JCM Validation Report Form

A. Summary of validation

A.1. General Information

Title of the project	Energy saving through introduction of Regenerative Burners for aluminum holding furnaces of the automotive components manufacture in the Republic of Indonesia
Reference number	ID010
Third-party entity (TPE)	Lloyd's Register Quality Assurance Limited (LRQA)
Project participant contracting the TPE	Toyotsu Machinery Corporation
Date of completion of this report	11/12/2019

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	The project participants conducted an environmental impact assessment, if required by the Republic of Indonesia, in line	☒

Item	Validation requirements	No CAR or CL remaining
assessment	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 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: Chiba	First name: Michiaki
Title: Climate Change Manager - Asia & Pacific	
Specimen signature: [redacted]	Date: 11/12/2019

B. Validation team and other experts

	Name	Company	Function*	Scheme competence*	Technical competence*	On-site visit
Mr. ☒ Ms. ☐	Michiaki Chiba	LRQA Ltd.	Team leader	☒	Technical competence authorised	☐
Mr. ☒ Ms. ☐	Cholid Bafagih	LRQA Indonesia	Team member	☒	N/A	☒
Mr. ☒ Ms. ☐	Stewart Niu	LRQA China	Internal reviewer	☒	N/A	☐
Mr. ☐ Ms. ☐				☐		☐

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 proposed project was originally submitted for validation with ref. No. ID007 in February 2016 but the project participants (the PPs) decided to once withdraw the submission and apply for revision of the approved methodology. The revised methodology JCM_ID_AM009_ver02.0 was approved by the Joint Committee (JC) on 10/02/2017 and the project was re-submitted with ref. No. ID010 applying the revised version of the methodology on 23/02/2017. Therefore, the validation was commenced with assessment of the project design document (PDD) originally submitted and given the ref. No. ID007 and continued with the subsequent assessment of the PDD submitted after applying the revised methodology and given the ref. No. ID010. The approved methodology was further revised to JCM_ID_AM009_ver03.0 and the revised PDD applying the revised version of the methodology was submitted for the validation.

The final version of PDD was checked and confirmed as complete against the JCM Guidelines for Developing PDD and MR 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.

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.

No issue was raised on the requirements of this section, while the application of the revised guidelines and forms were checked in resolution of the validation findings in the relevant sections below.

<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 aims to reduce consumption of natural gas and to reduce GHG emissions by replacing conventional burners with regenerative burners for aluminum holding furnaces in automotive components manufacturing factory. A regenerative burner absorbs exhaust gas heat in reservoir and preheats combustion air using the absorbed heat to improve energy efficiency. Eleven conventional burners are replaced by regenerative burners at the factory of PT. Yamaha Motor Parts Manufacturing Indonesia (YPMI) in Karawang International Industrial City (KIIC), Karawang, West Java Province, Indonesia. The project is implemented by YPMI from the Republic of Indonesia and Toyotsu Machinery Corporation from Japan (the PPs). The start date of project operation is on 12/01/2015 and the expected operational lifetime of the project is for 9 years.

The project receives financial support for JCM model projects from the Ministry of the Environment, Japan. The JCM project provides training of YPMI's Indonesian technicians on operation and maintenance of regenerative burners that will help the technology be diffused in the host country.

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.

CL 1 and CL 3 were raised through the validation process 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 1

Nature of the issue raised: The PPs provided Statutory useful life for the calculation of depreciation and amortization for machinery and equipment issued by Japan’s Ministry of Finance as the supporting document of the expected operational lifetime, but further

justification was requested on how the regulation in Japan is applicable to the project in Indonesia.
Nature of responses provided by the PPs: The PPs explained that the regenerative burners introduced by the project are manufactured in Japan, the products are almost the same and the project furnaces are operated and maintained in the same manners as were done in Japan. Therefore, length of the expected lifetime of the equipment applied based on the regulation in Japan is reasonable to be referenced in the project.
Assessment of the responses: The validation team reviewed the response from the PPs with the supporting documents including the equipment supply contract, technical specification, operation manual, maintenance plan and records, and confirmed that the expected operational lifetime indicated in the PDD is reasonable and sufficient to cover the crediting period based on the sectoral and local expertise. The CL was closed.

