



VERIFICATION REPORT FOR

LIYANG 15 MW LOW-CONCENTRATION CMM POWER GENERATION PROJECT



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Project title	Liyang 15 MW Low-concentration CMM Power Generation Project
Project ID	4499
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Client	Leon Low-Carbon and Environmental Protection Science and Technology (Beijing) Co., Ltd.
Prepared by	China Classification Society Certification Co. Ltd.
Approved by	Mr. TIAN Wei
Work carried out by	Mr. Li Xingtong (Team Leader) Mr. Tan Wenbin (Team Member) Mr. Wang Chen, Mr. Tang Zhiang, Ms. Piao Lijing (Technical Reviewer)

Summary:

Description of the verification and the project

China Classification Society Certification Co. Ltd. (hereafter referred to as “CCSC”) has been commissioned by Leon Low-Carbon and Environmental Protection Science and Technology (Beijing) Co., Ltd. to perform the verification of the project activity “Liyang 15 MW Low-concentration CMM Power Generation Project” (hereafter referred to as “the project” with the project ID 4499) on the basis of requirements of Verified Carbon Standard (VCS) Version 4.7, VCS Verification Manual, Climate, Community, and the approved VCS methodology ACM0008 version 08.0. The verification report is summarizing the findings of the verification.

The project is located in South Liyang Village, Liyang Township, Heshun County, Jinzhong City, Shanxi Province, China. The purpose of the project is to utilize the extracted low concentration coal mine methane (CMM), which otherwise would be vented into the atmosphere directly, for power generation to supply electricity to the North China Power Grid. The project is planned to install 25 sets of CMM gas generators, with a total capacity of 15MW (20*0.6MW+4*0.5MW+1MW), with deduction of 25.5 million Nm³ of methane and generation of 77,550 MWh annually. Waste heat from gas generators is recovered by the waste heat boilers, and saturated steam from waste heat boilers is supplied to the steam turbine generator to produce electricity. Surplus saturated steam is supplied to the coal mine to replace part of the heat that would be generated by the gas-fired boilers. To be conservative, heat supply is disregarded in the calculation, claiming no emission reduction. The annual emission reductions in the crediting period are expected 456,021 tCO_{2e}. The project is constructed in phases. The first phase has already seen the construction of 20 sets of CMM gas generators with each capacity of 0.6MW, resulting in a total installed capacity of 12MW (20*0.6MW) which started operation on 01/03/2022 to utilize low concentration CMM for power generation. The remaining 3MW (4*0.5MW+1MW) will depend on the availability of CMM volume and concentration. Actual monitoring activities complied with the monitoring plan. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project reduces GHG emission. The GHG emission reduction is calculated without

material misstatements, and the emission reductions verified totalize 757,901tCO₂e for the monitoring period.

Purpose and scope of verification

The verification is an independent 3rd party assessment of the GHG emission reductions using the applicable VCS requirements. Verification is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its Verified Carbon Units (VCUs).

The verification scope is defined as an independent and objective review of the Monitoring Report (hereafter refer to as “MP”), the emission reduction calculation spreadsheet and other relevant documents refer to VCS and CDM requirements.

Method and criteria used for verification

Verification is conducted in line with the requirements specified in the latest version of the VCS and applying related GHG auditing techniques. The verification criteria followed the guidance documents provided by VCS and the selected CDM methodology and tool includes:

- VCS Standard, Version 4.7
- VCS Program Guide, Version 4.4
- Methodology ACM0008 version 08.0: Abatement of methane from coal mines and related tools

The Verification process includes three phases:

- 1) Desk review of documents;
- 2) On-site visit and follow-up interviews;
- 3) Issuance of the final verification report.

Number of findings raised during verification

CCSC appointed a qualified audit team in accordance with internal procedures to perform the verification. Two Corrective Action Requests (CAR) and Five Clarification Requests (CL) were raised in the verification process and successfully closed upon the project participant taken actions and submitted the revised monitoring report and supporting evidence. No Forward Action Request (FAR) was raised during this verification.

Any uncertainties associated with the verification

There are no restrictions of uncertainty.

Summary of the verification conclusion

- In conclusion, it is CCSC's opinion that the project in the MR (version 2.2, date 10/12/2025) meets all relevant requirements of VCS Version 4.7, and all relevant host Party criteria, and correctly applies methodology ACM0008 version 08.0: Abatement of methane from coal mines. The GHG emission reduction is calculated without material misstatements, and the emission reductions verified totalize 757,901tCO_{2e} for this monitoring period from 01/03/2022 to 31/12/2024.
- Our opinion relates to the Project's GHG emissions and the resulting GHG emission reductions viz. Verified Carbon Units (VCUs) reported are based on the valid project baseline, monitoring plan and associated documents. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, CCSC confirms following statement:

Vintage	BE (tCO ₂)	PE (tCO ₂)	LE (tCO ₂)	ER (tCO ₂)
2022 (01/03/2022 to 31/12/2022)	413,005	38,094	0	374,911
2023 (01/01/2023 to 31/12/2023)	156,701	14,846	0	141,855
2024 (01/01/2024 to 30/12/2024)	266,005	24,870	0	241,135
Total	835,711	77,810	0	757,901

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1 INTRODUCTION

1.1 Objective

Leon Low-Carbon and Environmental Protection Science and Technology (Beijing) Co., Ltd. has commissioned China Classification Society Certification Co., Ltd. (herein after refer to as CCSC) to performed the verification of Liyang 15 MW Low-concentration CMM Power Generation Project (VCS ID 4499, hereafter referred to as “the project”) covering the monitoring period from 01/03/2022 to 31/12/2024 as the 1st the monitoring period, on the basis of requirements of Verified Carbon Standard (VCS) version 4.7.

CCSC as the validation/verification body (VVB) of the project has been accredited as a DOE by UNFCCC and meets the competence requirements as set out in ISO 14065:2020.

The Verification is the periodic independent review and ex-post determination by a VVB of the monitored reductions in GHG emissions during defined verification period. In carrying out its verification work, the VVB shall ensure that the project complies the applicable CDM and VCS requirements. The verification shall:

- Ensure that the project has been implemented and operated as per the MR, and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Ensure that the MR and other supporting documents provided are complete in accordance with latest applicable version of the completeness checklist for requests for issuance of VCUs and verifiable and in accordance with applicable VCS requirements;
- Ensure that actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan or any revised approved monitoring plan, and the approved methodologies including applicable tool(s);
- Evaluate the data recorded and stored as per the monitoring methodologies including applicable tool(s).

1.2 Scope and Criteria

The verification is an independent 3rd party assessment of the reported GHG emission reductions using the applicable VCS requirements. Verification is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its Verified Carbon Units (VCUs). The verification is not meant to provide any consulting towards the PPs. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

The verification scope is defined as an independent and objective review of the monitoring report (hereafter refer to as “MR”), the project’s baseline study and monitoring plan, the emission reduction calculation spreadsheet and other relevant documents refer to VCS and CDM requirements.

Verification is conducted in line with the requirements specified in the latest version of the VCS and applying related GHG auditing techniques. The verification criteria followed the guidance documents provided by VCS and the selected CDM methodology and tool includes:

- VCS Standard, Version 4.7
- VCS Program Guide, Version 4.4
- Methodology ACM0008 version 08.0: Abatement of methane from coal mines and related tools

The Verification process includes three phases:

- 1) Desk review of documents;
- 2) On-site visit and follow-up interviews;
- 3) Issuance of the final verification report.

1.3 Level of Assurance

The verification scope is defined as an independent and objective review of the registered PD, the Project’s baseline study and Monitoring Report (MR) and other relevant documents. The information in these documents is reviewed against VCS Version 4.7 requirements, UNFCCC rules and associated interpretations.

The verification is not meant to provide any consulting towards the client. However, stated requests for forward actions and/or corrective actions may provide input for improvement of the Project monitoring towards reductions in the GHG emissions.

