



**“Small Scale Cattle Biogas to Power Projects in AP, Karnataka,
Kerala and Haryana, India”**

ISSUED TO: PROJECT AGGREGATOR**	ISSUED BY: PROJECT VERIFIER	
GRAM VIKAS TRUST	SKV SOLUTIONS PRIVATE LIMITED PLOT NO-4/4, A-219, RAJHANS PLAZA AHINSA KHAND-I, INDIRAPURAM GHAZIABAD-201014	
PROJECT PROPONENT**: URJA BIO SYSTEMS PVT. LTD. PUNE MAHARASTRA		
PROJECT OWNER LOCATION:		
Name of the Entity/Individual	Complete Physical Address	Project start date
Kapila Dairy	Thimmareddypally village, Kondapka Mandal,Siddipet dist, Rajiv rarahandari highway, Telengana-503272	22-06-2012
Haveli Dairy Farm	Survey number-118, Rajiv rarahandari highway, Mulugu village, Siddipet,Telengana 502279	31-12-2013
Manoharam Dairy	DC-26/3/7, Y Junction road, Jampeta, Rahmundari, East Godawari, Andhra Pradesh-533103	15-01-2010
D S Dairy Farm	Village chandala, Dungarwas panchagon, Tehsil-Manesar, Dist-Gurugram-122413	14-06-2016
Nutri India Dairy	Plot no-303, Sector-7-II, IMT Manesar, Gurugram-Haryana	15-09-2010
J K Farms	Chirakkarathazham, PO-Chathannor, Lollam Dist., Kerla-691578	02-01-2017
Ma Gou Products Pvt Ltd	Survey no-85, Gangapura village Yashwantpura, post -Malur, Taluk-Malur Kolar, Karnatka-563130	15-03-2011

COVER PAGE	
Project Verification Report Form (VR)	
Complete this form in accordance with the instructions.	
BASIC INFORMATION	
Name of approved UCR Project Verifier / Reference No.	SKV Solutions Private Limited
Type of Accreditation	<input type="checkbox"/> CDM or other GHG Accreditation <input type="checkbox"/> ISO 14065 Accreditation UCR approved Verifier. Provide details (if any) below for the boxes-ticked above including the name of the entity that provided the accreditation and the date of validity (DD/MM/YYYY to DD/MM/YYYY) of the approval.
Approved UCR Scopes and GHG Sectoral scopes for Project Verification	Sectoral Scope: 1 and 13
Validity of UCR approval of Verifier	From 28-9-2021
Completion date of this VR	15-04-2023
Title of the project activity	Small Scale Cattle Biogas to Power Projects in AP, Karnataka, Kerala and Haryana, India
Project reference no. (as provided by UCR Program)	UCR ID:016
Name of Entity requesting verification service (can be Project Owners themselves or any Entity having authorization of Project Owners, example aggregator.)	Nutan P., Chief Executive, Gram Vikas Trust, Vadodara, Gujarat, India. Email: gvtbiogas@gmail.com
Contact details of the representative of the Entity, requesting verification service (Focal Point assigned for all communications)	Contact Focal Point and Contact Number: Nutan P. -9898062970 Contact mail id for all official communication : gvtbiogas@gmail.com Contact mail id for project proponent: gajananpatil@urjabiosystems.com
Country where project is located	India

Applied methodologies (approved methodologies by UCR Standard used)	AMS-III.H. Methane Recovery in Wastewater Treatment-V03 AMS-I.C.: Thermal Energy Production with or Without Electricity-V21 UCR Standard Protocol Emission Factors Methodologies referenced while developing PCN and MR methodology is not applied “AS IT IS”.
GHG Sectoral scopes linked to the applied methodologies	SECTORAL SCOPE - 01 Energy industries (Renewable/Non Renewable Sources) 13 Waste handling and disposal
Project Verification Criteria: Mandatory requirements to be assessed	<input checked="" type="checkbox"/> UCR Standard <input checked="" type="checkbox"/> Applicable Approved Methodology <input type="checkbox"/> Applicable Legal requirements /rules of host country <input checked="" type="checkbox"/> Eligibility of the Project Type <input checked="" type="checkbox"/> Start date of the Project activity <input checked="" type="checkbox"/> Meet applicability conditions in the applied methodology <input checked="" type="checkbox"/> Credible Baseline <input checked="" type="checkbox"/> Do No Harm Test <input checked="" type="checkbox"/> Emission Reduction calculations <input checked="" type="checkbox"/> Monitoring Report <input checked="" type="checkbox"/> No GHG Double Counting <input type="checkbox"/> Others (please mention below)
Project Verification Criteria: Optional requirements to be assessed	<input checked="" type="checkbox"/> Environmental Safeguards Standard and do-no-harm criteria <input type="checkbox"/> Social Safeguards Standard do-no-harm criteria
Project Verifier's Confirmation: The <i>UCR Project Verifier</i> has verified the UCR project activity and therefore confirms the following:	The UCR Project Verifier SKV Solutions Private Limited, certifies the following with respect to the UCR Project Activity Small Scale Cattle Biogas to Power Projects in AP, Karnataka, Kerala and Haryana, India. <input checked="" type="checkbox"/> The Project Owner has correctly described the Project Activity in the Project Concept Note (dated 08-08-2022 and its revised version

	<p>including the applicability of the approved methodology AMS-IC-V21 and AMS-III.H-V03 and meets the methodology applicability conditions and has achieved the estimated GHG emission reductions, complies with the monitoring methodology and has calculated emission reductions estimates correctly and conservatively.</p> <p><input checked="" type="checkbox"/> The Project Activity is likely to generate GHG emission reductions amounting to the estimated 344800tCO₂ (344800 CoUs) as indicated in the PCN, which are additional to the reductions that are likely to occur in absence of the Project Activity and complies with all applicable UCR rules.</p> <p><input checked="" type="checkbox"/> The Project Activity is not likely to cause any net-harm to the environment and/or society</p> <p><input checked="" type="checkbox"/> The Project Activity complies with all the applicable UCR rules¹ and therefore recommends UCR Program to register the Project activity with above mentioned labels.</p>
<p>Project Verification Report, reference number and date of approval</p>	<p>SKV/UCR/004</p> <p>VERIFICATION REPORT UCR PROJECT ID: 016</p> <p>15-04-2023</p>
<p>Name of the authorised personnel of UCR Project Verifier and his/her signature with date</p>	<p>Manoj Kumar Srivastava</p> <p></p> <p></p>

A.PROJECT VERIFICATION REPORT:

Executive Summary:

Objective:

SKV Solutions Private Ltd has been contracted by project aggregator Gram Vikas Trust₁ to perform an independent verification of its UCR project titled “**Small Scale Cattle Biogas to Power Projects in AP, Karnataka, Kerala and Haryana, India**” UCR approved project ID:016, to establish number of CoUs generated by project over the crediting period **01/01/2014 to 31/10/2021 (both days included)**.