Grade / Ref: CL 3
Nature of the issue raised: The CL 3 was issued through the original validation based on the submission of the project ref No. ID007. PDD C.3. showed the emission reductions (ERs) start from year 2016 while the start date of project operation is 12/01/2015 according to the PDD A.5. The PPs were required to clarify relations between the start of project operation and the start of GHG emission reductions by the project.
Nature of responses provided by the PPs: The PPs clarified that the project commenced operation in year 2015 with first 4 burners while all 11 burners became operational in year 2016 and the ERs were calculated only from year 2016 in the original PDD. The PPs added the ERs in year 2015 achieved by the first 4 burners and in year 2021 in the revised PDD. The PPs provided the commissioning reports and the operational records as the supporting documents for the start date of the project operation. The PPs explained that the estimated ERs are only provided until year 2021 because implementation of the monitoring is only agreed until 31/03/2021.
Assessment of the responses: The estimated ERs in years 2015 and 2021 were added in the revised PDD. The validation team reviewed the supporting documents and confirmed that the project equipment of first 4 units was finished installation and commissioning by December 2014 but recording of the operational data started from 12/01/2015. The estimated ERs are provided until year 2021 because implementation of the monitoring activities is only agreed until 31/03/2021, though the expected operational lifetime of the project is longer.
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 revised 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_AM009_ver03.0 "Replacement of conventional burners with regenerative burners for aluminum holding furnaces, ver. 3.0". The project was originally submitted for validation applying JCM_ID_AM009_ver01.0 but the PPs decided to once withdraw the submission and apply for revisions of the approved methodology. The revised methodology was approved by the Joint Committee (JC) and the project was re-submitted with applying the revised versions of the methodology JCM_ID_AM009_ver02.0 and subsequently JCM_ID_AM009_ver03.0. The revised version of the methodology JCM_ID_AM009_ver03.0 was valid as of the time of this report.

LRQA assessed if the selected methodology is applicable to the proposed project. The project applicability was checked against each eligibility criterion in the 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 replaces conventional burners with regenerative burners for aluminum holding furnaces.

Justification in the PDD: The proposed JCM Project replaces the eleven conventional burners with regenerative burners for aluminum holding furnaces in the factory of YPMI.

Steps taken for assessment: Document review was conducted on the project implementation plan, technical specification, the inspection reports and physical observation at the project site.

Conclusion: Based on the validation processes taken, the validation team confirmed that the project replaced the existing conventional burners by regenerative burners for 11 aluminum holding furnaces of YPMI’s factory. Therefore, the project was confirmed to satisfy the Criterion 1.

Criterion 2: Holding temperature of aluminum melt, which is determined in the furnace user’s specification, is within the range from 600 to 800 degrees Celsius.

Justification in the PDD: YPMI’s specification determines that holding temperature of aluminum melt is within the range from 600 to 800 degrees Celsius.

Steps taken for assessment: Document review was conducted on the technical specification, YPMI’s standards and the inspection reports.

Conclusion: Based on the validation processes taken, the validation team confirmed that the

holding temperature of the aluminum holding furnaces is specified within the range of 600 to 800 ºC by YPMI's standards. Thus, the criterion is met by the proposed project.

Criterion 3: The regenerative burners have a structure which leads all exhaust gas to flow through the heat reservoir before discharging it into the atmosphere.
Justification in the PDD: All the regenerative burners introduced in this project have a structure which leads all exhaust gas to flow through the heat reservoir before discharging it into the atmosphere.
Steps taken for assessment: Document review was conducted on the technical specification and physical observation at the project site.
Conclusion: The aluminum holding furnaces have a closed structure and the pair of regenerative burners fire alternately. One of the burners leads all the exhaust gas to the thermal storage chamber filled with ceramic balls before discharging, while the other burner combusts. The validation team therefore confirmed that the criterion was fulfilled by the project.