1.4 Summary Description of the Project

The project is located in South Liyang Village, Liyang Township, Heshun County, Jinzhong City, Shanxi Province, China. The purpose of the project is to utilize the extracted low concentration coal mine methane (CMM), which otherwise would be vented into the atmosphere directly, for power generation to supply electricity to the North China Power Grid. The project is planned to install 25 sets of CMM gas generators, with a total capacity of 15MW ($20 \times 0.6\text{MW} + 4 \times 0.5\text{MW} + 1\text{MW}$), with deduction of 25.5 million Nm^3 of methane and generation of 77,550 MWh annually supplied to North China Power Grid. Waste heat from gas generators is recovered by the waste heat boilers, and saturated steam from waste heat boilers is supplied to the steam turbine generator to produce electricity. Surplus saturated steam is supplied to the coal mine to replace part of the heat that would be generated by the gas-fired boilers. To be conservative, heat supply is disregarded in the calculation, claiming no emission reduction. The annual emission reductions in the crediting period are expected 456,021 tCO_{2e}.

The project is constructed in phases. The first phase has already seen the construction of 20 sets of CMM gas generators with each capacity of 0.6MW, resulting in a total installed capacity of 12MW ($20 \times 0.6\text{MW}$) which started operation on 01/03/2022 to utilize low concentration CMM for power generation. The remaining 3MW ($4 \times 0.5\text{MW} + 1\text{MW}$) will depend on the availability of CMM volume and concentration. Actual monitoring activities complied with the monitoring plan. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project reduces GHG emission. The GHG emission reduction is calculated without material misstatements, and the emission reductions verified totalize 757,901tCO_{2e} for the monitoring period.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification scope covers the relevant documents (e.g., the VCS-MR, the emission reduction calculation spreadsheet, supporting documents and information collected through performing interviews and during the on-site inspection, VERRA's requirements publicly available, relevant rules, including the host country legislation, etc.) to be independently reviewed, the project geographical locations to be visited on-site, the related project stakeholders to be interviewed with, and processes that are necessary to acquire objective evidence for the evaluation of the project compliance to the VCS requirements and associated interpretations. The verification activities are conducted according to the VERRA's requirements. In doing so, the principles of accuracy and completeness, relevance, reliability and credibility were followed. The verification is not meant to provide any consulting service towards the PPs. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project.

The verification schedule including key milestones has been included in below of this table.

Table 2.1.1 the verification schedule

Item	Date	Description of the implementation
Desk review of documents	20/03/2025 to 22/03/2025	The audit team evaluates the information provided by PPs.
Verification plan	22/03/2025	The audit team has formulated the verification plan for VCS projects and send it to PPs by email.
Opening meeting	30/03/2025	All parties involved had attended the kick-off meeting.
On-site inspection	30/03/2025-31/03/2025	The audit team has interviewed with key personnel from the project owner (the project proponent) and the local stakeholders, and inspected the project area focusing on information and data related to climate, community and biodiversity.
The resolution of outstanding issues and the issuance of the verification report and statement.	31/03/2025-02/04/2025	After the on-site inspection, The audit team issuance of the findings and subsequently the final verification report.

All documents including MR, spreadsheets, evidence have been submitted to the VVB for verification. The document review covered 100% of project documentation.

2.2 Document Review

Verification was conducted using CCSC's procedures in line with the requirements specified in the VCS Standard version 4.7, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant UNFCCC requirements and applying standard auditing techniques.

The Monitoring Report (VCS-MR) submitted by Leon Low-Carbon and Environmental Protection Science and Technology (Beijing) Co., Ltd. and Green Inclusive Technology (Beijing) Co., Ltd, the registered VCS PD, additional background documents related to the project design and baseline, i.e. country Law, validation report, Approved methodology, Clarifications on Verification Requirements to be Checked by a certified validation body were reviewed.

Furthermore, crosschecks were made between information provided in the registered VCS PD,

and information from sources other than those used.

Appendix 4 of this report contains a complete list of all documents and proofs reviewed by the audit team.

2.3 Interviews

During 30/03/2025-31/03/2025, CCSC performed an on-site inspection at the physical site of the project.

During the on-site inspection, the audit team has interviewed with key personnel from the project owner (the project proponent), local stakeholders, local experts, and project developer.

The assessment content and topics/the persons interviewed at the on-site inspection were provided in the below table.

Date: 30/03/2025-31/03/2025	
Interview topics	Interviewed Organizations and persons
- Project implementation status, operation of project activity, and the evidences of construction status and operation of key equipment, parameters monitoring and data processing activities, monitor equipment and calibration. - Compliance of monitoring with the monitoring plan - Monitoring data. - Quality Management; organizational structure, responsibilities and competencies; Internal QA/QC Management procedures and document control. - Safeguards and stakeholder engagement.	Beijing Yonder Environmental Energy Technology Co., Ltd Project manager, Mr. Wang Chao Plant director, Mr. Qing Lihong Operator, Mr. Guo Fei Operator, Mr. Lu Chao Leon Low-Carbon and Environmental Protection Science and Technology (Beijing) Co., Ltd. Ms. Guo Minghua Ms. Yan Silin Green Inclusive Technology (Beijing) Co., Ltd Ms. Hou Siyang
- The process and participation of the stakeholder consultation. - The impact of the project activity. - The complaint by local stakeholders.	Local residents Mr. Wang Huiqiang Ms. Wang Meiyun

- The implementation of the mitigation measures.	Mr. Li Zhi Ms. Wang Yan Ms. Yang Lili Project employee Mr. Zhao Yinlong Mr. Zhang Qifu
- Compliance of the monitoring plan with the monitoring methodology. - Compliance of monitoring with the monitoring plan. - Assessment of data and calculation of GHG emission reductions. - Preparation of MR.	Beijing Yonder Environmental Energy Technology Co., Ltd Project manager, Mr. Wang Chao Plant director, Mr. Qing Lihong Operator, Mr. Guo Fei Operator, Mr. Lu Chao Leon Low-Carbon and Environmental Protection Science and Technology (Beijing) Co., Ltd. Ms. Guo Minghua Ms. Yan Silin Green Inclusive Technology (Beijing) Co., Ltd Ms. Hou Siyang

2.4 Site Visits

The on-site inspection involved following activities:

- An assessment of the implementation and operation of the project as per the registered PD;
- A review of information flows for generating, aggregating and reporting the monitoring parameters;
- Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the approved monitoring plan.

The audit team performed the on-site verification during 30/03/2025-31/03/2025.

The interviewed personnel and objective are listed in above table.

2.5 Resolution of Findings

During the verification of a project activity, to identify issues that need to be further elaborated upon, researched, or added to in order to confirm that the project meets the VERRA's requirements and can achieve credible emission reductions, CCSC will issue a Corrective Action Request (CAR), a Clarification Request (CL) or a Forward Action Request (FAR) depending on different situations.

The objective of this phase of is to resolve issues related to the monitoring, implementation and operations of the project activity that could impair the capacity of the project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions prior to CCSC's positive conclusion on the GHG emission reduction calculation.

Findings established during the verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

A Corrective Action Request (CAR) will be raised if one of the following occurs:

- a) Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project proponents, or if the evidence provided to prove conformity is insufficient;
- b) Modifications to the implementation, operation and monitoring of the project activity has not been sufficiently documented by the project proponents;
- c) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- d) Issues identified in a FAR during verification to be verified during verification or previous verification(s) have not been resolved by the project proponents.

A Clarification Request (CL) will be raised if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met.

A Forward Action Request (FAR) will be raised, for actions if the monitoring and reporting require attention and/or adjustment for the next verification period.

There are 2 CARs, 5 CLs that have been raised during the verification process, No Forwarded Action Requests (FAR) were raised.

Each finding, including the issue raised, the response(s) provided by the project proponent, and the final conclusion and any resulting changes to project documents, are listed in the appendix 5.

2.5.1 Forward Action Requests

No FAR was raised during this verification process. This is the 1st periodic verification and no was raised during validation and previous verification.

