

# VERIFICATION SUBREPORT

VE-UER-097-MP11.8.1

**Verification of Upstream GHG  
Emission Reductions for project:**

**«Recovery and Utilization of Associated Gas at  
Bukit Tua LPG Plant – PT. Arsynergy Resources»**

**For the period: 01/06/2023 to 30/09/2023**

**Monitoring Period Number: 11  
certifying the UER batch**

**0097\_VER1\_20160725\_2023\_007.1158S,112.6206E\_487973.511973**

**according to  
ISO14064 Part 2**

**for intended usage under  
The EU Fuel Quality Directive  
Version 1.1, dated 4<sup>th</sup> September 2024**

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## Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
CNG	Compressed Natural Gas
EU ETS	European Union Emissions Trading Scheme
FAR	Forward Action Request
FQD	Fuel Quality Directive
GHG	Greenhouse Gases
GPA	Gas Composition Analysis
LPG	Liquefied Petroleum Gas
ISO	International Standard Organisation
MRR	Monitoring and Reporting Regulations for EU-ETS
PA	Paris Agreement
PDD	Project design Document
SCADA	Supervisory Control and Data Acquisition
TR	Technical Reviewer
UER	Upstream Emission Reductions
UNFCCC	United Nations Framework Convention on Climate Change
USM	Ultrasonic Flow Meters

## 1. Scope of the Verification

Verico SCE, an accredited verification body<sup>1</sup> according to DIN EN ISO 14065 including the validation and verification of GHG assertions based on ISO 14064 Part 1 or Part 2, has been ordered to perform a verification of a monitoring report for the project: « Recovery and Utilization of Associated Gas at Bukit Tua LPG Plant – PT.Arsynergy Resources» in order to confirm compliance of the monitoring report with requirements as set by ISO 14064 Part 2, the Council Directive (EU) 2015/652 of 20 April 2015 laying down calculation methods and reporting requirements pursuant to Directive 98/70/EC (Fuel Quality Directive) of the European Parliament and of the Council relating to the quality of petrol and diesel fuels having regard to Directive 98/70/EC of the European Parliament and of the Council of 13 October 1998 relating to the quality of petrol and diesel fuels and amending Council Directive 93/12/EEC (1). This verification activity addresses in particular:

- the implementation of the project in accordance with the validated project design document;
- the amount of emission reductions achieved during the monitoring period

Verico SCE performed all tasks as specified under ISO 14064 Part 3, thus undertaking a systematic, independent and documented process for the evaluation of a greenhouse gas assertion of the above-mentioned project activity against the agreed verification criteria through this verification report. The main objective of this activity is the use of the verification report by the ordered for the creation of UERs that are eligible under the FQD regulation. The process of UER creation requires verification as shown in the third step of the graph on the right. All consecutive steps fall under the responsibility of the fuel supplier using UERs and are not part of this engagement.

Verico SCE has nominated a verification team fulfilling the internal qualification criteria based on ISO 14064 Part 3, ISO 14065 and ISO 14066. The verification process involved an in-depth review of the submitted set of documentation and records as well as background research regarding applied technologies and country-specific circumstances among others. Following a strategic analysis and the determination of assessment risks, a detailed verification plan has been developed.

The verification by a member of the verification team with appointment as lead verifier and covering all competences in the relevant sectoral scopes included web-conferences/emails interchange, with all the personnel involved in the GHG emissions reduction project. A finding list has been provided to the orderer who subsequently revised the documentation. The revised documentation underwent a further review before issuing this final verification report.

The verification statement is given at a reasonable level of assurance. When verifying reported data, a 0.5% materiality threshold has been applied with regard to the total amount of emission reductions thus enabling to confirm that the reported emission reductions are of equivalent confidence as of Commission Regulations (EU) No 600/2012.

The verification has been carried out in the period from 10<sup>th</sup> October 2023 to 19<sup>th</sup> October 2023.

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<sup>1</sup> DAKKS Accreditation ID D-VS-19003-01-01



## 2. Project Details

Project Title	Recovery and Utilization of Associated Gas at Bukit Tua LPG Plant – PT. Arsynergy Resources		
Brief Description	<p>The project activity owned by PT. Arsynergy Resources, is located in Bukit Tua Oilfield, Roomo Village, Manyar Sub District, Gresik District, East Java Province, Indonesia. The purpose of the project activity is to recover and utilize the associated gas, which would otherwise be flared at Bukit Tua oil and gas collection stations owned by PT Petronas Carigali. The project, which is implemented since 2016, encompasses also a new pipeline to connect the gas collecting station 3 km away from the LPG plant. The project activity is designed to process 40 MMSCFD of associated gas into LPG, condensates and lean gas through dehydration, fractionation, distillation, and condensation processes.</p> <p>The utilization of the recovered gas displaces the use of other fossil fuel sources. The emission sources in the project activity are from the energy used for the compression of the recovered gas and electricity used to operate the LPG plant.</p>		
Project site	Coordinates of the physical site of the project		
	Longitude:	112.620695 E	Latitude: 7.115893 S
Contracting Party of Verification Order and original UER owner	Agasco Ltd (United Kingdom of Great Britain and Northern Ireland) Eagle Tower Cheltenham GL50 1TA, United Kingdom		
UER Buyer	Enilive Austria GmbH		
Address	Handelskai 94-96 1200 Wien, Austria		
Corporate reg. No.	FN101947y		
VAT Number	ATU14189607		
Validated PDD incl. Monitoring Plan	Version 11 dated 3 February 2023 (revision for extension of operating period from 5 years to 10 years)		
Final version of the Monitoring Report	UER Monitoring Report (11 <sup>th</sup> monitoring period ) Version 2 dated 18/10/2023		
Applied methodology	CDM methodology AM0009 “Recovery and utilization of gas from oil fields that would otherwise be flared or vented” Version 07.0		
Monitoring Period	01/06/2023 to 30/09/2023 (both dates included)		
Verified UERs	250,326 tCO <sub>2</sub> e (covering the complete monitoring period)		
Certified UERs	24,000 tCO <sub>2</sub> e (by this specific sub-report)		
UER batch	0097_VERI_20160725_2023_007.1158S,112.6206E_487973.511973		

### 3. Assessment Approach

#### a. Contract Review

Based on submitted information on the project idea, its location, relevant stakeholders and the applied methodology, it was agreed to execute the project under an extension of the framework contract for UER activities closed with Agasco Ltd. Addendum to this framework contract was accepted by Agasco Ltd purchase order. The scope of accreditation of verico SCE as accredited validation and verification body covers all relevant scopes (here CDM scope 1 and 10) of this project activity, and verico SCE has access to auditors covering the required competences in the sectors related for this activity. The contract complies with the internal requirements of the validation and verification body. The cost estimate ensured that the required personnel and time resources were available for processing. The client confirmed the independence of the verification team members and verico SCE in writing.