Criterion 4: Periodical check is planned at least once a year.
Justification in the PDD: Periodical checks of the aluminum holding furnaces are planned to be conducted once a year in YPMI's specification.
Steps taken for assessment: Document review was conducted on the planned periodical checks and the records of the periodical checks having been conducted by the time of validation.
Conclusion: The validation team confirmed that the PPs have plan to conduct periodical checks of the aluminum holding furnaces inclusive of the project regenerative burners at least once a year based on the review of the plan as well as the records of periodical checks conducted by the time of the validation. Therefore, it was confirmed that the criterion was satisfied by the project.

CL 4 was raised through the validation process 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 4
Nature of the issue raised: The PPs were required to provide plan and records of periodical checks of the aluminium holding furnaces having been implemented once a year from start of project operation.
Nature of responses provided by the PPs: The PPs provided evidence of periodical checks for years 2015 to 2019 for review by the validation team.

Assessment of the responses: The validation team confirmed that the PPs have plan of periodical checks of the project alumninum holding furnaces once a year.
The CL was closed.

<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 recovers waste heat from combustion of natural gas on holding aluminum melt to preheat combustion air so that the natural gas consumption can be reduced by improvement of thermal efficiency. The sources of GHG emissions are combustion of natural gas in the reference furnace and the project furnace and electric power consumption by the project furnace.

The annual natural gas consumption by each project furnace (FC_PJ,NG,i,p) is estimated ex-ante at 24,000 Nm3.

The value of energy efficiency of the project burner (η_PJ,i) is calculated as 0.8653 by the equation of explanatory note 2 using the recommended operational value of air ratio 1.30 as per the operation manual of the project burner and the default values.

The value of energy efficiency of the reference burner (η_RE,i) is calculated as 0.6170 by the equation of explanatory note 1 using the same value of air ratio 1.30 as the project burner and the default values.

The default value 0.036659 GJ/Nm3 is applied for net calorific value of natural gas (NCV_NG).

0.0561 tCO2/GJ is applied for CO2 emission factor of natural gas (EF_NG) using the default value of 2006 IPCC Guidelines.

REp is calculated in accordance with the applied methodology as:

$REp = \Sigma i\{FC_{PJ,NG,i,p} \times (\eta_{PJ,i} \div \eta_{RE,i}) \times NCV_{NG} \times EF_{NG}\}$

= 11 x 24,000 x 0.8653/0.6170 x 0.036659 x 0.0561 = 11 x 69.22 = 761.4 tCO2e

The GHG emissions from the project furnaces are conservatively calculated by the total maximum rated capacity of the auxiliary equipment and operating hour of 24 hours/day irrespective of the actual operating load and the operation hours of day following the approved methodology.

1,900 W is applied as the total maximum rated capacity of auxiliary equipment of the project furnace (RC_CAP,i) based on the specification of auxiliary equipment of the project furnaces.

300 day/p is applied as the number of operating days of the project furnace i during the period

p (D_op,i,p) for ex-ante estimation.
The project furnaces may consume both grid electricity and captive electricity. The lower value of CO2 emission factor 0.8 tCO2/MWh as default value for captive electricity is applied for CO2 emission factor for consumed electricity (EF_elec) in accordance with the approved methodology. The latest grid emission factors published by the government of Indonesia based on the data of Directorate General of Electricity, the Ministry of Energy and Mineral Resources, Indonesia are 0.862 tCO2/MWh for ex-ante and 0.877 tCO2/MWh for ex-post and the default emission factor of captive electricity is lower than both of them.
The PEp is calculated in accordance with the applied methodology as:
EC_PJ,p = Σ i{RC_CAP,i × 10^-6 × 24 (hour/day) × D_op,i,p}
= 11 x 1,900 x 10^-6 x 24 x 300 = 11 x 13.68 MWh
PE_p = PE_NG,p + PE_elec,p = Σ i(FC_PJ,NG,i,p × NCV_NG × EF_NG) + EC_PJ,p × EF_elec
= 11 x 24,000 x 0.036659 x 0.0561 + 11 x 13.68 x 0.8 = 11 x 49.358 + 11 x 10.944 = 542.9 + 120.4 = 663.3 tCO2e
ERp = REp – PEp = 761.4 - 663.3 = 98.1 tCO2e