2.6 Eligibility for Validation Activities

N/A

3 VALIDATION FINDINGS

3.1 Methodology Deviations

N/A

3.2 Project Description Deviations

N/A

3.3 New Project Activity Instances in Grouped Projects

N/A

3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes

☒ No

4 VERIFICATION FINDINGS

4.1 Project Details

Item	Evidence gathering activities, evidence checked, and assessment conclusion:
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Audit history	This is the 1st periodic verification of the project. Audit history described in the section 1.2 of the MR was confirmed according to the validation and verification reports from the VERRA registry.
Double counting and participation under other GHG programs	The project has neither been registered nor seeking registration under any other GHG programs, and hasn't been rejected by any other GHG project, which has been confirmed via checking the website of UNFCCC, GS, VCS, GCC, and CCER. The PP also provided the Declaration on non-double counting for GHG program /49/ which was checked by the audit team.
No double claiming with emissions trading programs or binding emission limits	China has a national emissions trading scheme only cover the high-emission industries, such as power generation sector that emitted at least 26,000 tons of CO₂e/year which has been verified in the public website, the project owner and the project activity is not included the mandatory emission control scheme and there is no emission cap enforced for the project owner by checking the enforced company list in public information. In addition, there are 7+1 Pilot ETs in China, which include Beijing city, Shanghai city, Tianjin city, Chongqing city, Shenzhen city, Guangdong province, Hubei province and Fujian province. Hence, Shanxi province is not a Pilot ETS, Hence, it is confirmed that the emission reductions will not be double counted. The declaration regarding the project is submitted by PP which is acceptable to the audit team. The audit team confirms that the Net GHG emission reductions or removals generated by the project will not be used for compliance with an emissions trading program or to meet binding limits on GHG emissions in any Emission Trading program or other binding limits. The audit team checked the relevant laws, statutes, and other regulatory, and found that there is no market-based tool like ETS in the European Union aiming at GHG emission reductions in China. Thus, the audit team concluded that the project activity will not be involved on other Emissions trading programs and other binding limits.
No double claiming with other forms of environmental credit	The project has no intent to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program.

	Besides, the project is not eligible to apply for any other forms of environmental credit including I-REC.						
Supply chain (scope 3) emissions double claiming	The project activity generates electricity connected to the grid and generates heat supplied, which does not affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain. Heat supplied to the coal mine was not used to calculate the emission reductions and no emission reductions were claimed for heat generation.						
Sustainable development contributions	By checking China’s National Plan on Implementation of the 2030 Agenda for Sustainable Development and 17 SDGs defined by UNDP, and interviewing with stakeholders during site visit, it is confirmed that the project activity would contribute sustainable development in the region in following aspects, which has been confirmed by site visit: - Self-defined indicator Contribution to clean energy. generation: It was confirmed that the project utilizes CMM to generate and supplied 118,856.36MWh electricity to the power grid during this monitoring period. Thus, the project benefits the Self-defined indicator Contribution to clean energy. generation - Self-defined indicator Contribution to Local Employment: Competitive Payroll and Job Creation: The project will increase income of local residences and accelerate local economy development. During this monitoring period, the annual average payroll for employees of this project a private sector entity, from 2022 to 2024, is approximately 80,000, 85,000 and 90,000 RMB, which is decent compared to the local average level: <table><tr><th>Year</th><th>Average payroll for employees of this project</th><th>Average payroll in Shanxi Province</th></tr><tr><td>2022</td><td>80,000</td><td>47,275¹</td></tr></table>	Year	Average payroll for employees of this project	Average payroll in Shanxi Province	2022	80,000	47,275 ¹
Year	Average payroll for employees of this project	Average payroll in Shanxi Province					
2022	80,000	47,275 ¹					

¹ <https://tjj.shanxi.gov.cn/tjsj/tjnj/nj2023/zk/indexch.htm>

	2023	85,000	50,542 ²
	2024	90,000	51,010 ³
In addition, the project creates an average of 27 job positions annually. Thus, the project will achieve Self-defined indicator Contribution to Local Employment: Competitive Payroll and Job Creation. SDG 13: GHG emission reduction of 757,901tCO₂e were achieved during this monitoring period. Thus, the project will achieve Target 13.2 under SDG 13“Take urgent action to combat climate change and its impacts”.			
Additional information relevant to the project	No commercially sensitive information has been excluded from the public version of the project description.		

Regarding the VERRA project review finding 1: Verra is seeking evidence of the credibility of the relevant government approvals submitted for the project activity, the project proponent provide 2 publicly available government records that demonstrate the government authorization for the carbon project exists, which also translated to English by a certified translator and notarized:

1. Announcement of Transaction Results for State-owned Land Use Right Disposal by Auction, Bidding and Listing," issued by the Heshun County Natural Resources Bureau and published on the official website of the Ministry of Natural Resources of the People's Republic of China (https://landchina.mnr.gov.cn/land/cjgs/gpcr/202008/t20200814_7526596.htm), which is a webpage from the website of Ministry of Natural Resource of China.

The verification team confirmed that the announcement specifies the confirmed transaction result for the land (Parcel No. GT2020008) where this project is constructed and the related approval information, since the Parcel No. GT2020008 corresponds exactly to the parcel described in the “Real Estate Title Certificate of the People's Republic of China” held by the project owner, and the geographical coordinates of the project in the MR are covered in the parcel boundary of the Real Estate Title Certificate. In summary, both the government announcement and the land certificate consistently refer to the same parcel of land (GT2020008), confirming that the project is situated on this officially authorized site.

² <https://tjj.shanxi.gov.cn/tjsj/tjnj/nj2024/zk/indexch.htm>

³ <https://m12333.cn/policy/paisw.html>

2. Publicly available government record: the official document titled "Heshun County Energy Administration 2024 Work Summary & 2025 Work Plan" issued by the Heshun County Energy Administration and published on the official website of the People's Government of Heshun County

(<http://www.heshun.gov.cn/Upload/main/InfoPublicity/PublicInformation/File/2025/01/06/202501061138248731.pdf>). The domain name of this address is <http://www.heshun.gov.cn/>, which is the legitimate domain of the Heshun County Government, ensuring the authenticity and official status of the publication.

In the section "2024 Work Summary" of this document, it is explicitly states that there are nine CMM power generation in Heshun County, six of which are under normal operation. Among these six is this project, Shanxi Shengdong Qingtian New Energy Co., Ltd. (Liyang Power Station) is one of the normally operational CMM power stations (page 4).

Furthermore, the "Overview of Administration Responsibilities" published on the same government website

(http://www.heshun.gov.cn/zwgk/zfxxgkml/xrmzfczbm/36xnyj/xgkml36xnyj/jgznnnyj/bmgknyj/content_890) specifies in Article 3 the responsibilities of the Heshun County Energy Administration as "Within the authority prescribed by the Heshun County People's Government, the Heshun County Energy Administration shall be responsible for approving, authorizing, and reviewing fixed asset investment projects in the energy sector, as well as for organizing the acceptance of such projects upon completion." Given this mandate, the inclusion of this project Liyang Power Station among the "normally operating CMM projects" in the Administration's official 2024 work summary confirms that the project has successfully completed all required government approval, authorization, and acceptance procedures. Therefore, this public government record constitutes valid evidence that the project has received formal authorization for operation—satisfying Verra's documentation requirement under item (d): commissioning certificate or official approval for operation.

Besides, the verification team reviewed all the project approvals including approval of FSR, approval of grid connection, approval of EIA, and etc, which demonstrate that the project was authorized by the local government departments. However these approvals are not presented publicly on the internet. The verification team also checked Discharge Permit issued by the Ministry of Ecology and Environment of China which are publicly available through

<https://app.gjzfw.gov.cn/jmopen/webapp/html5/sthjbpwxkpc/index.html>

and confirmed the project was issued the Discharge Permit with the No. 91140723MA0GX2HU01001V, and the verification team confirmed that the project was authentic and authorized by the China government.

4.2 Safeguards and Stakeholder Engagement

4.2.1 Stakeholder Identification

Through interviews during onsite inspection, and through document review, the audit team confirmed that the stakeholder makeup has not changed since validation. However the PP still provide the full information of stakeholder engagement and consultation, which is confirmed below:

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Stakeholder identification	The audit team has checked the MR and confirm that the stakeholder identification has been conducted as per the VCS standard Version 4.7. People or groups who might be impacted by a project, including relevant personnel of Liyang Coal Mine, project employees, local villagers, and government officials. Stakeholder identification methods and procedures included in the section 2.1.1 of the MR was confirmed effective, and the identified stakeholders above were confirmed through onsite inspection of geographical boundary and onsite interviews against the local stakeholders, and through reviewing the Measures for Public Participation in Environment Impact Assessment /15/ and the Environmental Impact Assessment (EIA) /12/.
Legal or customary tenure/access rights	The audit team confirm through onsite inspection and reviewing the Feasibility Study Report /10/ that the project is situated within the boundaries of an existing coal mine site. As such, the land use and access rights are governed by applicable legal framework and existing agreements. Considering the type of the project activity, the project does not involve alterations to the existing legal or customary tenure/access rights of stakeholders, indigenous people (IPs), local communities (LCs), or customary rights holders, as the land is already designated for industrial purposes.
Stakeholder diversity and changes over time	Stakeholder diversity and changes over time described in the MR in the aspects including social, economic, and cultural diversity, and etc. has been checked and confirmed by the audit team by onsite interview with expertise of the audit team and by reviewing the Environmental Impact Assessment (EIA) /12/.
Expected changes in well-being	The audit team can confirm through onsite interviews and reviewing the Environmental Impact Assessment (EIA) /12/ that the project contributes to improve the well-being of local communities, for

	example to improve the local environment, provide work opportunities and supply clean electricity which has been described in the MR.
Location of stakeholders	The audit team confirm that stakeholders are located in the nearby villages, the coal mine and local government.
Location of resources	It is confirmed through onsite inspection and reviewing the Environmental Impact Assessment (EIA) /12/ that territories and resources occupied by the project is within the range of Coal Mine, and no identified stakeholders own or have customary access to the land and resources occupied by the project.