#### b. Assessment Team

##### Lead Auditor:

Jing (Robin) Wang

ISO14064-2 CDM Scopes: 1,3, 8, 10

##### Auditor(s):

Werner Betzenbichler

ISO14064-2 CDM Scopes: 1 to 13

The appointment certificates confirming the qualification of the team members are provided under Annex 5 of this report.

#### c. Preparation of the Assessment

The verification criteria were agreed between the client and verico SCE prior to the assessment as the verification of the monitoring report to meet the requirements under ISO 14064 Part 2, the Council Directive (EU) 2015/652 of 20 April 2015 laying down calculation methods and reporting requirements pursuant to Directive 98/70/EC (Fuel Quality Directive) of the European Parliament and of the Council relating to the quality of petrol and diesel fuels having regard to Directive 98/70/EC of the European Parliament and of the Council of 13 October 1998 relating to the quality of petrol and diesel fuels and amending Council Directive 93/12/EEC (1).

At the start of this verification activity, the project participants submitted the project documentation and emissions reduction estimations. By reviewing and evaluating these documents a strategic and

risk analysis has been performed in order to develop an project-specific assessment plan, that has captured and identified all relevant areas of assessment in order to reduce assessment risks and to enable a statement at a reasonable level of assurance that the project complies with the requirement of ISO 14064 Part 2 (ISO 14064-2).

Verico SCE has been provided with a Monitoring Report version 1.1 dated 02 October 2023 and underlying data records covering the monitoring period. These documents serve as the basis for the assessment presented herewith. The reporting period starts 01 June 2023 and ends on 30 September 2023 (including the first and last day of this monitoring period).

The following table presents the areas of concern, which needed further investigation beyond the document review, the associated risks which might result in non-compliance and the initially selected assessment methods. This list has been prepared before drafting a detailed verification plan for the web-based interviews and the following on-site mission.

Area of Concern	Risk	Assessment method
Technical /physical project boundaries	Connected oil wells and Gas recovery with respect to Points to monitor the volume of recovered gas and fuel gas consumed by the project activity for the processing station; which are set corresponding to all material flows including on-site consumption.	Interview and inspection of <ul style="list-style-type: none"> <li>Evidence/s presented on engineering and procurement contract reports</li> <li>Feasibility Study Report,</li> <li>Proofs regarding amount flared in historical circumstances</li> </ul> Physical visit by the lead auditor
Correctness of underlying data	Use of inappropriate calculations Incorrect conclusions	Data verification
Implementation of the approved monitoring plan	Any binding requirements from validation of the validated PDD / registration scheme	Audit Inspection Document review
Calculations / estimations	Excel sheets for ER calculation Data correctness and quality, and estimations	Review of excel files (initial and final versions) Historic records
Baseline Emissions	Quality of recovered gas(feed gas) measured at Point F	Inspection Document review
Project Emissions	fuel gas (lean gas) consumed by gas-fired compressors	Inspection Document review
Leakage Emissions	Not considered acc. to validated PDD	n.a.
Monitoring Plan	Identification of Key instruments Correct monitoring locations Monitoring Parameters	Review of excel-tables Documentation Review Interview
Environmental integrity	Appropriate approvals	Interview Document review
Quality assurance / quality control	Data quality of ER calculations Calibration records	Inspection Document review



#### d. Verification Audits

A verification audit including on-site inspections took place on 10<sup>th</sup> October 2023. During the audit, interviews and document reviews were conducted.

A Finding list was issued, and some editorial and other minor errors were discussed with the project participants resulting in a need for revising the Monitoring Report. Further proofs and a revised version of the Monitoring Report, labelled as version 2 dated 18/10/2023 have delivered subsequently. All proofs (records, photos, databases, documents) have been checked during the second round of the audit process. A list of reviewed documents is provided in Annex 3 of this Verification Report.

Annex 4 to this report provides a list of interviewed persons.

The following figure provides some impressions of points discussed during the audits:



The overview the LPG plant owned by PT. Arsynergy Resources



The Ultrasonic flow meter for feed gas/at Point F (Elster Instromed Q. Sonic 4C)



The compact orifice plate flow meter for lean gas  
(Rosemount 3051CFC)



The energy meter  
(Schneider PM5560 0.2S)

## e. Specific assessment plan for the facility

Together with the verification process, the checklist as referred to under 3.c. has been completed with information collected and verified during both documents reviews and on-site audits to indicate the details of findings/confirmations. The checklist and the collected information and documents remain as internal verification documentation at verico SCE. The project-specific checklist with the final results is provided in Annex 1 of this Verification Report.

## f. Follow-up of Revisions

After the delivery of requested further evidence and the revision of the project documentation addressing the identified non-compliances, a further round of desk reviews has taken place, assessing



these submissions. All final assessments regarding the closure of findings is documented under the finding list, attached as Annex 2 to this report.

#### **g. Technical Review**

Before the report is approved, an internal review is conducted by a lead auditor (Technical Reviewer) assigned to it by the verification body who was not himself a member of the audit team. The main focus of this process is the assessment of the completeness and traceability of the validation carried out on the basis of the internal and external validation report. If necessary, the validation team will be asked to catch up on missing test steps or to correct or supplement the test report to increase transparency.

This particular review has been conducted by Luis Robles Olmos, who is appointed as Technical Reviewer of ISO14064 Part 2 activities covering ISO14064-2 CDM Scopes 1,3,7,10,13,14,15. His appointment certificate is provided under Annex 5.

### **4. Observations and Findings**

#### **a. General Information**

All information regarding the involved project proponents, the organizational arrangements, the daily practice and technical features have been proven to be correct. All procedures relevant to the project have been provided and their application on the project activity properly checked.