In year 2015, the first 4 units started operation from 12/01/2015 and the ERs of the year are estimated as:
ERp = REp – PEp = 761.4 x 4/11 x 354/365 - 663.3 x 4/11 x 354/365 = 268.5 – 233.9 = 34.6 tCO2e

Estimated ERs are provided until year 2021 because the PPs have agreed conducting of the monitoring activities of the project until 31/03/2021. The ERs in year 2021 are estimated for 90 days as:
ERp = REp – PEp = 761.4 x 90/365 - 663.3 x 90/365 = 187.74 – 163.55 = 24.2 tCO2e

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 project emissions and reference emissions for the proposed project comply with the requirements of the approved methodology. 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: The CAR 4 was issued through the original validation based on the submission of the project ref No. ID007. The applied CO2 emission factor for consumed electricity was not demonstrated as appropriate for the situation that the project aluminum holding furnaces may consume both grid electricity and captive electricity and using the emission factor for the power interconnection system based on the latest data from the Directorate General of Electricity, the Ministry of Energy and Mineral Resources, Indonesia.
Nature of responses provided by the PPs: The PPs refer to the latest value of the grid emission factor and applied the lower of the grid emission factor and the default emission factor for captive electricity in accordance with the approved methodology. The revised PDD and Monitoring Spreadsheet were submitted for review by the validation team.
Assessment of the responses: The validation team reviewed the revised PDD and Monitoring Spreadsheet and confirmed the application of the CO2 emission factor for consumed electricity is justified in accordance with the approved methodology. The CAR was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that:

- The methodology was applied correctly to calculate Reference Emissions (REs) and Project Emissions (PEs) 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 project is to adopt energy efficient regenerative burners that recover waste heat from combustion of natural gas on holding aluminum melt to preheat combustion air and the PDD

stated that 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 expertise.

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 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 local stakeholders and collected comments on the project through holding series of meetings on 27 and 28/08/2015. In addition to the related government bodies and business agencies, the PPs held dialogues with the management and employees of YPMI. The local stakeholders appreciate the project and provided positive comments. No negative issue was raised through the processes that require actions to be taken by the PPs.

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 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 Monitoring Plan (MP) consisting of MPS and Monitoring Structure Sheet (MSS) was

based on the approved methodology. There are two monitoring points as the methodology provides, namely (1) Consumption of natural gas by the project furnaces, and (2) Number of operating days of the project furnaces.
The consumption of natural gas by the project furnaces is directly measured by gas flow meters. Manufacturer's specification has been prepared for the gas flow meters as requested by the approved methodology.
The number of operating days of the project furnaces is monitored to calculate electricity consumption by the project furnaces based on the operation record.
The roles and responsibilities of the persons are described in the MSS in accordance with the requirements of the applied methodology. The responsible personnel are assigned from YPMI and Toyotsu Machinery Corporation to the data collection, processing and checks.
Through the processes taken, CAR 2, CAR 3, CAR 5 and CL 2 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 2
Nature of the issue raised: The CAR 2 was issued through the original validation based on the submission of the project ref No. ID007. The measurement methods and procedures in the Monitoring Plan Sheet (MPS) did not include QA/QC procedures applied, details on accuracy level, and calibration information.
Nature of responses provided by the PPs: The PPs revised the MPS in which the measurement methods and procedures are described including QA/QC Procedures and information of the measuring equipment.
Assessment of the responses: The validation team reviewed the revised monitoring spreadsheet and confirmed that the measuring equipment is specified for the parameter FC_PJ,NG,i,p and the QA/QC procedures applied for the parameter Dop,i,p are included.
The CAR was closed.

Grade / Ref: CAR 3
Nature of the issue raised: The CAR 3 was issued through the original validation based on the submission of the project ref No. ID007. The PDD and the Monitoring Spreadsheet did not include confirmation by the PPs to ensure that data monitored and required for verification and issuance be kept and archived electronically for two years after the final issuance of credits.
Nature of responses provided by the PPs: The PPs revised the MSS that includes the description on keeping and archiving monitored data electronically for two years after the final issuance of

credits.
Assessment of the responses: The validation team reviewed the revised MSS and confirmed fulfilment of the JCM requirement. The CAR was closed.