4.2.2 Stakeholder Consultation and Ongoing Communication

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Ongoing consultation	It is appropriate that the project owner set up an on-going communication mechanism, including distributing survey questionnaires. The ongoing consultation manners were confirmed during onsite interviews against the PP and local stakeholders.
Date(s) of stakeholder consultation	14/11/2023
Communication of monitored results	Questionnaires /38/ were checked and representatives were interviewed during onsite inspection, and it was confirmed that there were no negative comments received for the project in this monitoring period. In line with VCS requirements all the processes have been implemented to receive comments from local stakeholders as well as communication.
Consultation records	Questionnaires /38/ were checked and the consultation records described in the section 2.1.2 of the MR were confirmed.
Stakeholder input	By checking all the stakeholders consultation records including questionnaires /38/ conducted on 14/11/2023, it is confirmed that there are no negative comments received for the project. Therefore, updates to the project design or justify why updates were not necessary.

4.2.3 Free, Prior, and Informed Consent

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Consent	The verification team has confirmed that the project has obtained approvals /11//13/ from the local government in accordance with laws and regulations prior to project construction. Every aspect of environmental impact has been considered in the Environmental Impact Assessment (EIA) /12/ and Environmental Monitoring Report for Completion Acceptance Inspection /14/, and no net harm has been detected. Records of stakeholder consultation indicates that all stakeholders have agreed and supported the construction and operation of the project. Therefore, the project complies with the relevant VCS regulations for FPIC. There are no ongoing or unresolved conflicts for this project.
Outcome of FPIC discussion	By checking the evidence /11//13/ and interviewing the local stakeholders, the audit team can confirm that the project obtained the approval letters from governmental authorities and local stakeholders are supportive of the construction of the project.

4.2.4 Grievance Redress Procedure

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Grievance received and steps taken to resolve the grievance including the outcomes of the resolution	No grievance received, confirmed by onsite interviews and reviewing the Comment Collection Book /39/. It was confirmed during onsite interviews that the procedure is easily accessible to stakeholders for ongoing consultation.
Grievance redress procedure	Comment Collection Book /39/ was reviewed which is placed at the entrance of the project owner's company. Besides, stakeholders can register any opinions and suggestions about the project in it at any time or directly reflect their opinions by calling the number on the front cover of the Comment Collection Book, which was during onsite interviews against the stakeholders.

4.2.5 Public Comments

Comments received	Actions taken by the project proponent	Evidence gathering activities, evidence checked, and assessment conclusion
There are no comments received, confirmed during onsite interviews.	N/A	N/A

4.2.6 Risks to Local Stakeholders and the Environment

4.2.6.1 Management Experience

It has been confirmed during onsite inspection and interviews that PP have previous experience on the similar project and engaging communities. The audit team interviewed the representatives of the management team and confirmed their expertise and prior experience. Besides, the verification team also reviewed the PD and MRs of another VCS project (ID: 2830) operated by the same management team to confirm their expertise and prior experience.

4.2.6.2 Risk Assessment

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Natural and human induced risks to stakeholders' wellbeing	No risk identified by the PP. The project has secured both project approval and Environmental Impact Assessment (EIA) approval /11//13/, supporting that it complies with all regulatory and legal requirements established by the Chinese government regarding environmental, health, and safety standards. The stakeholders are supportive to the proposed project, which were confirmed during onsite interviews and by reviewing the stakeholders consulting questionnaires /38/.
Risks to stakeholder participation	No risk identified by the PP. It was confirmed above that mechanism for ongoing communication with local stakeholders has been set up and deemed effective. Stakeholder were properly identified and the ongoing communication process were conducted. Evidence including Questionnaires for stakeholders and Comment Collection Book /38//39/ were reviewed and confirmed.
Working conditions	No risk identified by the PP.

	It was confirmed that the requirements for working conditions have been outlined in the project design Feasibility Study Report /10/, Environmental Impact Assessment (EIA) /12/ which were approved by the local government /11//13/. This was also confirmed during onsite inspection. The project provides safety training /35/ and adequate labor protection supplies for employees, which was confirmed during onsite interview and witnessed during onsite inspection.
Safety of women and girls	No risk identified by the PP. During the onsite interviews against the management team, the audit team confirmed that the project owner complies with all relevant laws including "Special Provisions on Labor Protection for Women Workers" /42/ and no particular harm to women and girls in this project, and the project pays attention to the occupational health of female employees, providing regular health checkups and mental health support. As a result, the Project will not expose women and girls to any additional risks or hazards. Furthermore, by reviewing the Employee list /36/, it was confirmed that no girls have been recruited, and the Project ensures equal pay for both women and men /36//37/.
Safety of minority and marginalized groups, including children	No risk identified by the PP. Minority and marginalized groups are not covered by this project /10/.The country has strict prohibitions for child labor. China's labor law protects vulnerable groups, including the protection of minors and the protection of workers in specific situations. The project owner claimed during onsite interviews that the project complies with all relevant laws. Furthermore, by reviewing the Employee list /36/, it was confirmed that no children have been recruited.
Pollutants (air, noise, discharges to water, generation and release of hazardous materials and chemical pesticides and fertilizers	No risk identified by the PP. The Environmental Impact Assessment (EIA) /12/, and Environmental Monitoring Report for Completion Acceptance Inspection /14/ were reviewed and the measures have been identified in the EIA of the project to mitigate environmental pollution caused by construction and operation, which were implemented per environment pollution-related laws and regulations and will be supervised by the local government as per the environment protection law of China.

4.2.7 Respect for Human Rights and Equity

4.2.7.1 Labor and Work

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Discrimination	No risk identified by the PP. According to Labor Law of the People's Republic of China /43/ it is illegal to discriminate on grounds of race, nation, sex or religion. The project owner claimed during onsite interviews to obey and will always obey the law. No discrimination has occurred or will occur.
Sexual harassment	No risk identified by the PP. China's Civil Code /44/ explicitly prohibits sexual harassment and clearly contains clear provisions on the legal responsibility for sexual harassment. The project owner claimed during onsite interviews to and will always obey the law by setting up strict working processes and management systems to regulate employee behavior. For any violations of relevant policies of the company, severe penalties will be enforced.
Gender equity in labor and work	No risk identified by the PP. According to Labor Law of the People's Republic of China /43/, Law of the People's Republic of China on the Protection of Women's Rights and Interests /45/, and the Special Provisions on Labor Protection for Women Workers , it is illegal to discriminate on sex. The project owner claimed during onsite interviews to obey and will always obey and will always obey the law.
Forced labor	No risk identified by the PP. The Labor Law /43/ of the People's Republic of China expressly prohibits forced labor. The project owner claimed during onsite interviews to obey and will always obey the law.
Child labor	No risk identified by the PP. The Labor Law of the People's Republic of China /43/, Law of the People's Republic of China on the Protection of Minors /47/ and Prohibition of Child Labor Regulations /48/ prohibit employers from hiring minors under the age of 16. The project owner claimed during onsite interviews to obey and will always obey the law.

Human trafficking	No risk identified by the PP. The Criminal Law of the People's Republic of China /46/ expressly prohibits trafficking in persons. The project owner claimed during onsite interviews to obey and will always obey the law, and there is no human trafficking.
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4.2.7.2 Human Rights

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
No risk identified	It has been confirmed during onsite inspect and interviews that project proponent strictly obeys the law, i.e. the Constitution /41/ and Labour Law of in line with People's Republic of China /43/ and the legal rights and interests of all employees are protected. Human rights were respected and preserved by international human rights law, the United Nations Declaration on the Rights of Indigenous Peoples, and ILO Convention 169.