Scope:

The scope of the verification is the independent and objective review and ex post determination of the monitored reductions in GHG emission by the project activity. The verification is based on the validated and UCR approved Project Concept Note (PCN)₃ and the Monitoring Report (MR)₄. The project is assessed against the requirements of the UCR Bio gas protocol, UCR programme verification Guidance Document, UCR Standard, UCR Programme Manual and related rules and guidelines.

Due professional care has been exercised and ethical conduct has been followed by the assessment team during the verification process. The verification report is a fair presentation of the verification activity.

The validation of project is not part of present assignment and projects deemed validated post registration by UCR. The scope of verification is limited to parameters identified through monitoring report and emission reduction as presented in the excel spread sheet and emission reduction calculation sheet which was reviewed.

As per UCR guideline site visit was not conducted and verification opinion is formed based on assessment of submitted document by UCR approved project aggregator on behalf of project proponent₁. In present project there are seven actual project owners who have been supplied the equipments by project proponent namely Urja Bio Systems Pvt Ltd (project owner for **Small Scale Cattle Biogas to Power Projects in AP, Karnataka, Kerala and Haryana, India**). Project proponent has been authorized by respective actual project owner to be the bundling agency/representative and owner of this project **Small Scale Cattle Biogas to Power Projects in AP, Karnataka, Kerala and Haryana, India**.

The documents submitted are authentic and true as per undertaking provided to verifier by the project aggregator. Further verifier was provided with all documents by project aggregator on behalf of project proponent. During course of verification actual project owner, where activity is happening, were not approached as this was not in the scope of verification. Any misrepresentation/omission, even advertently, shall be sole responsibility of project aggregator and project proponent₁.

Summary:

The project titled **Small Scale Cattle Biogas to Power Projects in AP, Karnataka, Kerala and Haryana, India** bearing UCR project id: 016 which is approved by UCR registry which is equivalent to validation.

The project activity involves the replacement or modification of anaerobic animal manure management systems in livestock farms to achieve methane recovery and gainful use of the recovered methane to generate captive power. The project activity is distributed across India at 07 different location: summary as given in below table:

Name of the Entity/Individual	Complete Physical Address	Project start date
Kapila Dairy	Thimmareddypally village, Kondapka Mandal, Siddipet dist, Rajiv rarahandari highway, Telengana-503272	22-06-2012
Haveli Dairy Farm	Survey number-118, Rajiv rarahandari highway, Mulugu village, Siddipet, Telengana 502279	31-12-2013
Manoharam Dairy	DC-26/3/7, Y Junction road, Jampeta, Rahmundari, East Godawari, Andhra Pradesh-533103	15-01-2010
D S Dairy Farm	Village chandala, Dungarwas panchagon, Tehsil-Manesar, Dist-Gurugram-122413	14-06-2016
Nutri India Dairy	Plot no-303, Sector-7-II, IMT Manesar, Gurugram-Haryana	15-09-2010
J K Farms	Chirakkarathazham, PO-Chathannor, Lollam Dist., Kerla-691578	02-01-2017
Ma Gou Products Pvt Ltd	Survey no-85, Gangapura village Yashwantpura, post -Malur, Taluk-Malur Kolar, Karnatka-563130	15-03-2011

with an accumulated installed capacity of 4750 m³/day.

Verification process involves scrutiny of documents submitted by project aggregator (Gram Vikas Trust) on behalf of project proponent (Urja Bio System Pvt Ltd). UCR communication agreement₁ between project aggregator and project owner verified which was submitted to verifier by project aggregator. The clause 4 compliance requirement for multiple project proponent rests with project aggregator/project proponent. Also project related documents submitted to verifier as per checklist was verified. List of such documents available in subsequent part of this report under section I. Where documents are not made available reasoning has been provided for verification CAR/CL under section “J” of this report.

Non conformities reported where required leading to further correction in project documents. The summary of CAR/CL is available in subsequent part of this report under section “J”.

Mr. Srivastava is team leader and verifier for the project activity who has worked for CDM project both as consultant as well as validator/verifier. Further Mr. Srivastava is qualified assessor for Quality Management System and Environmental Management System.

The document submitted by project aggregator is deemed submission for validated project on behalf of project owner.

Based on documents submitted SKV is able to provide its opinion that project during its claimed crediting period has achieved emission reduction of 344800 tCO₂ (344800 CoUs) As claimed through PCN/MR and ER sheet. As conservative approach SKV applies 5% error and lower side of emission reduction is verified and certified.

The actual owner of project related equipment are as per table above and project proponent, Urja Bio System Pvt Ltd, is the equipment manufacturer and supplier. During the course of this verification the actual owner of project are not contacted by the verification agency instead the project proponent, Urja Bio System Pvt Ltd, has submitted the authorization through, project aggregator, issued in the name of Urja Bio System Pvt Ltd. Further the document submitted by project aggregator is considered as submission on behalf of project proponent and any further verification is beyond scope of present work. The authenticity of these submitted documents are sole responsibility of project aggregator and project proponent.

Any misrepresentation/omission, even advertently, shall be sole responsibility of project aggregator and project owner.

B. Project Verification team, technical reviewer and approver:

The project verification team consists of following person.

