parameters which are monitored during the project implementation (ex-post) are CNG consumption of the project buses during the period p, Diesel consumption of project buses during the period p, fuel efficiency of the project buses during the period p, total drive distance of the project buses during the period p, and hypothetical total diesel fuel consumption of the project bus during the period p.

The CNG and Diesel fuel consumption by the buses are monitored on a daily basis and invoices are generated individually for each bus in each corridor. The distance travelled by the buses are monitored from the GPS in from the Trans Semarang office.

The validation team confirmed that the Monitoring Plan provided by the PP complied with the

requirements in the approved methodology and that the PP will be able to apply the Monitoring Plan following the monitoring arrangements described in it.

The validation team assessed the monitoring plan by reviewing the regulations, procurement records, technical specification of measuring devices, and the other supporting documents, and conducted on site assessment including physical observation and interviews with related parties and confirmed that the monitoring plan as described in the revised PDD is developed in accordance with the Guidelines for Developing PDD and MR and the approved methodology, in line with the applicable regulations, and based on the available data sources.

<Findings>

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

No findings are raised in this section.

<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 PP 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 submitted for review in the form JCM_ID_F_MoC_ver01.0 dated 13/01/2023 that nominates Hokusan Co., Ltd. as the focal point and was 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.

The validation team assessed the personal identities including specimen signatures and employment status of the authorized signatories through reviewing the written confirmation from the PP with whom TPE contracted the validation, namely Hokusan Co., Ltd. The written confirmation was issued by the focal point of the PP, was confirmed by documentary evidence issued by Hokusan Co., Ltd., and it confirms that all corporate and personal details including specimen signatures are valid and accurate as requested in the JCM Guidelines for Validation and Verification. The validation team also confirmed through reviewing the corporate information of the PP and by meeting the persons representing the PP that the information provided in the MoC is accurate.

<Findings>

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

CAR 11 - PP to provide documental evidence of personnel identities and employment status of

the authorized signatories of the parties mentioned in the MoC document (JCM_ID_F_MoC_Ver01.0).

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The Copy of name cards of the project participants are provided and are cross verified by the Validation team. CAR 11 is closed.

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The validation team confirmed that the MoC was completed using the latest form. Relevance of the MoC was assessed and confirmed 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 PP that the proposed JCM project was not registered under the other international climate mitigation mechanisms. The team in addition to the interviews with the PP 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 research 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.

<Findings>

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

No findings are raised in this section.

<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 as 20/08/2019 in the PDD. The validation team confirmed correctness/relevance of the information by reviewing the supporting evidence and on-site visit 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.

CAR 09 - PP to justify the indicated start date of the project from the PDD and provide the documental evidence for the start date of the Project.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The document titled "04-1-5-1_INVOIC.pdf" and "04-1-5-2_INVOICE.pdf" shows the issuance dates of the invoices which show that the retrofit has been completed before start date of the project. Also, the document titled "2019.08.01-08.30_REPORT BBG AGUSTUS 2019 Hokusan Report up 30 Agustus 2019.xlsx" shows that corridor operators have started to use CNG and reported to Trans Semarang. This is accepted by the Validation team and CAR 09 is closed.

The validation team confirmed through the on-site assessment that the start date of operation of the proposed JCM project is 20/08/2019 and 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 26/01/2023 to 24/02/2023 as per https://www.jcm.go.jp/projects/113.

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 PP to satisfy the JCM requirement.

E. List of interviewees and documents received

E.1. List of interviewees

1) Hendrix Setiawan, S.M, Head of BLU UPTD Trans Semarang 2) Ikhwan Susanto, A.Md, Kepala Sub bagian Tata Usaha - Head of Administration, finance and internal affairs Subdivision 3) Ika Permatasari, S.S, Assistant Division, Connection International BLU UPTD Trans Semarang 4) Shobirin - Coordinator, Control Division 5) Muhammad Luthfi - Head of Economic Planning Division (Kepala Bidang Perencanaan Perekonomian) - Development Planning Agency of Semarang (Badan Perencanaan Pembangunan Daerah Kota Semarang) 6) Dianis Januar Khoirunnisa, Sub Coordinator Planning Economy Production 7) Arya Pradana, Staff 8) M. Dimas Irsyadi, Staff 9) Okky Almucharom Utomo, Head Operations 10) Effendy Agus, Part Operations 11) Masduki, Part Operations