The verification focused on the correct implementation of the project (installations, monitoring equipment and procedures, quality assurance procedures), including the correctness of assumptions and calculations with possible impacts on the monitoring and verification process (e.g., uncertainty analysis).

All monitoring activities are either in accordance with the validated project design document, and all information regarding applied procedures, maintenance and data processing is clearly documented.

The project boundaries are clearly established as per the validated PDD version 11 dated 3 February 2023 and the Monitoring Report subject of this verification.

#### **b. Legal Requirements**

The project is in compliance with the host country's legislation. All required licenses are available. It is also evident there are no specific legal requirements to deliver the required service in the manner as done by the project activity. Hence the baseline scenario as claimed for in the validated PDD is still deemed being applicable. Thus, it can be confirmed that the baseline identification process by the project proponents and the according validation are both transparently and suitably presented. There are no legal requirements introduced since validation, which would have changed the conditions for determining the baseline scenario.

### Eligibility of the GHG project under the GHG program

The project is expected to be used under the EU Fuel Quality Directive, which is complemented with rules on the eligibility set by «COUNCIL DIRECTIVE (EU) 2015/652 of 20 April 2015 laying down calculation methods and reporting requirements». Further assistance is given by the «GUIDANCE NOTE on approaches to quantify, verify, validate, monitor and report upstream emission reductions», which also implicitly contains further requirements to be considered when determining the eligibility of an individual project. While many EU member states simply make reference to these provisions, some other countries have adopted specific implementation rules, which set further requirements. The following table lists the eligibility of the GHG project in the context of generic and specific requirements available at the time of verification.

ID	Requirement	Observation
EU-D1	UERs shall only be applied to the upstream emission's part of the average default values for petrol, diesel, CNG or LPG.	As confirmed in original validation report.
EU-D2	UERs originating from any country may be counted as a reduction in greenhouse gas emissions against fuels from any feedstock source supplied by any supplier.	This does not restrict the use of UERs for any eligible project.
EU-D3	UERs shall only be counted if they are associated with projects that have started after 1 January 2011.	As confirmed in original validation report.
EU-D4	<p>UERs shall be estimated and validated in accordance with principles and standards identified in International Standards, and in particular ISO 14064, ISO 14065 and ISO 14066.</p> <p>The UERs and baseline emissions are to be monitored, reported and verified in accordance with ISO 14064 and providing results of equivalent confidence of Commission Regulation (EU) No 600/2012 and Commission Regulation (EU) No 601/2012. The verification of methods for estimating UERs must be done in accordance with ISO 14064-3 and the organisation verifying this must be accredited in accordance with ISO 14065;</p>	The requirements of these standards and regulations have been used in the context of this verification (see following sections)



ID	Requirement	Observation
EU-D5	<p>In order for UERs to be eligible, fuel suppliers shall report:</p> <ul style="list-style-type: none"> <li>- the non-reusable certificate number uniquely identifying the scheme and the claimed greenhouse gas reductions;</li> <li>- the non-reusable number uniquely identifying the calculation method and the associated scheme;</li> </ul>	<p>Compliance with the first two bullet point will depend on the member state at which the UERs shall be used. Although recommended by the Commission, most member states have not established a UER registry enabling easy compliance with that requirement.</p> <p>In the absence of requested solutions, a unique number for the UER batch will be assigned by the verico SCE verification report. However, this unique number does not consider the calculation method, as a common standard for the identification of calculation methods is neither given nor required.</p>
EU-G1	<p>For emission reductions to be eligible to be claimed as UERs they must be additional to any emissions changes that would have been expected in the most likely counterfactual scenario.</p>	<p>As confirmed in original validation report.</p>
EU-G2	<p>Any particular batch of emission reductions from a given project may only be claimed against FQD GHG emission reduction obligations or other emission reductions targets once. These emission reductions cannot be claimed under the Kyoto Protocol's Clean Development Mechanism or the Joint Implementation. Similarly, upstream emission reductions that have been accounted for third party emission reductions schemes shall not be eligible under the FQD.</p>	<p>According to confirmation by the project proponents the use of the verified emission reductions as UER is the only purpose of this verification activity. However, further claims have to be excluded by contractual arrangements amongst sellers and buyers, if deemed necessary.</p>
EU-G3	<p>The boundary should include all GHG sources and removals and any GHG source, sink, or reservoir that is controlled, related to, or affected by the project (ISO 14064-2 Article 5.3). These are considered 'relevant' sources. Examples of project boundaries can be drawn from CDM methodologies and in the ICCT report on «The Reduction of Upstream Greenhouse Gas Emissions from Flaring and Venting».</p>	<p>As confirmed in original validation report and the underlying PDD / monitoring plan.</p>

### Further Reporting Requirements under the GHG program

The project documentation fulfils all reporting obligations as given by the applicable regulations for UER activities (Council Directive (EU) 2015/652 Annex 1 part 2 No. 1e) and 1h)). In particular this addresses the following data:

#### Oil Production Related Data

Parameter	US Unit	Value	Metric Unit	Value
GHG intensity prior to project implementation			g CO <sub>2</sub> eq/MJ	44.633
GHG intensity after reduction measures			g CO <sub>2</sub> eq/MJ	1.349
Crude oil amount for this monitoring period	BBL	7,109	t (BBL×0.137)	973.933
Gas amount for this monitoring period	SCF	13,303,996	M <sup>3</sup> (SCF×0.0283168)	376,726.594
Reporting year gas-to-oil ratio (GOR) in solution during this monitoring period	SCF/BBL	1,871	M <sup>3</sup> /t	391.422

All information has been checked for consistency and plausibility.

### c. Accuracy and Completeness

As result of reviewing evidence and pertaining document, it can be confirmed that all relevant parameters for the ex-post determination (quantity of recovered gas, fuel gas consumed on-site and electricity consumed by operation of the project activity) have been monitored according to the monitoring plan. This addresses in particular:

- $V_{MP,y}$  - Volume of the recovered gas measured at point F, measured by the flow meters;
- $NCV_{RG,MP,y}$  - NCV of recovered gas automatically sampled by on-line gas chromatography at point F;
- $FC_{MP,y}$  - Volume of the fuel gas (lean gas) on-site consumed by compressors of the LPG plant, measured by the flow meters;

- *MWhproject* - Electricity consumed by the LPG plant, measured by the Energy meters.