Project Verification team

No.	Role	Last name	First name	Affiliation (e.g. name of central or other office of UCR Project Verifier or outsourced entity)	Involvement in		
					Doc review	On-Site inspection	Interviews
1.	Team Leader and Validator	Srivastava	Manoj	SKV	YES	NO	NO
2	Technical Expert	Srivastava	Manoj	SKV	YES	NO	NO
3	Financial/ Other Expert	Mittal	Shweta	SKV	YES	NO	NO

Technical reviewer and approver of the Project Verification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of UCR Project Verifier or outsourced entity)
1. ...	Technical reviewer Approver		Kashyap	Rishabh	

C.Means of Project Verification:

Desk/document review

The project documents submitted to UCR approved verifier SKV solutions private limited which was reviewed at SKV office at Ghaziabad. The documents review involves verification of legal status of project proponent. For consistency, project related documents like installation and commissioning of equipment used in project activity, purchase orders, monitoring related meters/parameters equipment measuring instruments and their calibration records, verified. To establish running of equipments for the crediting period verifier was provided with summary sheet of data which is reproduction of plant log book and the same has been verified.

The PCN is made available to verifier post approval by UCR which is considered as validated documents and the content of validated PCN are considered as record wherever required. Further the communication agreement made between project proponent and project aggregator is document of UCR registry hence the project aggregator is treated as authorized representative of project owner. All the documents submitted by project aggregator to verifier is treated as documents submission on behalf of project proponent.

The list of submitted document is available in subsequent section of this verification report under section “ Document reviewed or referenced”-section I. Also these documents are referred, where required, as subscript to facilitate linkage of verified documents to verification report.{ for example project aggregator₁ means aggregator is identified from document 1 in section I}

On-Site inspection- Not applicable.

Date of off site inspection: DD/MM/YYYY to DD/MM/YYYY		Not applicable as per UCR guideline site visit not conducted for this verification activity.	
No.	Activity performed Off-Site	Site location	Date
1.			

Interviews: Not applicable As per UCR guideline the site visit was not conducted during the course of verification and no interview conducted.

No.	Interview			Date	Subject
	Last name	First name	Affiliation		
1.					

Sampling approach:

For the verification of monitoring parameter of biogas and electricity generation monthly summary sheet was made available the sheet has summary of quantity of gas generated monthwise, % of methane content in the biogas, Pressure of gas, Temperature of gas and $Q_{\text{waste dung}}$, weighing bridge is mentioned in the monitoring report however in the summary sheet details of weighing bridge not available. Weighing

bridge is used to measure the quantity of waste collected and the same is not installed however summary sheet records the quantum of biogas generated and electricity generated on monthly basis and documents are submitted as copy of original record hence values are accepted. Further since physical visit of installation site was not conducted and hence physical verification of log book was not done.

Clarification request (CLs), corrective action request (CARs) and forward action request (FARs) raised

Areas of Project Verification findings	No. of CL	No. of CAR	No. of FAR
Green House Gas (GHG)			
Identification and Eligibility of project type	2	3	---
General description of project activity	---	2	---
Application and selection of methodologies and standardized baselines	---	---	---
- Application of methodologies and standardized baselines	---	2	---
- Deviation from methodology and/or methodological tool	---	---	---
- Clarification on applicability of methodology, tool and/or standardized baseline	---	---	---
- Project boundary, sources and GHGs	---	---	---
- Baseline scenario	---	---	---
- Estimation of emission reductions or net anthropogenic removals	---	---	---
- Monitoring Report	1	7	---
Start date, crediting period and duration	---	2	---
Environmental impacts	---	---	---
Project Owner- Identification and communication	---	4	---
Others (please specify)			---
Total	03	20	---

D. Project Verification findings:

D.1. Identification and eligibility of project type:

Means of Project Verification	Project has taken reference of CDM methodology AMS-III.H. version 03 Methane recovery in wastewater treatment and AMS-I.C.: version 21 Thermal energy production with or without electricity. project activities involving the replacement or modification of anaerobic animal manure management systems in livestock farms to achieve methane recovery and gainful use of the recovered methane to generate captive power. Methane capture is represented as per methodology AMS-III.H and power generation is represented as per methodology AMD I.C.
Findings	1. Please submit clear scanned copy of communication agreement. 2. Methodology is not applied as it is rather referenced the same is not reflecting in PCN.

	<p>3. The version of reference methodology not mentioned in the PCN.</p> <p>4. Please provide legal document of project proponent to establish it as legal entity.</p> <p>5. Please provide the authorization in the name of person who is signatory to all documents on behalf of project proponent.</p>
Conclusion	<p>Project activity is described through UCR approved PCN. The UCR approved format is used for description and project meets the requirement of UCR verification standard and UCR project standard.</p> <p>UCR project communication agreement submitted to verifier and the same has been verified. Methodology referenced and applied appropriately describing the project type. The eligibility of project aggregator is verified using UCR communication agreement, Project correctly applies the verification standard, UCR project standard and UCR regulations.</p> <p>The project activity is overall meeting the requirements of UCR Verification standard and UCR project standard.</p>

D.2.General description of project activity:

Means of Project Verification	<p>The project activities involving the replacement or modification of anaerobic animal manure management systems in livestock farms to achieve methane recovery and gainful use of the recovered methane to generate captive power. In the absence of the project activity, animal manure is left to decay anaerobically within the project boundary and methane is emitted to the atmosphere. The project activity recovers and utilizes biogas for producing electricity for captive use and hence displaces equivalent electricity from the grid using fossil fuels. The project activity hence avoids CH₄ and CO₂ emissions and is beneficial to the environment and community.</p> <p>Project completion document issued by project proponent to equipment supplier (Urja Bio System Pvt Ltd). The completion certificate has mention of commissioning date also project completion cum commissioning certificate was made available.</p>
Findings	<p>1. Please provide consent to establish and operate for each project equipment owner to establish the project running status for the crediting period.</p> <p>2. Please provide the equipment purchase orders.</p>
Conclusion	<p>The project would have consumed equivalent power from grid which would have resulted in emission of carbon dioxide as the coal is major source of thermal energy for generation of grid power. Also the bio-gas captured and consumed for power generation would have resulted in equivalent emission. There is over all emission reduction in GHG and there is no significant negative impact on environment hence project qualifies for no net harm to environment principle. The purchase order and/or commissioning of all the project were not made available however since project proponent is the original equipment supplier to all the project hence this was accepted and verifier did not insist for the purchase order and/or</p>