E.2. List of documents received

- Cooperation agreement between Samarang city and Toyoma city - Ownership of the project buses by Trans Semarang - Company incorporation certificate of Trans Semarang - Company incorporation certificate of Hokusan Co. Ltd - Agreement between BLU UPTD Trans Semarang and Hokusan Co., Ltd - Document of financial support from Ministry of Environmen, Japan - Instruction manual of the installation of CNG system into diesel engine - Schematic diagram of CNG- Diesel hybrid engine - Testing certificate of the CNG- diesel hybrid engine

- Diesel consumption data of reference buses from each corridor
- Diesel consumption data of project buses from each corridor
- CNG consumption data of project buses from each corridor
- Document for Net Calorific value of Diesel
- Document for Net Calorific value of CNG
- Document for CO2 emission factor of Diesel
- Document for CO2 emission factor of CNG
- efficiency data of project buses after the installation of CNG
- Technical specification of all type of project buses
- registration certificates of project buses
- monitoring flow chart by Trans Semarang
- details of CNG Convertor kit
- Records of Diesel and CNG consumption by the project buses from each corridor
- records for distance travelled by the project buses from each corridor
- sample invoices of diesel and CNG consumption of the project buses from each corridor
- 04-1-5-1_INVOIC.pdf (Invoice copy 1 of the agreement between the PPs)
- 04-1-5-2_INVOICE.pdf (Invoice copy 2 of the agreement between the PPs)
- 2019.08.01-08.30_REPORT BBG AGUSTUS 2019 Hokusan Report up 30 Agustus 2019.xlsx (reference to the usage of CNG in the project buses from Trans Semarang)
- 01. REPORT BBG-BBM JANUARI 2022.xlsx (List of project buses under each corridor)
- DDF_JCM_Indonesia_En.pdf (Detailed presentation of the Project Details)
- JCM_ID_F_MoC_ver01.0
- JCM_ID_AM026_ver01.0
- JCM_ID_F_PDD_ver02.0
- JCM_ID_F_SDIP_ver01.0
- JCM_ID_F_Val_Rep_ver01.0
- JCM_ID_GL_PDD_MR_ver03.0
- JCM_ID_GL_PM_ver02.0
- JCM_ID_GL_PCP_ver05.1
- JCM_ID_GL_TPE_ver03.1
- JCM_ID_GL_VV_ver01.0

Annex Certificates or curricula vitae of TPE's validation team members, technical experts and internal technical reviewers

Please attach certificates or curricula vitae of TPE's validation team members, technical experts and internal technical reviewers.

Mr. A Prabu Das, holds a Master of Technology degree in Energy Conservation and Management and Bachelor of Technology Degree in Petro-chemical Technology. He is a certified Energy Auditor by Bureau of Energy Efficiency, Government of India. He has total 16 years of work experience in Design of biomass Power plants, preparing Techno Economic Feasibility Reports (TEFR), carrying out energy audits, of which last 12 years have been in CDM/GS/VCS consultancy and validation/verification services. He has participated in the validation / verification of various CDM/VCS/GS/GHG and sustainability projects globally. He has undergone extensive training on CDM validation and verification and is a qualified lead auditor for Sectoral Scope 1, 3 and 7 in accordance with procedures of EPIC sustainability services Pvt. Ltd. Further, he has been thoroughly trained in Social Carbon's latest Standard and qualified to perform social carbon validation and verification. He is also an ISO 26000 lead auditor certified by Professional Evaluation and Certification Board (PECB). He is a Certified Sustainability Assurance Professional from Accountability, UK. Among other qualifications, he is recognised by Gold Standard Foundation to perform fast track audits.

Mr.Bharath, holds a B.E in Mechanical Engineering and MBA in Finance and Marketing. He has 5 years of industry experience and is qualified as an auditor for various AFOLU/Non AFOLU project types with respect to various global GHG schemes, standards and protocols. He is based in India.

Ms.Priyanka, holds a B.E in Environmental Engineering. She has around 2 years of industry experience and is qualified as an auditor for various project types with respect to various global GHG schemes, standards and protocols. She is based in India.

Mr. R. Vijayragavan, holds a B. E in Mechanical Engineering, M. Tech in Energy Conservation and Management and MBA in Technology Management. He is certified as Energy Auditor by Bureau of Energy Efficiency (BEE), Government of India. He has 12 years of working experience in energy sector including validation / verification of CDM, VCS and GS projects. He has undergone extensive training on CDM validation and verification and has been qualified as Lead Auditor for sector 1 and sector 13. He has also attended quarterly webinar conducted by GSF on 7th August 2014, 23rd July 2015, 27th January 2016, 8th December 2016 and 27th

March 2017 for eligibility for fast-track procedure. He has also involved in validation and verification of GS cook stove projects as lead auditor, thus having prior experience in validating/verifying the GS projects. He is also involved in the second verification of the same project thus having experience in Kenya.