All parameters within the project boundary are metered at high accuracy. The reported emission reductions are of equivalent confidence as of Commission Regulations (EU) No 600/2012, which contains general principles for verification and the accreditation of verifiers and Commission Regulation (EU) No 601/2012 which contains general principles for monitoring and reporting that can be applied to upstream emission reduction projects.

#### **d. Quality assurance / quality management and risk management**

The monitoring system, related procedures and its implementation are in compliance with the requirements set by the underlying regulations and standards. All data which require metering are clearly identified and according arrangements have been made in line with appropriate procedures for data collection and its analysis. All parameters were determined as prescribed in the monitoring plan and associated (inherent) risks have been considered by implementing appropriate maintenance and quality assurance procedures. Reporting procedures reflect the monitoring plan and consolidated data and event logs are stored electronically. The necessary internal procedures and additional internal work instructions support the determination of all the parameters listed in the monitoring plan in an effective manner.

#### **e. Data gaps and corrections**

The monitoring system, related procedures and its implementation are in compliance with the requirements set by the underlying regulations and standards. All data which require metering are clearly identified and according arrangements have been made in line with appropriate procedures for data collection and its analysis. All parameters were determined as prescribed in the monitoring plan of the validated PDD and associated (inherent) risks have been considered by implementing appropriate maintenance and quality assurance procedures.

Monitored monthly aggregated data of volume and electricity consumption, is collated to the project owner each month for billing purposes. Calibration records were ascertained. These instruments across the project activity are:

- Recovered gas (feed gas) flow meters at point F
- Fuel gas (lean gas) flow meters at compressors unit of the LPG plant.
- Energy meters at the LPG plant.

Records of data are maintained in compliance with the legal requirements. Up-to-date information of monitoring instruments is shown in the following tables:

Monitoring instrument	Instrument type	Accuracy	Calibration valid period
Flow meter for recovered gas	Meter Gas Ultrasonic(USM): Elster Instromed Q. Sonic 4C	+-1%	Main meter (no.6708): From 02/06/2021 to 02/06/2028  Backup meter (no.6710): From 02/12/2020 to 02/12/2027
	Flow computer: (Tag No.FQI-2611) Emerson FloBoss S600+; 21495120		
	Static Pressure Transmitter: (Tag No.PT-2611) Yokogawa/0~63.28 kg/cm <sup>2</sup>		
	Temperature Transmitter: (Tag No.TT-2611) Yokogawa/— 17.780~65.56°C		
Flow meter for fuel gas (lean gas)	Rosemount 3051CFC Compact Orifice Plate SN 0067807	+-1.65%	Previous calibration: From 10/01/2022 to 10/01/2023;  Latest calibration: From 04/01/2023 to 04/01/2024
Energy meter	Schneider PM5560 SN 600122350	0.2S	Previous calibration: From 27/11/2021 to 27/11/2022  Latest calibration: From 30/12/2022 to 30/12/2023

The specification and instruction manuals have been checked and found that the flowmeter is equipped with automatic temperature (T) and pressure (P) compensation and automatic correction of compression coefficients, so they can directly measure volume flow and accumulated flow under standard conditions.

No data gaps were detected during the monitoring period under verification. It can therefore be concluded by a high level of assurance that the implemented monitoring plan has performed as to ensure a proper monitoring of emission reductions towards ensuring the verifiability of monitoring report for the period 01/06/2023 till 30/09/2023 .



#### **f. Assessment of Uncertainties**

It can be confirmed that the available data meet uncertainties requirements as specified by the EU ETS.

According to the requirements as set by Article 19 & 26 of Commission Regulation (EU) 601/2012, the highest tier in Annex II should be applied for projects classified into category B installation (annual baseline emissions estimated in PDD more than 50,000 tCO<sub>2</sub>e). For gaseous and liquids fuels the maximum permissible uncertainty is  $\pm 1.5\%$  for tier 4.

Uncertainties are assessed as per EU ETS Guidance Document No.4, Route CO-2a where the maximum permissible error specified for that instrument in service is used.

According to the calibration reports, those feed gas flow-meters at point F are shown meet accuracy class 1.0 (+/-1%) which complies with EU ETS requirements for 1.5% uncertainty for major source streams.

No data gaps of flow data were detected during the monitoring period under verification. It can therefore be concluded with a high level of assurance that the implemented monitoring plan ensures a proper monitoring of emission reductions for the period 01/06/2023 to 30/09/2023 inclusive.

#### **g. Findings and Non-Conformities**

To evaluate whether the requested confirmation can be given, verico SCE established a checklist and conducted a specific analysis. A confirmation was made and attached to the verification report.

No FAR (Forward Action Requests) were issued from the previous verification.

One (1) FAR was issued during this verification to ensure calibration in time for the next monitoring period (e.g. till 31/12/2023).

#### **h. Recommendations for Improvements**

n/a

## 5. Verification Statement

Verico SCE has undertaken the verification of the GHG emission reduction project «Recovery and Utilization of Associated Gas at Bukit Tua LPG Plant – PT. Arsynergy Resources» located in Bukit Tua oil field in East Java, Indonesia, and implemented by the project proponent «Agasco Ltd», covering the monitoring period from 1<sup>st</sup> June 2023 to 30<sup>th</sup> September 2023 in accordance with:

- the registered project documentation,
- the requirements of ISO 14064 Part 2,
- the Council Directive (EU) 2015/652 of 20 April 2015 laying down calculation methods and reporting requirements pursuant to Directive 98/70/EC (Fuel Quality Directive) of the European Parliament and of the Council relating to the quality of petrol and diesel fuels having regard to Directive 98/70/EC of the European Parliament and of the Council of 13 October 1998 relating to the quality of petrol and diesel fuels and amending Council Directive 93/12/EEC (1) .

The project will reduce emissions by recovering and utilizing the associated gas from oil fields, currently being flared and processing the recovered gas into hydrocarbon products. The preconditions for approval were still present in relation to the project activity during the verification period. The project activity has been carried out in accordance with the project documentation.

One(1) FAR was issued during this verification. No findings were left unsolved or remaining at the issuance of the verification statement.

The verification team is therefore of the opinion that the GHG Assertion of the project «Recovery and Utilization of Associated Gas at Bukit Tua LPG Plant – PT. Arsynergy Resources» is implemented as planned and described in the project design document, and that it is in accordance with the underlying requirements. All monitored data and calculation of emissions or removals have been assessed and it can be confirmed at a reasonable level of assurance, that the data is free from material misstatements.