	<p>commissioning certificate.</p> <p>The project activity overall meets the requirement of UCR verification standard and UCR project standard and related requirements.</p>
--	---

D.3.Application and selection of methodologies and standardized baselines:

D.3-1.Application of methodology and standardized baselines:

Means of Project Verification	Project has taken reference of CDM methodology AMS-III.H-version03. Methane recovery in wastewater treatment and AMS-I.C.version 21: Thermal energy production with or without electricity. The methodology is correctly identified as the project activity is related to methodology. Project description verified through purchase order of Bio Gasifier, Project completion certificate which has summary of project details and related document. Applicability of methodology clearly explained in section B.2 of registered PCN.
Findings	1. The version of reference methodology is not mentioned in the PCN also PCN and MR version is not updated.
Conclusion	Methodology application is appropriate meeting the requirements of UCR and its standardized baseline. The methodology version is correct and valid. Referenced methodology is applicable to project activity.

D.3-2.Clarification on applicability of methodology, tool and/or standardized baseline:

Means of Project Verification	<p>Methodology has not been applied “as it is” rather it is referenced. The applicability of baseline is clearly established in section B.2 of the registered PCN. Biomass used by the project plant is limited to biomass from cattle dung.</p> <p>Aggregate emissions reductions is less than 60 kt CO₂ equivalent annually from all Type III components of the project activity.</p> <p>The recovered methane is used for captive power generation, hence the project uses correctly the corresponding methodology under Type I project activities, i.e. I.C.</p> <p>The total installed electrical energy generation capacity of the project equipment does not exceed 15 MW thus meeting the requirement of small scale project.</p> <p>Project related documents like purchase order of boiler, turbine and gasifier plant were submitted and verified.</p>
Findings	-----
Conclusion	The methodology is applied correctly along with associated tools and standardized baseline used correctly.

D.3-3.Project boundary, sources and GHGs:

Means of Project Verification	<p>Project boundary is appropriately defined in PCN version 03 which is physical and geographical site of project activity.</p> <p>The project boundary description is considered true based on project completion certificate issued by respective equipments owners to project proponent. The source of GHG is correctly reported as</p>
--------------------------------------	---

	<p>per reference methodology.</p> <p>GHG considered in the baseline scenario is CO₂ and CH₄, N₂O not considered for simplification which is conservative. IPCC default value is used for MCF which is acceptable as per methodology. IPCC default value for Maximum methane producing potential of the volatile solids generated for animal type LT which is acceptable. For Volatile Solids production per head IPCC default value is used which is accepted.</p>
Findings	-----
Conclusion	Project boundary is correctly defined in revised PCN version 03. GHG source correctly identified and reported. The project meets the requirements of UCR project standard, Verification standard and methodology requirements for boundary, GHG source.

D.3-4. Baseline scenario:

Means of Project Verification	In project baseline scenario the methane would be emitted in the atmosphere. Also the power would be brought from grid to meet the energy requirement. This is described suitably in PCN taking reference to methodology AMS-III.H.version03 Methane recovery in wastewater treatment and AMS-I.C.version21 . Thermal energy production with or without electricity. Baseline scenario is appropriately defined in revised PCN/MR version -03 under section B5.
Findings	-----
Conclusion	Baseline scenario is appropriately described. The conservative or default value for emission considered. The baseline scenario is in accordance with UCR project verification standard and UCR project standard.

D.3-5. Estimation of emission reductions or net anthropogenic removal:

Means of Project Verification	<p>Monitoring plan as defined in section C10 of monitoring report version 3 identifies the parameters which were being monitored during the crediting period. The parameters considered for monitoring are described in detail in section D3.6 of this report.</p> <p>The monitoring parameter also includes GWP_{CH₄}, % CH₄, Grid emission factor, MCF, Methane content in treated water, for which default value of IPCC or other publicly available source is used. For monitored data the summary report is submitted which is reproduced from plant log books. Sample plant log sheet not submitted and the same has not been verified. Based on data extraction from log book the project proponent has provided weekly data for measured parameters which has been verified and accepted as data reproduced from the actual plant log book.</p> <p>These monitored data and default values used for the estimation of emission reduction which is correct. Further the monitored data is reported in excel spread sheet to calculate the emission reduction which correctly utilized the data to arrive at estimation of emission reduction during the crediting period.</p>
Findings	----

Conclusion	Emission reductions are correctly calculated. The data used are either monitored at plant or default values applied. For the measured data the reported values provided in weekly data sheet summary for the crediting period. The instruments are calibrated and hence the emission reduction are reported correctly and meets the requirements of UCR verification standard and UCR project standard.
-------------------	---

D.3-6.Monitoring Report:

Means of Project Verification	<p>Monitoring report submitted to verifier where in monitoring plan was made available. The monitoring data reported through MR were either measured or default values were used as per reference methodology. The list of major data measured or default value applied are as under.</p> <ol style="list-style-type: none"> 1. Number of head of cattles-N_L- based on backward calculation. 2. Methane conversion factor-MCF- IPCC default value applied 3. Electricity Generated- $EG_{generated,y}$ - Measured value using calibrated meter 4. CO₂ emission factor for the grid electricity- EF_{grid}- UCR default value applied. 5. Volatile Solids production per head – IPCC default value applied. 6. Maximum methane producing potential of the volatile solids generated for animal type LT- $B_{0,LT}$ – IPCC default value applied. 7. Quantity of cattle dung used in the biogas digesters each year- Q_{waste} - On side measured and recorded. Calibration certificate of weighing bridge 8. Number of working days of the biogas units in each year- N_y- measured and recorded in logbook. 9. Fraction Description Volumetric component of component I in the residual gas in the hour h where I is CH₄- fv_i-Measured continuously and recorded hourly with calibration as per manufacturer requirement. 10. Temperature of Biogas- Measured with one measurement each month and annual calibration of each measuring instrument. 11. Pressure of biogas at flow measurement site-Measured with one measurement each month and annual calibration of each measuring instrument. <p>While assessing the parameters the clarifications were sought and project aggregator provided the clarification.</p>
Findings	<ol style="list-style-type: none"> 1. Please provide the basis for number of cattle head count established. Attach the backward calculation and assumptions, if any. 2. For power generated please provide meter details of each 07 location, also calibration record of installed meter and legal sanction of installation of meter. Also please provide monthly recording data as mentioned in monitoring plan. 3. Please provide the monthly record for Q_{waste} for each 07 location as described in monitoring plan. Also provide the calibration record