Grade / Ref: CAR 5
Nature of the issue raised: The CAR 5 was issued through the original validation based on the submission of the project ref No. ID007. The Monitoring Spreadsheet was not completed using the valid template as provided with the approved methodology as:
1) The header indicated the sectoral scope but the one adopted by the latest version of the approved methodology indicates reference number instead.
2) Fuel type was indicated as N/A for the reference emissions as well as the project emissions in the Calculation Process Sheet but the latest version of the methodology specifies it as natural gas.
Nature of responses provided by the PPs: The PPs submitted the revised Monitoring spreadsheet for review by the validation team.
Assessment of the responses: The validation team reviewed the revised Monitoring spreadsheet confirmed it is completed using the valid template of the approved methodology.
The CAR was closed.

Grade / Ref: CL 2
Nature of the issue raised: The CL 2 was issued through the original validation based on the submission of the project ref No. ID007 as below.
The PPs were requested to clarify the measuring equipment to be used for the parameter Dop,i,p and to address how it would be calibrated.
Nature of responses provided by the PPs: The PPs explained that the parameter Dop,i,p is calculated based on the data of natural gas consumption measured by flow meters and recorded on daily basis. The furnaces are judged as operated for a day if natural gas was consumed on the day.
The description in the revised MPS tells that data is based on the natural gas consumption data, whose measurement methods and procedures are described above. Gas-consumed days are regarded as operating days.
The PPs provided the monitoring procedures and the records including the data checks.
Assessment of the responses: The monitoring option is the Option C but the parameter does not use measuring equipment. The validation team reviewed the revised MPS with the monitoring procedures and records including the procedures for data checks as the supporting evidence, and confirmed that the relevant monitoring procedures are in place for the parameter.
The CL 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 submitted to LRQA for review in the form JCM_ID_F_MoC_ver01.0 that nominates Toyotsu Machinery Corporation 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 this report.

The validation team assessed the personal identities including specimen signatures and employment status of the authorized signatories and reviewed the corporate information of the PPs and by meeting the persons representing the PPs.

Through the processes taken, CAR 1 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 1

Nature of the issue raised: The PPs chose para. 63 (c) of JCM Guidelines for Validation and Verification to demonstrate validity of the MoC however a written confirmation from the PP was not submitted for review by the validation team.

The MoC form was not correctly completed with the points below.

1) The part of the Section 2 to be used for post-registration submissions was checked but those are not applicable for the initial submission.

2) The address of YPMI in the Section 5 (Karawan instead of Karawang)

3) The dates of signature were on 22/02/2015 while the date of submission was 25/02/2016.

Nature of responses provided by the PPs: The PPs submitted revised MoC dated 30/08/2019 completed with the updated information of the authorized signatories with the supporting evidence.

Assessment of the responses: The validation team reviewed the revised MoC with the supporting evidence and confirmed that the MoC Statement Form is completed and information is accurate.

Therefore, 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.

One small scale CDM project applying the approved Small Scale CDM methodology AMS II.D - Energy efficiency and fuel switching measures for industrial facilities has been registered for application of regenerative burners for aluminum melting furnaces, but the project is implemented in the United Arab Emirates.

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.

No issue was raised to the requirements of the 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 12/01/2015 in the PDD. The date is based on the implementation of regenerative burners with the first four furnaces.

The validation team confirmed correctness/relevance of the information by reviewing the

supporting evidence and on site visit, including but not limited to assessing of the contracts, records of inspection and operation, and that the date is not before 01/01/2013 as required to be eligible as a JCM project.
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.

No issue was raised to the requirements of the section.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed through the on site assessment 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 initially for the period of 24/02/2017 to 25/03/2017 with the original reference number ID007, and for the period of 11/04/2019 to 10/05/2019 with the reference number ID010 applying the revised version of the approved methodology as per https://www.jcm.go.jp/id-jp/projects/24.