The verified amount of emission reductions during the monitoring period from during the monitoring period from 1<sup>st</sup> June 2023 to 30<sup>th</sup> September 2023 amounts to:

**250,326 tCO<sub>2</sub>e**

The reported emission reductions are of equivalent confidence as of Commission Regulations (EU) No.600/2012, which contains general principles for verification and the accreditation of verifiers and Commission Regulation (EU) No.601/2012 which contains general principles for monitoring and reporting that can be applied to upstream emission reduction projects.

Beijing 19.10.2023


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Robin Wang

**Lead Auditor**

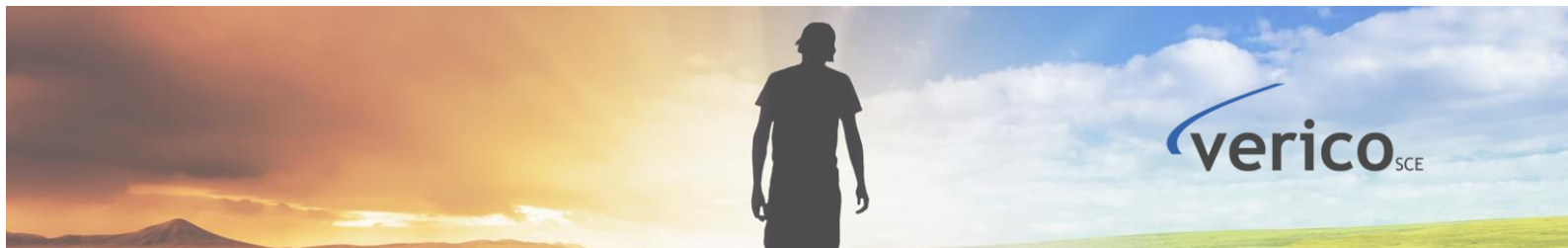
Los Molinos (Madrid), 23.10.2023

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Luis Robles Olmos

**Technical Reviewer**

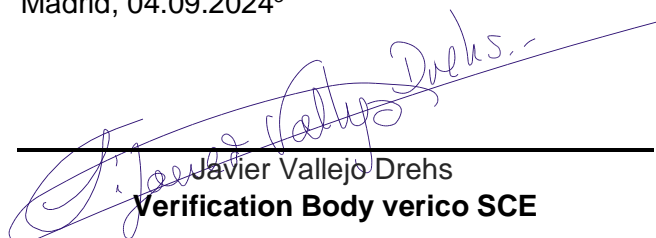


For this specific sub-report, verico SCE hereby certifies that the unique UER batch(es)

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is (are) established exclusively on verified emission reductions achieved in a contiguous time period in the calendar year 2023 by the GHG project «Recovery and Utilization of Associated Gas at Bukit Tua LPG Plant – PT. Arsynergy Resources».

Madrid, 04.09.2024<sup>3</sup>

  
\_\_\_\_\_  
Javier Vallejo Drehs  
**Verification Body verico SCE**

<sup>2</sup> This specific sub-report is issued to confirm certification of this batch, each batch of the same monitoring period (if more than one) receives an own dedicated verification report

<sup>3</sup> This sub-report version 1.1 is to amend the typo error in the batch numbers vintage year: 2022 instead of the correct one 2023, and to make clear that the LA & TR are not involved in trading activities after the verification opinion date. Trading control is not under the verification standards scope





# Annex 1

## Checklist of the Verification Assessment Plan



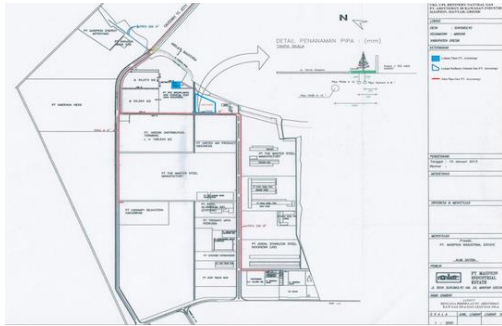
## Forward Action Requests and Issues remaining from Validation or previous Verification

Forward Action Request	Verified situation	Concl.
No Forward Action Requests were issued from the previous verification	N/A	OK

## SECTION 1. Project plan (Project description)

Requirement	Verified situation	Concl.
<b>General description of the project</b>		
1.1. Does the GHG Report provide general information of the project?	<p>The UER Monitoring Report (hereafter referred to as the MR) titled “Recovery and Utilization of Associated Gas at Bukit Tua LPG Plant – PT. Arsynergy Resources “ for the 11<sup>th</sup> monitoring period 01/06/2023 to 30/09/2023, final version 2 dated 18<sup>th</sup> October 2023, presented general information of the project and found the consistency with the validated PDD version 11 dated 3<sup>rd</sup> February 2023 (revision for extension of operating period from 5 years to 10 years).</p> <p>By on-site checking, it is found that during this monitoring period, there were no changes in operator body, production facilities and monitoring equipment.</p> <p>The production capacity of the associated oil wells has been confirmed with Bukit Tua Oilfield that the output was basically stable in this monitoring period. The production data in this monitoring period has been checked, which contains</p> <p>Daily “ Plant Report.pdf ” from 01/06/ 2023 to 30/09/2023</p>	OK