	<p>of associated weighing bridge for each 07 location.</p> <p>4. For number of working days default value of 330 days is used however during the COVID period there was lock down for significant time and this is not accounted while considering default value for number of working days. Also please provide the log book as mentioned in monitoring report.</p> <p>5. For CH₄- f_{v1} please provide gas analyser hourly data for each 07 location. Also the calibration record of each gas analyser used for the crediting period.</p> <p>6. Please provide the record of pressure maintained and recorded as described in monitoring plan.</p> <p>7. Please provide the record for temperature maintained as described in the monitoring plan.</p> <p>8. Please provide meter reading details for gross power generation during the monitoring period for each location. (State meter reading record)</p>
Conclusion	<p>Monitoring parameter as reported through MR adequately represents the parameters relevant to emission reduction calculation. The calibration report ensures the accuracy of data reported. The number of CoUs generation is calculated based on this accurately reported data. The calculation was done using excel sheet where all the parameters reported. The emission factor for electricity is as per UCR standard for electricity component.</p> <p>Based on monitoring and emission reduction calculations are correctly calculated and reported.</p> <p>The monitoring report meets the requirements of UCR project verification requirements.</p>

D.4.Start date, crediting period and duration:

Means of Project Verification	<p>Project completion certificate issued by the equipment owners which has the mention of commissioning date as well. The project completion certificate was made available which has been accepted as submission on behalf of project proponent. Since the project completion certificate was issued by equipment owners to project proponent who are supplier of equipments hence no further verification was done in this regard and submission on behalf of project proponent is accepted.</p> <p>Different project location has different start date as per information provided in table in this report above.</p> <p>The crediting period is from 01-01-2014 until 31-10-2021. The project life is well beyond current crediting period also the project is running as verified through meter reading and parameters monitored.</p>
Findings	<p>1. Please provide the generator purchase order details.</p> <p>2. Please provide major equipment purchase order.</p>
Conclusion	<p>The start date, crediting period and project duration reported correctly and this meets the requirements of UCR verification standard and UCR project standard.</p>

D.5.Positive Environmental impacts:

Means of Project Verification	Validated PCN, compliance reports, statutory and legal clearances, verified. The project activity involves avoidance of methane which would have gone to environment leading to Global warming. Also project activity replaces grid power by feeding methane to generate power. Since grid power comes mostly from fossil fuel it saves equivalent amount of fossil fuel. Both consumption of fossil fuel and emission of methane would contribute to net emission to environment thus contributing to Global warming. Because of project activity the methane emission is avoided and net equivalent fossil fuel saved hence project has overall positive impact on environment.
Findings	--
Conclusion	The positive environmental impact meets the requirement of UCR verification standard and UCR project standard.

D.6.Project Owner- Identification and communication:

Means of Project Verification	Urja Bio System Pvt. Ltd (UBSPL)., Pune, which is renewable equipment manufacturer and supplier is the project proponent. UBSPL has supplied the equipment to different entities/firms. These firms has authorized UBSPL to own and claim the carbon credits. UBSPL has submitted the authorization in this regard from the respective equipment owners. Since document has been submitted by project aggregator on behalf of project proponent it was considered as authentic. The project proponent was asked in written communication sent through mail to official mail id gajananpatil@urjabiosystems.com on date 12-04-2023 which was replied in affirmation on 13-04-2023. Based on project proponent affirmation the project owner was identified. Further the communication agreement verified between project aggregator and proponent to establish the authenticity of submitted documents. UBSPL exists in india as legal entity which was verified by legal document of UBSPL. Compliance to clause 4, multiple project proponents shall be ensured by the project proponent and project aggregator.
Findings	<ol style="list-style-type: none"> 1. Please provide documents of project proponent to establish its existence as legal entity. 2. Please provide details of alternator/generator 3. Please provide details of auxiliary power consumption or % of power consumed by auxiliary equipments. 4. Please provide clear and legible scanned copy of communication agreement.
Conclusion	Project owner identified through communication agreement signed between PP and PA. Equipment purchase order and commission verified. Also legal document like pollution control board document, NOC clearly establishes the project owner. The identification and communication correctly meets the requirement of project verification and UCR project standard.

D.7. Positive Social Impact:

Means of Project Verification	Project has provided temporary employment to local people during its installation and commissioning. Also post commissioning some of people have employed permanently and local people were engaged leading to social financial benefit to surrounding. Overall social impact of project implementation is positive on the surrounding area.
Findings	---
Conclusion	Project has overall positive social impact.

D.8. Sustainable development aspects (if any)-N/A

Means of Project Verification	
Findings	
Conclusion	

E. Internal quality control:

- Due professional care has been taken while reviewing the submitted document.
- There is no conflict of interest as the verifier has no other engagement with either aggregator or project owner directly or indirectly.
- Verification team consists of experience personnel.
- Technical review is performed by experienced and independent person.

F. Project Verification opinion:

The “SKV Solutions Private Limited” has performed a verification of the emission reductions reported for the project titled “**Small Scale Cattle Biogas to Power Projects in AP, Karnataka, Kerala and Haryana, India**”

” UCR ID:016 located at different location across India please see table on page 1 of this report.

Limited for the period: 01/01/2014 to 31/10/2021.

In our opinion, the GHG emissions reductions reported for the project in the monitoring report submitted to SKV are fairly stated.