4.2.7.3 Indigenous Peoples and Cultural Heritage

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
No risk identified	There were no Indigenous Peoples and Cultural Heritage in the project area, which was confirmed during onsite inspection and interviews and by reviewing the EIA /12/.

4.2.7.4 Property Rights

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
No risk identified	The project is located inside the coal mine and purchases the CMM extracted from the coal mine for energy generation, and the CMM transaction contract /18/ was signed between the PP and the coal mine. The project does not involve any other property rights.

4.2.7.5 Benefit Sharing

Item	Evidence gathering activities, evidence checked, and assessment conclusion
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Summary of the benefit sharing plan	N/A It was confirmed that the project does not impact property rights and hence the benefit sharing plan is not applicable.
Benefit sharing during the monitoring period	N/A It was confirmed that the project does not impact property rights and hence the benefit sharing plan is not applicable.

4.2.8 Ecosystem Health

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Impacts on biodiversity and ecosystems	The Environmental Impact Assessment (EIA) /12/ was reviewed and it was confirmed that the project has no further impact on biodiversity and ecosystems. No risk was identified by the PP.
Soil degradation and soil erosion	The Environmental Impact Assessment (EIA) /12/ was reviewed and it was confirmed that the project has no further impact on the soil. No risk was identified by the PP.
Water consumption and stress	The Environmental Impact Assessment (EIA) /12/ was reviewed and it was confirmed that construction wastewater has high pH and SS concentration, and will be collected and treated in a sedimentation tank. Domestic wastewater from construction personnel is also treated. No risk was identified by the PP.

4.2.8.1 Rare, Threatened, and Endangered species

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Species or habitat	The Environmental Impact Assessment (EIA) /12/ was reviewed and it was confirmed that the project is located at the coal mine and there are no rare, threatened, or endangered species in the project area.
Areas needed for habitat connectivity	The Environmental Impact Assessment (EIA) /12/ was reviewed and it was confirmed that the project has no impact on habitats and areas needed for habitat connectivity for rare, threatened, or endangered species.

Evidence gathering activities, evidence checked, and assessment conclusion	
Habitats for rare, threatened, and endangered species	The Environmental Impact Assessment (EIA) /12/ was reviewed and confirmed. No risk was identified by the PP.
Areas for habitat connectivity	The Environmental Impact Assessment (EIA) /12/ was reviewed and confirmed. No risk was identified by the PP.

4.2.8.2 Introduction of Species

There is no planting or species introduction, confirmed by reviewing the *Environmental Impact Assessment (EIA) /12/*.

Species introduced	Evidence gathering activities, evidence checked, and assessment conclusion
N/A	N/A

The project does not involve invasive species, confirmed by reviewing the *Environmental Impact Assessment (EIA) /12/*

Existing invasive species	Evidence gathering activities, evidence checked, and assessment conclusion
N/A	N/A

Evidence gathering activities, evidence checked, and assessment conclusion	
Invasive species	N/A

4.2.8.3 Ecosystem conversion

This is not applicable as the project is not an ARR, ALM, WRC or ACoGS project.

Item	Evidence gathering activities and evidence checked
Ecosystem conversion	N/A

4.3 Accuracy of Reduction and Removal Calculations

[Data and parameters available at validation]

The data and parameters fixed ex ante available at validation reported in the registered PD have been verified and confirmed appropriate, including:

Parameter	Description	Value	Justification, whether it consistent with the PD?
$MT_{BL,s,i,y}$	Methane from source s that would have been captured and destroyed by use i in the baseline scenario in the year y	0	Yes.
CEF_{CH_4}	Carbon emission factor for combusted methane	2.75 tCO ₂ e/tCH ₄	Yes.
D_{CH_4}	Density of methane under normal conditions of temperature and pressure	0.67kg/m ³ Under normal conditions of temperature and pressure are defined as 1 atm and 20°C (293.15 K)	Yes.
$EF_{k,y}, EF_{EF,j,y}$ ($EF_{grid,CM,y}$)	Combined margin emission factor for the grid in year y	0.7207 tCO ₂ /MWh	Yes.

[Data and parameters monitored]

According to VCS criteria, the audit team has performed the following activities to determine whether the monitoring of parameters related to the GHG emission reductions has been implemented in accordance with the monitoring plan.

- Through the inspection of the monitoring system, interview with the monitoring team representatives, document review including relevant records, procedures and technical specifications, the audit team has assessed the implementation of the monitoring plan followed by the PP;
- The parameters stated in the monitoring plan have been checked by means above;
- The audit team has checked the installation of the monitoring equipments against the monitoring plan and calibration reports /26/ by qualified third party;
- The documented records of CMM daily/monthly records, CMM transaction notes, Electricity Meter Reading Records, Electricity transaction notes /20//21//22//23/ were checked by the verification team to confirm the monitoring results;

- Based on the interview with the top management and operation staff and the review of the Monitoring and QC Manual /31/, the verification team has assessed the quality assurance and quality control procedures applied by the PP.

The monitoring parameters have been carried out in accordance with the monitoring plan. All parameters were monitored and determined as per the monitoring plan which is listed below. Values of the monitoring parameters have been checked against the data sources and confirmed consistent.

Parameter	Description	Value		Information flow	Data source
$MT_{PJ,s,i,y}$ (Same as $MM_{i,y}$)	Methane from source s captured and destroyed by use i in the project activity in year y			This parameter is calculated by the gas flow rate, pressure, temperature and CH4 concentration of CMM, which are continuously measured by flow meters (with accuracy class of 2.5), thermometers (with accuracy class of 0.5), manometers (with accuracy class of 0.5) and gas analyzer (with accuracy class of 3%FS). The parameters are monitored continuously and monthly aggregated. Pure methane volume is converted to normal conditions in volume unit and converted to mass unit with the parameter of D_{CH_4}, and recorded every day which is gathered monthly. The verification team confirmed that the installation of the monitoring equipments is appropriate and sufficient for the monitoring of the quantity of CMM sent to use of power generation, i.e., a set of corresponding metering instruments have been installed on each of the three gas pipelines. It was concluded that the pipeline system and the installation of monitoring equipments comply with the PD. Referring to the CL4 in the APPENDIX 5.	CMM daily/monthly records /19/, crosschecked against CMM transaction notes /20/ and found consistent. During the months November 2023 and January to March 2024, the project was not in operation, which was confirmed by onsite checking the operation records, and the monitored values are zero.
$MM_{ELEC,y}$	Methane measured sent for power generation in year y	Year	tCH ₄		
		01/03/2022 – 31/12/2022	13,242.10		
		01/01/2023 – 31/12/2023	5,022.13		
		01/01/2024 – 30/12/2024	8,523.45		
		Total	26,787.68		

GWP _{CH4}	Global warming potential of methane	28 tCO ₂ e/ tCH ₄	Use IPCC default	IPCC Fifth Assessment Report (AR5) /25/ In accordance with VCS Standard, projects that complete validation on or before 31 July 2021 shall use GWP values from IPCC Fifth Assessment Report (AR5) for ex-post calculations. Therefore the GWP was updated accordingly.										
$EG_{use,k,y}$ ($EG_{PJ,grid,y}$)	Energy of type k displaced by the project activity in year y	<table><tr><th>Year</th><th>MWh</th></tr><tr><td>01/03/2022 – 31/12/2022</td><td>58,592.24</td></tr><tr><td>01/01/2023 – 31/12/2023</td><td>22,315.44</td></tr><tr><td>01/01/2024 – 30/12/2024</td><td>37,948.68</td></tr><tr><td>Total</td><td>118,856.36</td></tr></table>	Year	MWh	01/03/2022 – 31/12/2022	58,592.24	01/01/2023 – 31/12/2023	22,315.44	01/01/2024 – 30/12/2024	37,948.68	Total	118,856.36	Measured by a bidirectional electricity meter continuously and monthly aggregated.	Meter Reading Records /21/ Crosschecked against Electricity transaction notes /22/. Monthly lower values between Meter Reading Records /21/ and Electricity transaction notes /22/ are used to calculate baseline emissions, which is conservative. During the months November 2023 and January to March 2024, the project was not in operation, which was confirmed by onsite checking the operation records, and the monitored values are zero.
Year	MWh													
01/03/2022 – 31/12/2022	58,592.24													
01/01/2023 – 31/12/2023	22,315.44													
01/01/2024 – 30/12/2024	37,948.68													
Total	118,856.36													