Requirement	Verified situation	Concl.																														
	<p>“GHG per MJ Data, June-Sept 2023.xlsx”</p> <p>“GOR June-Sept 2023.xlsx”</p> <p>The Oil Production Related Data can be determined as the below table.</p> <table><tr><th>Parameter</th><th>US Unit</th><th>Value</th><th>Metric Unit</th><th>Value</th></tr><tr><td>GHG intensity prior to project implementation</td><td></td><td></td><td>g CO<sub>2</sub>eq/MJ</td><td>44.633</td></tr><tr><td>GHG intensity after reduction measures</td><td></td><td></td><td>g CO<sub>2</sub>eq/MJ</td><td>1.349</td></tr><tr><td>Crude oil amount for this monitoring period</td><td>BBL</td><td>7,109</td><td>t BBL×0.137</td><td>973.933</td></tr><tr><td>Gas amount for this monitoring period</td><td>SCF</td><td>13,303,996</td><td>M<sup>3</sup> SCF×0.0283</td><td>376,726.594</td></tr><tr><td>Reporting year gas-to-oil ratio (GOR) in solution during this monitoring period</td><td>SCF/BBL</td><td>1,871</td><td>M<sup>3</sup>/t</td><td>391.422</td></tr></table> <p>The motoring and reporting actions were well implemented following the monitoring procedures of the validated PDD.</p> <p>The data of the recovered associated gas and resulted emission reductions has been specified in the MR and calculation spreadsheet.</p>	Parameter	US Unit	Value	Metric Unit	Value	GHG intensity prior to project implementation			g CO <sub>2</sub> eq/MJ	44.633	GHG intensity after reduction measures			g CO <sub>2</sub> eq/MJ	1.349	Crude oil amount for this monitoring period	BBL	7,109	t BBL×0.137	973.933	Gas amount for this monitoring period	SCF	13,303,996	M <sup>3</sup> SCF×0.0283	376,726.594	Reporting year gas-to-oil ratio (GOR) in solution during this monitoring period	SCF/BBL	1,871	M <sup>3</sup> /t	391.422	
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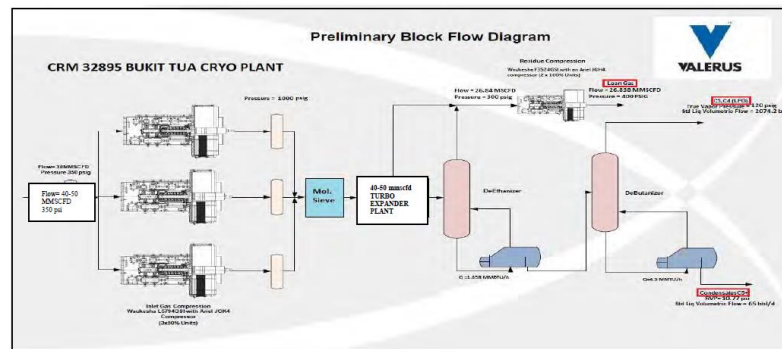
Requirement	Verified situation	Concl.
1.2. Is there any open issue in the validation / previous verification?	The validation report of the project and previous verification reports for the 10 <sup>th</sup> monitoring period from 01/01/2023 to 31/05/2023 have been checked and no open issue was found.	OK
<b>Implementation status of the project activity</b>		
1.3. Is the project location indicated? Confirm geo-graphical coordinates	<p>Coordinates of the project site have been included in the final version of the MR</p> <p>It was compared with that in the Validation Report (2023-01-Agasco, version 1 dated 3<sup>rd</sup> February 2023) and found the same.</p> <p>The coordinates were also confirmed through on-site inspection by Google GPS. The geographical location of the recovery and processing plant is</p> <p style="text-align: center;">112.620695°E, 7.115893°S.</p> <p>It was also checked against the managing plan of the project activity “RKL-RPL Rinci sem. 1 2022 final.pdf” and found consistent.</p> 	OK



1.4. Are all GHG sources relevant to the project identified? Is any emission source missed? Check the site lay-out and confirm through site tour.

Project boundary is well identified all the GHG sources of the oil and gas separation facility and the processing station, such as the location of the Point F (delivery point ) at the Bukit Tua oil and gas collection stations owned PT Petronas Carigali, 3km away from the LPG plant.

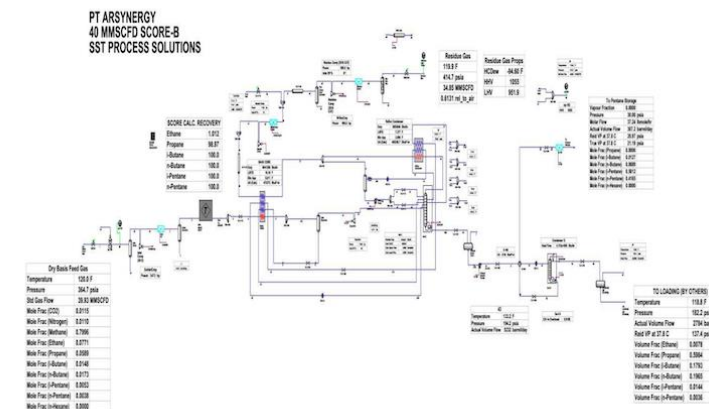
The other GHG sources outside the project boundary are also well established as illustrated in Section B.1 of the MR. The pipeline and all the infrastructures were on-site confirmed by the Lead auditor.



The diagram above was also checked against the managing plan of the project activity “RKL-RPL Rinci sem. 1 2022 final.pdf”.



Pelaksanaan RKL-RPL Rinci PT Arsynergy Resources Semester 1 Tahun 2022



Gambar 1.2 Diagram Alir Refinery Natural Gas PT Arsynergy Resources

OK

Requirement	Verified situation	Concl.
1.5. Confirm conformance with GHG program requirements: baseline and monitoring methodology - Applicability conditions. Please refer to the complete description of the applicability conditions and confirm that the project activity meets all the requirements.	The project has correctly applied the methodological requirements that were covered by the validated PDD.	OK
1.6. By means of an remote audit: List each technical component and equipment and check design parameters and actual status of installation and / or operation. Please check to ensure that all physical features of the proposed project are in place and operated according with the GHG program requirements. In cases where there are a large number of components and equipment items and the check of all of them is not an available option, then a random sampling check shall be performed. Justify here the sample chosen and describe the results.	All relevant flows and technical components are displayed in the diagram in Section B.1 of the final version of the MR.  The existence of the piping system and technical components such as flow meters and sampling points were verified by the lead auditor. It can therefore be confirmed that all physical features including the relevant meters are in place.	OK
1.7. Have responsibilities for monitoring been described and specified?	Responsibilities and functions are described within the last version of the MR and conform to the actual situation. Information is included in the MR Section C. "Monitoring Procedure" and Job Description".  It has been checked against the monitoring manual of the project operator during on-site inspection.	OK
1.8. Check QA/QC, management systems. Are procedures described and specified? Are they consistently applied? <ul style="list-style-type: none"> <li>documented instructions, management manual</li> </ul>	The MR Section C "Organization Chart" clearly establishes the organizational structure and management roles and responsibilities in the documentation, data and information collection, monitoring and its archiving.	OK