The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology AMS-I.C-V21. and AMS III H V3 and the monitoring plan and formulae provided in the PCN/MR/ER spread sheet. During the course of verification, SKV identified the corrective action request/Corrections/Clarifications, which have been closed by SKV following appropriate clarifications by project aggregator.

SKV Solutions Private Limited is able to certify that the emission reductions from the “**Small Scale Cattle Biogas to Power Projects in AP, Karnataka, Kerala and Haryana, India**” for the period 1st January 2014 to 31st October 2021 amount to 344800 tCO₂ equivalent.

G.Abbreviations:

Abbreviations	Full texts
UCR	Universal Carbon Registry
SKV	SKV solutions private limited
UBSPL	Urja Bio System Pvt. Ltd
COD	Chemical Oxygen Demand
MR	Monitoring report
MCF	Methane Conversion Factor
GWP	Global Warming Potential
GWP _{CH4}	Global Warming Potential Methane.
PCN	Project Concept Note
ER	Emission Reduction
CoUs	Carbon offset Units.
PA	Project Aggregator
PP/PO	Project Proponent/Project Owner- used interchangeably in report.
EI	External Individual
OE	Outsourced External
CDM	Clean Development Mechanism
CAR	Corrective Action Request
CL	Clarification Request
FAR	Forward Action Request
KLPD	Kilo L/day.
PA/PP	Project Aggregator/Project Proponent

H.Competence of team members and technical reviewers:

No	Role	Last name	First name	Competence Description
1.	Team Leader and validator	Srivastava	Manoj	Mr. Srivastava is post graduate engineer having more than 10 years of experience in the field of Carbon mitigation projects. He is also qualified Validator/Verified and lead auditor for CDM. Also Mr. Srivastava is certified energy manager and lead auditor for quality management system and environmental management system.
..	Technical Expert	Kashyap	Rishabh	Mr. Kashyap holds degree in mechanical engineering having experience of about 4 years.
..	Financial/ Other Expert	Mittal	Shweta	Ms. Shweta Agarwal is Commerce graduate having experience of about 5 years.

I.Document reviewed or referenced:

No.	Author	Title	References to the document	Provider
1.	UCR	Universal carbon registry communication agreement		Other (PA)
2.	SKV	Initial questionnaire for Verification		SKV/PA
3.	Gram Vikas Trust	PCN with its revision		PA/PP
4.	Gram Vikas Trust	Monitoring report with its revision		PA/ PP
5.	Gram Vikas Trust	Emission Calculation sheet with its revision.		PA/ PP
6.	Communication agreement	Communication agreement between project aggregator and project proponent dated 25-10-2021 dully signed by NV Pancholi for project aggregator and Gajanan Patil for Project proponent.		PA/ PP
7.	Ministry of company affairs	Certificate of Incorporation UBSPL		PA/ PP
8.	Maharastra State Pollution Control Board	Consent to establish and operate from state pollution control board was not made available		PA/ PP
9.	Maharastra State Pollution Control Board	Renewal of consent to operate was not made available		PA/ PP
10.	UBSPL	Installation and commissioning of individual project activity		Not available.
17.	Social welfare	Summary of expenditure on social welfare during the crediting period details not available		PA/ PP
18.	Director of boilers	Not made available		PA/ PP
19.	UBSPL/Equipment owner	Calibration certificate – Summary sheet provided		PA/ PP
20.	UBSPL/Equipment owner	Calibration certificate-summary sheet provided		PA/ PP
21.	UBSPL/Equipment owner	Plant log books-summary sheet provided		PA/ PP
22.	UBSPL/Equipment owner	Calibration record of electricity measuring meter-Summary sheet provided		PA/ PP
23.	UBSPL/Equipment	Power meter test certificate not		PA/ PP

	nt owner	made available		
24.	UBSPL	Project completion certificate for each 07 project issued to project proponent by respective project equipment owners.		PA/ PP
25.	Calibration schedule of measuring instruments	Summary sheet of calibration schedule for measuring instruments.		PA/ PP
26.	Daily bio gas generation sample log book	Summary sheet provided sample log book not made available		PA/ PP
27.	Power generation data turbo alternator log sheet	UBSPL/Equipment owners-summary sheet provided plant log book not made available		PA/ PP
28.	Biogas analysis report- In house test report	UBSPL/Equipment owners-summary sheet provided individual analysis report not available		PA/ PP
29	UBSPL	Authorization from each individual project owner (07 in number) issued in the name of project proponent, submitted by project aggregator to project verifier.		PA/ PP
30	UBSPL	Biogas generation summary sheet-Kapila Dairy		PA/ PP
31	UBSPL	Biogas generation summary sheet-Haveli Dairy Farm		PA/ PP
32	UBSPL	Biogas generation summary sheet-Manoharam Dairy		PA/ PP
33	UBSPL	Biogas generation summary sheet-D S Dairy Farm		PA/ PP
34	UBSPL	Biogas generation summary sheet-Nutri India Dairy		PA/ PP
35	UBSPL	Biogas generation summary sheet-Maa Gou Products pvt ltd.		PA/ PP
36	UBSPL	Biogas generation summary sheet-JK Farms		PA/ PP
37	UBSPL	Net Power Generation Summary Sheet-each 7 project location.		PA/ PP

J.Clarification request, corrective action request and forward action request:

Table 1. CLs from this Project Verification

CL ID	xx	Section no.	D.1	Date: 05/12/2021
Description of CL				
1. Please submit clear scanned copy of communication agreement. 2. The version of reference methodology not mentioned in the PCN.				
Project Owner's response				Date: 03/02/2023
1. Communication agreement between project aggregator and project proponent dully signed dated 25-10-2021 attached. 2. The version is updated in revised PCN please find the same attached.				
Documentation provided by Project Owner				
1. Communication agreement 2. Revised PCN				
UCR Project Verifier assessment				Date: 27/02/2023
1. Revised communication agreement dully signed by both project proponent and project aggregator made available hence clarification is accepted. 2. Revised PCN was made available and clarification accepted.				