EC _{PJ,j,y}	Quantity of electricity consumed by the project electricity consumption source j in year y			Measured with electricity meter continuously, and recorded monthly.	Monitoring records for electricity consumption /23/ Crosschecked against Electricity transaction notes /22/. Monthly higher values between Meter Reading Records /21/ and Electricity transaction notes /22/ are used to calculate project emissions, which is conservative. During several months of this monitoring period, the power generated by the project was sufficient for consumption by the project and the project did not import electricity from the grid, and the monitored values of this parameter are zero, which is appropriate.
		Year	MWh		
		01/03/2022 - 31/12/2022	6.44		
		01/01/2023 - 31/12/2023	462.00		
		01/01/2024 - 30/12/2024	407.96		
		Total	876.40		
EFF _{i,y} (Eff _{ELEC,y})	Efficiency of methane destruction in use i (for the project, i represents power generation)	99.5%		Default value, sourced from 2006 IPCC	Default value
TDL _{j,y}	Average technical transmission and distribution losses for providing electricity to source j in year y	20%		Default value in TOOL05 The project uses the default value for project or leakage electricity consumption sources as per the TOOL05 (version 03.0).	Confirmed consistent with the default value in TOOL05

[Calibration information]

Accuracy and calibration frequency of the monitoring equipments have been checked and confirmed in accordance with the requirements of the monitoring plan. Calibration records have been checked by the audit team, and the following calibration information is confirmed:

Equipment	Monitoring parameter	Installed location	S/N	Accuracy	Calibration frequency	Date of calibrate	Validity	Calibrator
Flow Mete F1	$MT_{PJ,s,i,y}$ and $MM_{ELEC,y}$ (gas flow)	Inlet of the CMM generators	1385L163648521	2.5	Annually	19/02/2022; 15/02/2023; 05/02/2024	18/02/2023 14/02/2024 04/02/2025	A
Flow Mete F2			1905L169640520					
Flow Mete F3			2005L127860066					
Manometer M1	$MT_{PJ,s,i,y}$ and $MM_{ELEC,y}$ (gas pressure)		H96A4603	0.5		19/02/2022; 09/02/2023; 02/02/2024	18/02/2023 08/02/2024 01/02/2025	A
Manometer M2			20051403					
Manometer M33			H96A4602					
Thermometer T1	$MT_{PJ,s,i,y}$ and $MM_{ELEC,y}$ (gas temperature)		Y19062001	0.5		24/02/2022; 09/02/2023; 02/02/2024	23/02/2023 08/02/2024 01/02/2025	B
Thermometer T2			Y19062002					
Thermometer T3			ZY2020051403					
Gas analyzer G1	Methane concentration	Inlet of the CMM generators, Main pipeline	2019A5G05CH4-1	3%FS	Annually	27/02/2022; 16/02/2023; 01/02/2024	26/02/2023; 15/02/2024; 31/01/2025	A
Gas analyzer G1'		G1 is the original equipment, replaced by G1' on 31/03/2024. The replacement	2024A5F07CH4	3%FS		29/03/2024	28/03/2025	

		record /27/ was checked and it was confirmed that the replacement did not impact the monitoring activities.						
Gas analyzer G2		Inlet of the CMM generators,	2020A5G10 CH4			27/02/2022; 16/02/2023; 01/02/2024	26/02/2023; 15/02/2024; 31/01/2025	
Gas analyzer G3		Main pipeline	2020A5E26C H4					
Electricity meter	$EG_{Use,k,y}$ ($EG_{PJ,grid,y}$) and $EC_{PJ,j,y}$	at the onsite substation	1904090189 70	0.2S	Annually	19/02/2022; 12/02/2023; 02/02/2024	18/02/2023 11/02/2024 01/02/2025	A

All the equipments were calibrated by the qualified calibrators A and B /28//29/.

Calibrators A: Tianjin Institute of Metrological Supervision and Testing

Calibration B: Instrument Measuring and Testing Center of Anhui Tiankang (Group) Shares Co., Ltd.

[Calculation of emission reductions]

As per the methodology and the CDM-PDD, baseline emissions are calculated according to the followings:

$$BE_y = BE_{MD,y} + BE_{MR,y} + BE_{Use,y}$$

Where :

BE_y = Baseline emissions in year y (tCO₂e)

$BE_{MD,y}$ = Baseline emissions from destruction of methane in the baseline scenario in year y (tCO₂e).

$BE_{MD,y} = 0$ as in the baseline scenario the CMM is fully vented into the atmosphere and no methane is destroyed.

$BE_{MR,y}$ = Baseline emissions from release of methane into the atmosphere in year y that is avoided by the project activity (tCO₂e). $BE_{MR,y} = GWP_{CH4} \times MT_{PJ,s,i,y}$

$BE_{Use,y}$ = Baseline emissions from the production of power, heat or supply to gas grid replaced by the project activity in year y (tCO₂e). $BE_{Use,y} = EG_{Use,k,y} \times EF_{ELEC} = EG_{Use,k,y} \times EF_{grid,CM,y}$

The values of parameters for calculating the baseline emissions have been verified against the relevant records by the verification team, which are shown in the Emission Reductions Calculation Spreadsheet.

Accordingly, the baseline emissions in this monitoring period can be calculated as:

$$\begin{aligned} BE_y &= BE_{MD,y} + BE_{MR,y} + BE_{Use,y} = 0 + GWP_{CH4} \times MT_{PJ,s,i,y} + EG_{Use,k,y} \times EF_{grid,CM,y} \\ &= 835,711 \text{tCO}_2\text{e} \end{aligned}$$

Detailed calculations in the Emission Reductions Calculation Spreadsheet have been checked and confirmed by the verification team.

As per the methodology and the VCS-PD, baseline emissions are calculated according to the followings:

$$PE_y = PE_{ME} + PE_{MD} + PE_{UM}$$

Where:

PE_y = Project emissions in year y (tCO₂e)

PE_{ME} = Project emissions from energy use to capture and use methane (tCO₂e). $PE_{ME} = EC_{PJ,i,y} \times EF_{grid,CM,y} \times (1+TDL_{j,y})$

PE_{MD} = Project emissions from destruction of captured methane (tCO₂e). $PE_{MD} = MD_{ELEC,y} \times CEF_{CH4} = MM_{ELEC,y} \times Eff_{ELEC,y} \times CEF_{CH4}$

PE_{UM} = Project emissions from un-combusted methane (tCO₂e). $PE_{UM} = GWP_{CH4} \times MM_{ELEC,y} \times$

$$(1 - \text{Eff}_{\text{ELEC},y})$$

The values of parameters for calculating the project emissions have been verified against the relevant records by the verification team, which are shown in the Emission Reductions Calculation Spreadsheet.

Accordingly, the project emissions in this monitoring period can be calculated as:

$$\begin{aligned} \text{PE}_y &= \text{PE}_{\text{ME},y} + \text{PE}_{\text{MD},y} + \text{PE}_{\text{UM},y} = \text{EC}_{\text{PJ},y} \times \text{EF}_{\text{grid,CM},y} \times (1 + \text{TDL}_{j,y}) + \text{MM}_{\text{ELEC},y} \times \text{Eff}_{\text{ELEC},y} \times \text{CEF}_{\text{CH}_4} + \\ &\text{GWP}_{\text{CH}_4} \times \text{MM}_{\text{ELEC},y} \times (1 - \text{Eff}_{\text{ELEC},y}) \\ &= 77,810 \text{tCO}_2\text{e} \end{aligned}$$

Detailed calculations in the Emission Reductions Calculation Spreadsheet have been checked and confirmed by the verification team.

Leakage (LE_y) is taken as zero as per the registered PD.

The verification team has performed the following activities to assess the data and calculations of GHG emission reductions achieved by the Project as per the methodology:

- Through desk review and on-site inspection, to verify that a complete set of data for the specified monitoring period is available;
- Information provided in the MR has been crosschecked with other sources;
- Review the calculations of baseline GHG emissions have been carried out in accordance with the formulae and methods described in the registered PD, and the methodology;
- Review emission factors, IPCC default values, GWPs and other reference values as per the registered PD.