Requirement	Verified situation	Concl.
<ul style="list-style-type: none"> <li>documentation</li> <li>data archiving</li> <li>monitoring report</li> <li>cross-checking</li> <li>energy balance analysis (as relevant)</li> <li>internal audits / verification and management review</li> </ul>	<p>The monitoring produces a continuous measurement by the flow meters for the recovered gas (feed gas) at Point F and fuel gas (lean gas) consumed at compressors respectively, which readings are recorded as aggregated data on daily basis.</p> <p><math>NCV_{RG,MP,y}</math>, the average net calorific value of recovered gas at Point F is carried out by automatically sampling by on-line gas chromatography built into the flow meter, and the composition analysis for calculation of net calorific value is collected on daily basis.</p> <p>The below corresponding records have been checked for substantiality.</p> <ul style="list-style-type: none"> <li>➤ Flow meter instruction manual and</li> <li>➤ Recovered gas analysis reports covering this monitoring period.</li> </ul> <p>The period of records keeping was applied to be 2 years after the crediting period, which is in accordance with CDM rules and the requirement in ISO 14064-2.</p>	
1.9. Has a procedure for emergency and abnormal situations been established?	<p>Procedures were verified and confirmed by the Lead auditor</p> <p>Data have been recorded from readings of measurement instrument and archived since the station commencement by means of electronic and paper backup.</p>	OK
1.10. Has the system for qualification and training been established as relevant for the monitoring and management activities?	<p>Training records and qualification of monitoring personnel have been verified on-site and found in place.</p> <p>It is found that during this monitoring period, there were 200 staffs have all been trained in terms of QHSE in the periodic training course at head office.</p>	OK
1.11. Check the environmental report, license, permit and compliance to the local environmental legislation (if relevant).	The proof "RKL-RPL Rinci sem. 1 2022 final.pdf" has been submitted and checked accordingly.	OK

Requirement	Verified situation	Concl.
1.12. Check contribution to sustainable development, in accordance with the GHG program.	Not applicable	OK
1.13. Check issues with local stakeholders, claims, complaints, etc.	Not relevant at the time of 11 <sup>th</sup> monitoring period	OK





## SECTION 2. Quantifying GHG emissions and/or removals

Requirement	Verified situation	Concl.
2.1. Is the project location indicated? Confirm geographical coordinates?	There is no any change to the validated PDD and previous verification. The details of project location are described appropriately in the final version of the MR.	OK
2.2. Are all GHG sources relevant to the project identified? Is any emission source missed? Check the site lay-out and confirm through site tour.	There is no any change to the validated PDD version 11 dated 3 <sup>rd</sup> February 2023 and previous verification (the 10 <sup>th</sup> monitoring period). The details of GHG sources are described appropriately in the final version of the MR.	OK
2.3. Confirm conformance with GHG program requirements: baseline and monitoring methodology - Applicability conditions. Please refer to the complete description of the applicability conditions and confirm that the project activity meets all the requirements.	As per the validated PDD.  There is no any change to the validated PDD and previous verification (the 10 <sup>th</sup> monitoring period).	OK
2.4. By means of an web-interview: List each technical component and equipment and check design parameters and actual status of installation and / or operation. Please check to ensure that all physical features of the proposed project are in place and operated according with the GHG program requirements. In cases where there are a large number of components and equipment items and the check of all of them is not an available option, then a random sampling check shall be performed. Justify here the sample chosen and describe the results.	All information is consistent with Section A.4."Technical measures" of the final version of the MR. Processing system, components and measurement instrument etc were on-site inspected and found the consistency and comparability with the description in the validated PDD.  The relevant supporting evidences including <ul style="list-style-type: none"> <li>➤ Layout of processing system ;</li> <li>➤ Reading records of volume of feed gas (recovered gas);</li> <li>➤ Records of fuel gas (lean gas) consumption;</li> <li>➤ Relevant receipts / bills;</li> <li>➤ Calibration reports of flowmeters and energy meters.</li> </ul> It can be confirmed that the monitoring data in this reporting period was transparent and accurate.	OK

Requirement	Verified situation	Concl.													
<p>2.5. List any monitoring aspect that is not specified in the criteria, procedure and/or methodology and check its compliance with the GHG program, for example:</p> <ul style="list-style-type: none"> <li>• additional monitoring parameters</li> <li>• monitoring frequency</li> <li>• calibration frequency.</li> </ul>	<p>The periodic calibration is conducted for key measuring instrumentation identified by the project proponent. The meters' specifications with reliable evidence have been checked and found the details as below.</p> <table border="1"> <thead> <tr> <th>Instrument type</th><th>Accuracy</th><th>Calibration valid period</th></tr> </thead> <tbody> <tr> <td colspan="3">Flow meters for recovered gas (feed gas)</td></tr> <tr> <td>Meter Gas Ultrasonic (USM): Elster Instromed Q. Sonic 4C</td><td rowspan="4">+-1%</td><td>Main meter : from 02/06/2021 to 02/06/2028</td></tr> <tr> <td>Flow computer: (Tag No.FQI-2611) Emerson FloBoss S600+; 21495120</td><td rowspan="3">Backup meter from 02/12/2020 to 02/12/2027</td></tr> <tr> <td>Static Pressure Transmitter: (Tag No.PT-2611) Yokogawa/0~63.28 kg/cm<sup>2</sup></td></tr> <tr> <td>Temperature Transmitter: (Tag No.TT-2611) Yokogawa /— 17.780~65.56°C</td></tr> </tbody> </table> <p>As a full set of measurement instruments,the specification of Pressure and Temperature assembly as well as sensors system were calibrated together. All the calibration records have been verified and found the eligibility.</p>	Instrument type	Accuracy	Calibration valid period	Flow meters for recovered gas (feed gas)			Meter Gas Ultrasonic (USM): Elster Instromed Q. Sonic 4C	+-1%	Main meter : from 02/06/2021 to 02/06/2028	Flow computer: (Tag No.FQI-2611) Emerson FloBoss S600+; 21495120	Backup meter from 02/12/2020 to 02/12/2027	Static Pressure Transmitter: (Tag No.PT-2611) Yokogawa/0~63.28 kg/cm <sup>2</sup>	Temperature Transmitter: (Tag No.TT-2611) Yokogawa /— 17.780~65.56°C	<p>OK <b>FAR#01</b></p>
Instrument type	Accuracy	Calibration valid period													
Flow meters for recovered gas (feed gas)															
Meter Gas Ultrasonic (USM): Elster Instromed Q. Sonic 4C	+-1%	Main meter : from 02/06/2021 to 02/06/2028													
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Requirement	Verified situation			Concl.
	Instrument type	Accuracy	Calibration valid period	
	Gas Chromatograph ( feed gas)			
	ABB NGC8206	+/-1.65%	Previous : 10/01/2022  Latest : 04/01/2023	
	ABB NGC8206 is used to measure Gross Heating Value (GHV) of recovered gas. Sampling gas carried out in accordance with the requirement of GPA Standard 2166 "Obtaining Natural Gas Sample for Analysis by Gas Chromatography". Gas Composition Analysis will be carried out in accordance with the requirement in GPA Standard 2261 “Analysis for Natural Gas and Similar Gaseous Mixture by Gas Chromatography” .  GHV will be calculated based on ISO 6976 "Natural Gas - Calculation of Calorific" from gas sample and converted to Net Calorific Value (NCV) based on a factor of 0.9.  There are two Gas Chromatograph installed inside Ultrasonic Flow Meter, one used as main meter and the other one used as backup meter. The parameter continuously monitored and recorded by automatic print out at 12 PM every day.			
	Instrument type	Accuracy	Calibration valid period	
	Flow meters for lean gas (fuel gas)			
	Rosemount 3051CFC Compact Orifice Plate	+/-1.65%	Previous : 10/01/2022	