CL ID	xx	Section no.	D.2	Date: 05/12/2021
Description of CL				
NIL				
Project Owner's response				Date: 03/02/2023
NIL				
Documentation provided by Project Owner				
NIL				
UCR Project Verifier assessment				Date: 27/02/2023
NIL				

CL ID	xx	Section no.	D.3.1,3.2,3.3,3.4 and 3.5	Date: 05/12/2021
Description of CL				
NIL				
Project Owner's response				Date: 03/02/2023
NIL				
Documentation provided by Project Owner				
NIL				
UCR Project Verifier assessment				Date: 27/02/2023
NIL				

CL ID	xx	Section no.	D.3.6	Date: 05/12/2021
Description of CL				
1. Please provide the basis for number of cattle head count established. Attach the backward calculation and assumptions, if any.				
Project Owner's response				Date: 03/02/2023
Documentation provided by Project Owner				

Cattle are at the respective project premises within project boundary and Based on back-calculation of dung requirement of the plant. Cattle dung average generation data (i.e. 15kg / head / day).
UCR Project Verifier assessment Date: 27/02/2023
Cattle are at respective location within closed premises and cow dung estimation per day is from publicly available source hence clarification is accepted.

CL ID	xx	Section no.	D.4	Date: 05/12/2021
Description of CL				
NIL				
Project Owner's response				Date: 03/02/2023
NIL				
Documentation provided by Project Owner				
NIL				
UCR Project Verifier assessment				Date: 27/02/2023
NIL				

CL ID	xx	Section no.	D.5	Date: 05/12/2021
Description of CL				
.NIL				
Project Owner's response				Date: 03/02/2023
NIL				
Documentation provided by Project Owner				
NIL				
UCR Project Verifier assessment				Date: 27/02/2023
NIL				

CL ID	xx	Section no.	D.6	Date: 05/12/2021
Description of CL				
1. Please provide clear and legible scanned copy of communication agreement.				
Project Owner's response				Date: 03/02/2023
Please find communication agreement attached.				
Documentation provided by Project Owner				
Communication agreement				
UCR Project Verifier assessment				Date: 27/02/2023
Communication agreement signed dully between project aggregator and project proponent dated 25-10-2021 was submitted the same is submitted by project aggregator from its official mail id gvtbiogas@gmail.com which is accepted. Compliance to requirement of clause 4, multiple project proponent, rest with project proponent and project aggregator.				

Table 2. CARs from this Project Verification

CAR ID	xx	Section no.	D.1	Date: 05/12/2021
Description of CAR				

1. Methodology is not applied as it is rather referenced the same is not reflecting in PCN. 2. Please provide legal document of project proponent to establish it as legal entity. 3. Please provide the authorization in the name of person who is signatory to all documents on behalf of project proponent.	
Project Owner's response	Date: 03/02/2023
1. PCN modified with mentioning of methodology being referenced. 2. Legal document of project proponent issued by MCA attached. 3. The person signing the document is CEO/top management of the project proponent company.	
Documentation provided by Project Owner	
1. Revised PCN 2. Certificate of incorporation-Urja Bio systems private limited. 3. Authorization letter issued in the name of project proponent, Urja Bio Systems Pvt Ltd.	
UCR Project Verifier assessment	Date: 27/02/2023
1. PCN has been revised with taking reference to applicable methodology hence corrective action accepted. 2. Certificate of incorporation of project proponent was made available further project proponent was verified at government of India ministry of corporate affairs web site where is in project proponent exists as legal entity having certificate of incorporation number: U40106PN2012PTC143349. The company is legal and stands complied. Also as per government site Mr. Gajanan Patil is one of director in the company. For the present project activity the verification mail is being sent to Mr. Gajanan Patil for confirmation of project aggregator. 3. Authorization is issued in the name of project proponent, Urja Bio systems private limited which is made available to verifier by the project aggregator. Since document is submitted by project aggregator who received the same from the legally existing entity (Urja Bio Systems Pvt. Ltd) and hence the document was accepted. No further communication in this regard has been done to actual project owners as this is beyond the scope of present verification activity.	

CAR ID	xx	Section no.	D.2	Date: 05/12/2021
Description of CAR				
1. Please provide consent to establish and operate for each project equipment owner to establish the project running status for the crediting period. 2. Please provide the equipment purchase orders.				
Project Owner's response				Date: 03/02/2023
Consent to establish and operate exists however we are not able to gather this from the respective project proponent because of time lag. However we would like to assure the verifier that project proponent, as supplier of biogas system has done the installation and commissioning of its bio-gas plant. Since the bio gas plant is the source of emission reduction which is directly related to project proponent hence this clarification may be accepted.				
Documentation provided by Project Owner				
NIL				

UCR Project Verifier assessment	Date: 27/02/2023
Consent to establish from state pollution control board establishes the legal existence of respective project owners and its renewal reaffirms the operation of the plant. Verifier has been provided with installation and commissioning of bio-gas plant by project proponent and since this plant is the source of emission reduction it is believed the plants are functioning based on summary sheet made available to verifier for the gas produced and electricity generated. Further verifier has no means to directly approach the respective project owners unless authorized by the project proponent and hence document submitted by project proponent is accepted.	

CAR ID	xx	Section no.	D.3.1	Date: 05/12/2021
Description of CAR				
1. The version of reference methodology is not mentioned in the PCN also PCN and MR version is not updated.				
Project Owner's response				Date: 03/02/2023
Reference methodology is mentioned in the revised PCN and version of MR is updated please find attached.				
Documentation provided by Project Owner				
Revised PCN and Revised MR				
UCR Project Verifier assessment				Date: 27/02/2023
Revised PCN and MR incorporates requisite correction and hence accepted.				
CAR ID	xx	Section no.	D.3.2,3.3,3.4 and 3.5	Date: 05/12/2021
Description of CAR				
NIL				
Project Owner's response				Date: 03/02/2023
NIL				
Documentation provided by Project Owner				
NIL				
UCR Project Verifier assessment				Date: 27/02/2023
NIL				