Therefore, the audit team is able to conclude that the emission reductions provided in the project's GHG statement have been quantified correctly in accordance with the monitoring plan and applied methodology. There is not manual transposition error between data sets have occurred. Calculation result of the emission reductions during this monitoring period 01/03/2022 to 31/12/2024 is confirmed:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU's (tCO ₂ e)
01/03/2022 – 31/12/2022	413,005	38,094	0	374,911

01/01/2023 – 31/12/2023	156,701	14,846	0	141,855
01/01/2024 – 30/12/2024	266,005	24,870	0	241,135
Total	835,711	77,810	0	757,901

[Conclusion]

In general, the audit team confirms the following:

- All assumptions and data used by the project participants are listed in the MR and/or supporting documents, including their references and sources;
- All documentation used by the project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the MR;
- All values used in MR are considered reasonable in the context of the project activity;
- The methodology has been applied correctly to calculate project emissions, baseline emissions, and leakage emissions;
- All estimates of the baseline, project and leakage emissions can be replicated using the data and parameter values provided in MR.
- CCSC confirms that the methodology has been applied correctly to calculate baseline emissions, project emissions, leakage and ex-ante net GHG emission reductions and removals.

4.4 Quality of Evidence to Determine Reductions and Removals

As a result of verification of the ER calculation process, the audit team confirmed that all the parameters required for the determination of the emission reductions have been included in the MR and ER Calculation Spreadsheet of this monitoring period are consistent with the applied methodology and the monitoring plan contained in the registered PD. The parameters are complete in this monitoring period.

After verifying the reported figures with the raw data sources, it's confirmed that the values of the parameters from the raw data sources are consistent with those quoted in the ER Calculation Spreadsheet of this monitoring period and MR. the verification process for the same has been clearly described above in section 4 of the report.

All necessary documentations are collected, referenced and aggregated, which is easily accessible in hard-copy or electronic format. Measurements are performed by calibrated equipment, and the key data can also be cross-checked via other sources, such as roster, logbooks and laboratory test data. No assumptions are used that have any material influence on reported emission reductions.

CCSC concludes that during this monitoring period, the evidence for determination of emission reductions is sufficient and reasonable, and the calculation of emission reductions is reliable.

4.5 Non-Permanence Risk Analysis

Not applicable as the project is not an AFOLU project.

5 VERIFICATION OPINION

5.1 Verification Summary

China Classification Society Certification Co. Ltd. (hereafter referred to as “CCSC”) has been commissioned by Leon Low-Carbon and Environmental Protection Science and Technology (Beijing) Co., Ltd. to perform the verification of the project activity “Liyang 15 MW Low-concentration CMM Power Generation Project” (hereafter referred to as “the project”) on the basis of requirements of Verified Carbon Standard (VCS) Version 4.7, VCS Validation and Verification Manual, and the approved Clean Development Mechanism (CDM) methodology ACM0008 version 08.0, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The verification scope is defined as an independent and objective review of the Monitoring Report (hereafter refer to as “MP”), the emission reduction calculation spreadsheet and other relevant documents refer to VCS, and CDM requirements. The GHG statement is the responsibility of the project proponent. The verification report is summarizing the findings of the verification. The audit team confirmed that the project has been implemented in accordance with the project description and subsequently validated variations. The project conforms with the verification criteria for projects and their GHG emission reductions set out in VCS Version 4.7.

5.2 Verification Conclusion

CCSC has been commissioned by Leon Low-Carbon and Environmental Protection Science and Technology (Beijing) Co., Ltd. to perform the verification of greenhouse gas emission reductions of the project activity “Liyang 15 MW Low-concentration CMM Power Generation Project” (VCS project ID: 4499).

The management of project proponent, Beijing Yonder Environmental Energy Technology Co., Ltd, is responsible for the conformity with the verification criteria for projects and their GHG emission reductions or removals set out in VCS Version 4.7, including any qualifications or modifications, and the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's Monitoring Plan in the registered VCS project description related to the crediting period covering this monitoring period.

Our verification approach was based on the requirements as defined under the applicable VCS standards and relevant UNFCCC requirements. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. The verification can confirm that:

- the project is implemented and operated as per the registered VCS project description related to the crediting period covering this monitoring period;
- the monitoring plan in the registered VCS project description related to the crediting period covering this monitoring period is as per the applied methodology;
- the monitoring activities comply with the monitoring plan in the registered VCS project description related to the crediting period covering this monitoring period;
- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS standard version 4.7 and CDM requirements;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.

In our opinion, the GHG emission reductions for “Liyang 15 MW Low-concentration CMM Power Generation Project” during the monitoring period 01/03/2022 to 31/12/2024 as reported in Monitoring Report, prepared on the basis of the project's Monitoring Plan are fairly stated. Based on the information we have seen and evaluated, we confirm the following statement:

Verification period: From 01/03/2022 to 31/12/2024

Verified GHG emission reductions and carbon dioxide removals in the above verification period:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU (tCO ₂ e)	Removal VCU (tCO ₂ e)	Total VCUs (tCO ₂ e)
01/03/2022 – 31/12/2022	413,005	38,094	0	374,911	0	374,911

01/01/2023 – 31/12/2023	156,701	14,846	0	141,855	0	141,855
01/01/2024 – 30/12/2024	266,005	24,870	0	241,135	0	241,135
Total	835,711	77,810	0	757,901	0	757,901

5.3 Ex-ante vs Ex-post ERR Comparison

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
01/03/2022 – 31/12/2022	324,304.41 ⁴	374,911	15.60%	The actual emission reductions are lower than the ex-ante estimation. The verification team confirmed that the reasons indicated in the monitoring report are authentic: 1) generator performance and 2) availability and stability of CMM supply.
01/01/2023 – 31/12/2023	388,102.00	141,855	-63.45%	
01/01/2024 – 30/12/2024	388,102.00	241,135	-37.87%	
Total	1,100,508.41	757,901	-31.13%	

⁴ 388,102*305days/365days=324,304.41

In the registered PD, the estimated ERs in the first 3 years are 388,102 tCO₂e

APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION

Section	Information	Justification	Assessment method and conclusion
Not applicable	Not applicable	Not applicable	Not applicable

APPENDIX 2: ABBREVIATIONS

Abbreviations	Full texts
AFOLU	Agriculture, Forestry and Other Land Use
CAR	Corrective Action Request
CCER	China Certified Emission Reductions
CCSC	China Classification Society Certification Co. Ltd.
CDM	Clean Development Mechanism
CL	Clarification Request
CMM	Coal mine methane
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DOE	Designated Operation Entity
DNA	Designated National Authority
DRC	Development and Reform Committee
EB	Executive Board
EF	Emission Factor
EIA	Environmental Impact Assessment
ERPA	Emission Reduction Purchase Agreement
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG(s)	Greenhouse gas(es)
GS	Golden Standard
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Return Rate
MEE	Ministry of Ecology and Environment of the People's Republic of China

MP	Monitoring Plan
PD	Project Description
PDD	Project Design Document
PP	Project Participant
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCU	Voluntary Carbon Unit
VVB	Validation / Verification Body

APPENDIX 3: DOCUMENTS REVISED OR REFERENCED

Title	Author	References to the document	Provider
/1/ VCS MR sent to CCSC for verification	Leon Carbon and Environmental Protection Science and Technology (Beijing) Co., Ltd. and Green Inclusive Technology (Beijing) Co., Ltd	Version 1 11/03/2025	PP
/2/ Final VCS MR to request issuance	Leon Carbon and Environmental Protection Science and Technology (Beijing) Co., Ltd. and Green Inclusive Technology (Beijing) Co., Ltd	Version 2.2 10/12/2025	PP
/3/ Emission Reductions Calculation Spreadsheet	Leon Carbon and Environmental Protection Science and Technology (Beijing) Co., Ltd. and Green Inclusive Technology (Beijing) Co., Ltd	Version 2 14/04/2025	PP
/4/ Registered PD	Leon Carbon and Environmental Protection Science and Technology (Beijing) Co., Ltd. and	Version 04.1 30/08/2024 https://registry.verra.org/app/projectDetail/VCS/4499	Others