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

No comment was received during the above periods 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. Yamaha Motor Parts Manufacturing Indonesia (YPMI)
Tomoaki Shinoda, General Manager
Arki Arfani

Toyotsu Machinery Corporation
Yoji Osaki, Hamamatsu Machinery Group 2 Group Leader
Makoto Kitamura

PT. Hokuriku Techno Indonesia
Yoshiki Honda

Mizuho Information & Research Institute
Tatsushi Ogita, Senior Manager, Environment and Energy Division 2
Yusuke Nagai, Consultant, Environment and Energy Division 2

E.2. List of documents received

Category A documents (documents prepared by the PP)
- PDD Version 01.0 dated 13/02/2017 with monitoring spreadsheets
- PDD Version 02.0 dated 03/10/2019 with monitoring spreadsheets
- PDD Version 03.0 dated 10/12/2019 with monitoring spreadsheets
- PDD Version 01.0 dated 25/02/2016 with monitoring spreadsheets (for project ref No. ID007 withdrawn)
- Sustainable Development Implementation Plan
- MoC dated 14/02/2017
- Revised MoC dated 30/08/2019
- MoC dated 25/02/2016 (for project ref No. ID007 withdrawn)
- Evidence for specimen signature

- Project implementation report
- Project outline
- Organisation chart for implementation, monitoring and reporting for JCM project
- Layout plan for YPMI factory
- Factory layout and monitoring plan
- List of dye casting machines and aluminum holding furnaces
- Technical specification for Crucible Self Regenerative Gas Burner CRU
- Gas flow diagram, Hokuriku Techno Co., Ltd.
- Electrical diagrams, PT. Matahari Wasiso Tama
- Technical specification for Flame Jet Gas Burner SGL
- Instruction manual for Hope Flame Jet Gas Burner Type SGL, Yokoi Kikai Kosakusho Co., Ltd.
- Project schedule, installation & trial run
- Hope CRU Crucible Self Regenerative Gas Burner Handling Manuals No. HG0T063E, Yokoi Kikai Kosakusho Co., Ltd.
- Fixed Asset Purchase Orders, Invoice
- Records of training for operation and maintenance activities
- Inspection reports
- Combustion equipment settings, Hokuriku Techno Co., Ltd.
- YPMI standards for holding furnaces with regenerative burners
- Natural gas consumption reports
- Gas supply agreement with PT. Perusahaan Gas Negara (Persero) Tbk
- Gas supply reports, PT. Perusahaan Gas Negara (Persero) Tbk
- Technical specification of Gas Flow Monitor, azbil
- Specification of air flow meter
- Annexes 1 and 2 to the Act of Japan’s Ministry of Finance concerning Statutory useful life for the calculation of depreciation and amortization
- Historical Emission Factors for interconnection of electric power systems and year of calculation 2007-2012, Carbon Trading Mechanism Division, National Council on Climate Change, Indonesia
- Environmental monitoring report, Laboratorium PPLH-IPB 18/05/2015
- Approval for UKL/UPL dated 12/05/2015
- Records of Local Stakeholder Consultation meetings
- Standard Operating Procedure for data collection and recording for gas consumption by aluminum holding furnace burners, YPMI
- Emission factor for interconnection systems in 2014 for the JCM methodology and projects, No. 157/29/DJL.4/2016 dated 18/01/2016

- Inspection records of YPMI aluminum holding furnaces with regenerative burners dated 17/11/2015, 11/07/2016, 07/06/2017, 16/07/2018 and 06/08/2019
- Supporting documents for personal identity of the authorised signatories of the revised MoC
- Written confirmation from the PPs for information of the revised MoC
- Report and certificate of commissioning
- Record of operational days in year 2015
- Record of natural gas consumption in year 2015
- Reference emission factor data for emission calculations for the JCM methodology and projects - calculation results and update of emission factor for some power interconnection systems in 2016
- Calculation of GHG emission reductions in year 2015 and year 2021