CAR ID	xx	Section no.	D.3.6	Date: 05/12/2021
Description of CAR				

1. For power generated please provide meter details of each 07 location, also calibration record of installed meter and legal sanction of installation of meter. Also please provide monthly recording data as mentioned in monitoring plan.
2. Please provide the monthly record for Q_{waste} for each 07 location as described in monitoring plan. Also provide the calibration record of associated weighing bridge for each 07 location.
3. For number of working days default value of 330 days is used however during the COVID period there was lock down for significant time and this is not accounted while considering default value for number of working days. Also please provide the log book as mentioned in monitoring report.
4. For CH_4 - fv_1 please provide gas analyser hourly data for each 07 location. Also the calibration record of each gas analyser used for the crediting period.
5. Please provide the record of pressure maintained and recorded as described in monitoring plan.
6. Please provide the record for temperature maintained as described in the monitoring plan.
7. Please provide meter reading details for gross power generation during the monitoring period for each location. (State meter reading record)

Project Owner's response

Date: 03/02/2023

1. We have prepared monthly summary report where meter details and calibration records are mentioned. Sanction letter of installation of meter is not available however since project proponent is the actual manufacturer and installation and commissioning has been done by project proponent. We as legal entity here by affirm that the requested legal documents exists at the respective client location and this may be considered as our undertaking here with.
2. Please find summary sheet month wise for each plant location for Q_{waste} however weighing bridge is not installed at the respective location in the monitoring report the same was reported because methodology requires to do so. Now we are merely taking reference to methodology hence this is requested to be accepted based on monthly summary sheet.
3. During COVID period plant was shut for very limited period and dairy plants were continuously functioning hence 330 days working is conservative however still conservative approach may be applied while accounting for the emission reductions.
4. This information is available in the monthly summary sheet however testing report and calibration report is not available. Since at most location this is being done in-house and data has been received from respective plant owners also project proponent is the actual equipment supplier hence this may be accepted.
- 5-6. Record for pressure and temperature is available in the months summary sheet.
7. Meters are installed at respective plant location and reading from the same is reproduced in monthly summary sheet.

Documentation provided by Project Owner

1. Monthly summary sheet for power generation
2. Monthly summary sheet for bio gas generation, and other parameters.

UCR Project Verifier assessment

Date: 27/02/2023

Verifier was provided with monthly summary sheet for the project activity where above raised CAR was addressed pertaining to readings however plant log sheet was not made available. Summary sheet is reproduction of plant log book as communicated by project aggregator. Further verifier does not have access to projects owner and hence this could not be verified directly from the project owners. In absence of direct access to project owner documents and undertaking submitted by project proponent, a legal entity, is accepted.

CAR ID

xx

Section no.

D.4

Date: 05/12/2021

Description of CAR

1. Please provide the generator purchase order details.
2. Please provide major equipment purchase order.

Project Owner's response	Date: 03/02/2023
Purchase order and/or installation and commissioning documents is being provided please find attached.	
Documentation provided by Project Owner	
Purchase order and installation and commissioning report	
UCR Project Verifier assessment	Date: 27/02/2023
Purchase order/installation and commissioning report is made available to verifier. The purchase order is issued in the name of project proponent, Urja Bio Systems pvt ltd and commissioning report is issued by project proponent. These two documents has the details of bio-gas plant like capacity of plant in m ³ of gas generated per day or the capacity of generator in KW. In absence of consent to establish and operate information from these two documents has been used during verification process. Purchase order and installation commissioning document submitted on behalf of legal entity, Urja Bio Systems pvt ltd hence accepted.	

CAR ID	xx	Section no.	D.5	Date: 05/12/2021
Description of CAR				
NIL				
Project Owner's response		Date: 03/02/2023		
NIL				
Documentation provided by Project Owner				
NIL				
UCR Project Verifier assessment			Date: 27/02/2023	
NIL				

CAR ID	xx	Section no.	D.6	Date: 05/12/2021
Description of CAR				
<div>1. Please provide documents of project proponent to establish its existence as legal entity.</div> <div>2. Please provide details of alternator/generator</div> <div>3. Please provide details of auxiliary power consumption or % of power consumed by auxiliary equipments.</div> <div>4. Please provide clear and legible scanned copy of communication agreement.</div>				
Project Owner's response				Date: 03/02/2023
<div>1. Certificate of incorporation of project proponent attached.</div> <div>2. Commissioning certificate and purchase order attached.</div> <div>3. Please find summary sheet month wise for power generation attached. This sheet has information of gross production, auxiliary consumption and net power generation. Also these month wise summary sheet has collected the data from respective plant log book/log sheet which is being monitored on daily/hourly basis.</div> <div>4. Please find the communication agreement attached.</div>				
Documentation provided by Project Owner				
<div>1. Certificate of incorporation-Urja Bio systems pvt ltd</div> <div>2. Commissioning certificate and purchase order</div> <div>3. Summary sheet month wise for each project location.</div> <div>4. Communication agreement</div>				
UCR Project Verifier assessment				Date: 27/02/2023

1. Certificate of incorporation submitted by the project aggregator and its authenticity verified at ministry of company affairs government of India web site.
2. Commissioning certificate and purchase orders made available to project verified where the essential information like capacity of generator, capacity of plant etc are available. These information are used to arrive at verified emission reduction.
3. Summary sheet for the project locations prepared and submitted. These data are the copy of plant logbook however the copy of log book was neither made available nor has been verified. Since the data is submitted by project proponent who happens to be the biogas plant supplier to these entities and exists as legal entity hence the summary sheet is accepted as verified.
4. Copy of communication agreement provided the same has been verified and applicability of clause 4 of communication agreement for multiple project owner rest with project proponent and project aggregator.

CAR ID	xx	Section no.	D.7	Date: 05/12/2021
Description of CAR				
NIL				
Project Owner's response				Date: 03/02/2023
NIL				
Documentation provided by Project Owner				
NIL				
UCR Project Verifier assessment				Date: 27/03/2023
NIL				

Table 3. FARs from this Project Verification-NIL

FAR ID	xx	Section no.	D.5	Date: DD/MM/YYYY
Description of FAR				
Project Owner's response				Date: DD/MM/YYYY
Documentation provided by Project Owner				
UCR Project Verifier assessment				Date: DD/MM/YYYY