	Green Inclusive Technology (Beijing) Co., Ltd		
/5/ VCS validation report	TÜV Rheinland Energy & Environment GmbH	Version 3.1 01/09/2024 https://registry.verra.org/app/projectDetail/VCS/4499	Others
/6/ CDM Methodology ACM0008 version 08.0 Abatement of methane from coal mines	CDM-EB	https://cdm.unfccc.int/methodologies/PAmethodologies/approved	Others
/7/ CDM TOOL05 “Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation” (version 03.0)	CDM-EB	https://cdm.unfccc.int/Reference/tools/index.html	Others
/8/ CDM TOOL07 “Tool to calculate the emission factor for an electricity system” (version 07.0)	CDM-EB	https://cdm.unfccc.int/Reference/tools/index.html	Others
/9/ VCS standard	Verra	Version 4.7	Others
/10/ Feasibility Study Report	Design institute: Henan Qiyuan Electric Power Survey Design institute	11/2019	PP
/11/ Approval of the Feasibility Study Report	Shanxi DRC	Dated 12/07/2020	PP
/12/ Environmental Impact Assessment (EIA)	PP	06/2019	PP
/13/ EIA approval	Jinzhong Environment Protection Bureau	10/07/2019	PP
/14/ Environmental Monitoring Report for Completion Acceptance Inspection	PP	02/2022	PP
/15/ Measures for Public Participation in Environmental Impact Assessment	MOE, China	https://www.gov.cn/gongbao/content/2018/content_5338231.htm	Others
/16/ Operation and Maintenance Manual of main equipments	Manufacturer	2020	PP

/17/	Operation records of power plant	PP	2022-2024	PP
/18/	CMM supply agreement	PP and the coal mine	10/01/2021	PP
/19/	CMM daily/monthly records	PP	2022-2024	PP
/20/	CMM transaction notes	PP and the coal mine	2022-2024	PP
/21/	Electricity Meter Reading Records	PP	2022-2024	PP
/22/	Electricity transaction notes	Grid company	2022-2024	PP
/23/	Monitoring records for electricity consumption	PP	2022-2024	PP
/24/	IPCC 2006 report	IPCC	/	Others
/25/	IPCC Fifth Assessment Report (AR5)	IPCC	/	Others
/26/	Calibration records	Calibrator	/	PP
/27/	Replacement record of the monitoring equipment gas analyzer G1	PP	31/03/2024	PP
/28/	Qualification certificate of calibrator Tianjin Institute of Metrological Supervision and Testing	National Market Supervision and Administration Bureau of China	No. (Guo)Faji(2022)01009 Validity till 28/07/2027	PP
/29/	Qualification certificate of calibrator Instrument Measuring and Testing Center of Anhui Tiankang (Group) Shares Co., Ltd.	CNAS	No. CNAS L12223 Validity: till 08/05/2025	PP
/30/	Project management manual	PP	/	PP
/31/	Monitoring and QC manual	PP	/	PP
/32/	Line diagram of CMM	PP	/	PP
/33/	Line diagram of electricity transmission	PP	/	PP
/34/	Diagram of installation points of monitoring equipments	PP	/	PP
/35/	Training records	PP	/	PP
/36/	Employee list	PP	/	PP

/37/ Labor contract	PP	/	PP
/38/ Questionnaires for stakeholders	PP	14/11/2023	PP
/39/ Comment Collection Book	PP	2022-2024	
/40/ Operator's certificates	/	/	PP
/41/ Constitution of China	Others	www.cppcc.gov.cn/2011/12/16/ARTI1513309181237960.shtml	Others
/42/ Special Provisions on Labor Protection for Women Workers	Others	https://www.gov.cn/zwqk/2012-05/07/content_2131567.htm	Others
/43/ Labor Law of the People's Republic of China	Others	https://www.gov.cn/banshi/2005-05/25/content_905.htm	Others
/44/ China's Civil Code	Others	http://www.npc.gov.cn/npc/c2/c30834/202006/t20200602_306457.html	Others
/45/ Law of the People's Republic of China on the Protection of Women's Rights and Interests	Others	https://www.gov.cn/banshi/2005-05/26/content_980.htm	Others
/46/ Criminal Law of the People's Republic of China	Others	https://www.gzzx.gov.cn/rdzt/kjyqgzzxzxd_1/fyygflfg/202106/P020210615548394847969.pdf	Others
/47/ Law of the People's Republic of China on the Protection of Minors	Others	https://www.gov.cn/xinwen/2020-10/18/content_5552113.htm	Others
/48/ Prohibition of Child Labor Regulations	Others	https://fgw.sh.gov.cn/ys-laogong-1.3.2.1/20240124/9174629f4b0c4453ad48edd741b50ae7.html	Others
/49/ Declaration on non-double counting for GHG program	PP	23/08/2023	PP

/50/	VCS Monitoring Report template	Verra	Version 4.4	Others
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APPENDIX 4: CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS AND FORWARD ACTION REQUESTS

Draft report clarifications and corrective action requests by audit team	Summary of project participant response	Audit team conclusion
CL-1 To demonstrate the project benefits SDG 8, average income of employees of the project shall be compared to local average.	Clarified and modified the MR section 1.12 accordingly.	The verification team confirmed that the MR was revised accordingly. This CL is closed.
CL-2 Date(s) of stakeholder consultation and consultation records in the section 2.1.2 of the monitoring report is not consistent with the evidence.	There was a typo in section 2.1.2 about the date of stakeholder consultation. The exact date of local stakeholder consultation during the monitoring period is 14-November-2023, which has been provided in the updated monitoring report in 2.1.2.	The verification team confirmed that this typo was correct and this requirement is met. This CL is closed.
CL-3 As per the VCS-MR template, in the section 2.1.4 of the monitoring report, where no grievances were raised, indicate this with NA and demonstrate that the procedure is easily accessible to stakeholders for ongoing consultation.	The following has been included in section 2.1.4 of the updated MR: There is a Comment Collection Book about the project at the entrance of the project owner's company. Stakeholders can register any opinions and suggestions about the project in it at any time or directly reflect their opinions by calling the number on the front cover of the Comment Collection Book.	The verification team confirmed that the MR was revised accordingly and it was demonstrated that the procedure is easily accessible to stakeholders for ongoing consultation. This CL is closed.

CL-4 It shall be demonstrated whether the pipeline system complies with the PD considering there are three pipelines connected from the pretreatment system to the generators actually, and whether the monitoring equipments are installed according to the monitoring plan.	The monitoring diagram in the registered Project Documentation (PD) is for indicative purpose, which shows the location of metering instruments rather than presenting the exact number of gas pipelines or metering instruments. Considering the situation that a set of corresponding metering instruments have been installed on each of the three gas pipelines, the monitoring equipments are installed fully in consistence with the registered monitoring plan.	The verification team concluded that the PD does not mean that there is only one pipeline connected from the pretreatment system to the generators. Actually the PD stated that «Flow meters, manometers and thermometers will be installed to continuously measure the gas flow (in volume), pressure and temperature.» which indicates that there might be several sets of monitoring equipments installed on several CMM pipeline connected to the CMM generators. The verification team confirmed that the installation of the monitoring equipments is appropriate and sufficient for the monitoring of the quantity of CMM sent to use of power generation, i.e., a set of corresponding metering instruments have been installed on each of the three gas pipelines. It was concluded that the pipeline system and the installation of monitoring equipments comply with the PD. This CL is closed.
CL-5 It shall be clarified why the electricity consumed by the project ($EC_{PJ,j,y}$) of several months is zero.	Whenever the project produces electricity, the plant's electricity consumption is fully supplied by the generated electricity. Therefore, the	The verification team confirmed that the project's electricity consumption sourced from the Grid Company is zero for months

	project's electricity consumption sourced from the Grid Company is zero for months when the project produces electricity non-intermittently throughout the month.	when the project produces electricity non-intermittently throughout the month and provides sufficient electricity for self-consumption. This CL is closed.
CAR-1 Actual achieved emission reductions of this monitoring period are not consistent within the monitoring report.	The actual emission reductions achieved have been modified to be consistent within the monitoring report.	The verification team confirmed that the monitoring report was corrected accordingly. This CAR is closed.
CAR-2 As per the VCS-MR template, while climate change and mitigation activities relate to SDG 13, they do not align with any SDG 13 target. For climate change mitigation impacts, write "13.0" in the SDG target column and use the indicator "Tonnes of greenhouse gas emissions avoided or removed"	The SDG 13 target has been modified from 13.2 to 13.0 in section 1.12.	The verification team confirmed that the monitoring report was revised accordingly. This CAR is closed.