Category B documents (other documents referenced)
- JCM_ID_AM009_ver01.0 Replacement of conventional burners with regenerative burners for aluminum holding furnaces, ver. 1.0
- JCM_ID_AM009_ver02.0 Replacement of conventional burners with regenerative burners for aluminum holding furnaces, ver. 2.0
- JCM_ID_AM009_ver03.0 Replacement of conventional burners with regenerative burners for aluminum holding furnaces, ver. 3.0
- Request for revision of Approved Methodology ID_AM009 dated 08/04/2016 and 29/06/2018
- Additional Information for Reference Emissions, ID_PM009
- Finance Minister Regulation 96/PMK.03/2009 on Types of Assets including Intangible Assets for Depreciation Purposes
- Ministry of Environment No. 13 of 2010 Environmental Management Plan, Environmental Monitoring Plan and Environmental Management and Monitoring Statement
- Environmental Protection and Management Law No. 32/2009 dated October 3, 2009
- List of business plan and/or activities required have environmental impact assessment No. 5 in 2012, Environment Minister of State of the Republic of Indonesia
- Act 2 of 1981 Legal Metrology
- Government Regulation No. 2 of 1985 Mandatory and Exemption for Calibration and/or Re-calibration, Measuring Device, Weighing and Accessories
- Minister of Trade Regulation No. 8/M-DAG/PER/3/2010 Measuring Device, Weighing and Accessories Required Calibration and Re-calibration
- JCM Project Cycle Procedure JCM_ID_PCP_ver02.0 and JCM_ID_PCP_ver05.1
- JCM Guidelines for Validation and Verification JCM_ID_GL_VV_ver01.0
- JCM Guidelines for Developing PDD and MR JCM_ID_GL_PDD_MR_ver02.0 and JCM_ID_GL_PDD_MR_ver03.0

- JCM Glossary of Terms JCM_ID_Glossary_ver02.0
- JCM PDD Form JCM_ID_F_PDD_ver01.0 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 Methodology AMS II.C. Demand-side energy efficiency activities for specific technologies
- Approved Small Scale Methodology AMS II.D. Energy efficiency and fuel switching measures for industrial facilities
- Indonesia Energy Efficiency Report
- Proposed and registered projects under CDM, VCS, Gold Standard, and the other international schemes
- Government Regulation No. 27/2012 about Environmental Permit (Governmental Regulation No. 27/1999 concerning Environmental Impact Assessment)
- Environmental Impact Assessment Regulations and Strategic Environmental Assessment Requirements, Practices and Lessons Learned in East and Southeast Asia
- The AMDAL Process and the Equator Principles
- Ordinance for Enforcement of the Measurement Act
- OIML R 117-1 Dynamic measuring systems for liquids other than water, Part 1 Metrological and technical requirements, International Organization of Legal Metrology
- JIS B 8672-4 Fuel oil flow meters – Measuring instruments used in transaction or certification – Part 4: Stationary fuel oil flow meters, fuel oil flow meters road tankers, mobile type fuel oil flow meters
- JIS B 7552 Procedures for calibration and testing for liquid flowmeter
- JIS B 7556 Procedures of calibration and testing for gas flowmeter
- Documents of registered JCM projects Ref. Nos. ID001, ID005, ID015, ID016, ID017, ID018, ID019, ID020
- GHG Emission Factors for the 2016 Electric Power Interconnection System, Directorate General of Electricity, Ministry of Energy and Mineral Resources

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.

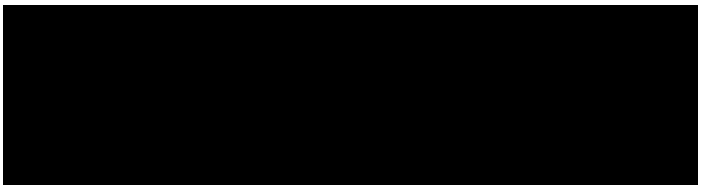
Joint Crediting Mechanism Certificate of Appointment

Title of Project: Validation of Energy saving through introduction of Regenerative Burners for aluminum holding furnaces of the automotive components manufacture in the Republic of Indonesia

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
Stewart Niu	Technical Reviewer

Signed by



Michiaki Chiba
Climate Change Manager – Asia & Pacific
24/02/2016