Requirement	Verified situation			Concl.
	SN 0067807		Latest : 30/12/2022	
	Instrument type	Accuracy	Calibration valid period	
	Energy meters			
	Schneider PM5560	0.2S	Previous: 27/11/2021  Latest: 30/12/2022	
<p>The verified calibration records are as below.</p> <ul style="list-style-type: none"><li>Feed gas: USM Feed Gas Meter: at the collection stations, calibration certificates dated 8 Sept. 2021 and 15 Jun.2021 Every three months the two USM are validated by running for 2 days straight comparing gas flow from flow computer with gas flow from third party standard and accept difference within +/- 0.3%.</li><li>Fuel gas: Rosemount Flow Meter: at the LPG plant, calibration certificates dated in 10 Jan.2022 and 04 Jan.2023</li><li>Energy meter: at the LPG plant, calibrated in Nov.2021 and Dec.2022.</li></ul> <p>There is a second meter called PLN meter (EDMI Mk10E class accuracy of 0.5S), which is maintenance and calibration by grid company, used as the billing meter.The records is cross</p>				



Requirement	Verified situation	Concl.
	<p>checked with PLN meter readings and electricity purchase invoices.</p> <p>For conservativeness, the larger value of the electricity recorded by the Schneider PM5560 and PLN meter will be used for project emissions calculations.</p> <p>It is confirmed that the valid period of above calibration certificates covers this monitoring period.</p> <p>At the same time. It is noted that the calibration reports of Rosemount Flow Meter and the Energy meters are valid until end of 2023, <b>FAR#01</b> is prompted to perform the next calibration by end of 2023.</p>	
2.6. Has the data been generated at the frequency required by the applied criteria, procedure and or methodology?	<p>The frequency implemented has been found in line with the Monitoring Plan in the validated PDD.</p> <ul style="list-style-type: none"> <li>➤ Flow-meters are continuously measured and aggregated readings automatically;</li> <li>➤ Data recorded and reported by monitoring team on daily basis;</li> <li>➤ Monitoring reported prepared periodically and at least monthly.</li> </ul>	OK
2.7. Have types of measurement instrumentation used been described and specified?	There is a comprehensive description in the validated PDD, which is consistent with the real situation in this monitoring period.	OK
2.8. Is the accuracy of equipment used for monitoring sufficient and regularly controlled and calibrated according to current good practice? Check relevance of maintenance and calibration. Check relevance of laboratory analysis if necessary.	<p>Satisfactorily.</p> <p>The technical specifications (accuracy" 1.0 class) of flow meters at Point F and analysis in Uncertainty Assessment (1.0% meets 1.5% uncertainty threshold provision in (EU) 601/2012) were described appropriately in the final version of the MR.</p>	OK
2.9. Check responsibilities and authorities for monitoring and reporting. Are the monitoring results consistently recorded, reviewed and approved?	Satisfactorily. As per above	OK

Requirement	Verified situation	Concl.
2.10. Reporting period: Defined?	01/06/2023–30/09/2023 as per the MR for 11 <sup>th</sup> monitoring period and calculations.	OK
2.11. If the GHG program includes the determination of environmental and/or social indicators, have the sustainable development indicators been monitored?	Not relevant	OK
2.12. Check monitoring of Environmental and Social indicators (if relevant) <ul style="list-style-type: none"> <li>• implementation of measures</li> <li>• monitoring equipment</li> <li>• quality assurance procedures</li> <li>• external data.</li> </ul>	Environmental monitoring and management plan has been checked and found no relevant aspects need to be assessed during verification.	OK

Monitoring procedures	Verified situation	Concl.
Confirm that the Monitoring procedure contains all the necessary parameters and that they are monitored in accordance with the GHG program using the following table:	See table below	

Parameter	Units	Monitoring Methodology	Verified situation	Concl.
Volume of the total recovered gas measured at Point F by the Ultrasonic flow meter  $V_{MP,y}$	$Nm^3$	<input type="checkbox"/> Estimation <input type="checkbox"/> Modelling <input checked="" type="checkbox"/> Measurement <input type="checkbox"/> Calculation <input type="checkbox"/> Other:	The approach meets the data quality requirements comparable to the EU ETS.	OK
Average net calorific value of recovered gas at Point F  $NCV_{RG,MPy}$	$TJ/Nm^3$	<input type="checkbox"/> Estimation <input type="checkbox"/> Modelling <input checked="" type="checkbox"/> Measurement <input type="checkbox"/> Calculation <input checked="" type="checkbox"/> Other: lab analysis	The approach meets the data quality requirements comparable to the EU ETS.	OK
Volume of fuel gas consumed by compressors of the LPG plant, measured by Compact Orifice Plate flow meter  $FC_{MP,y}$	$Nm^3$	<input type="checkbox"/> Estimation <input type="checkbox"/> Modelling <input checked="" type="checkbox"/> Measurement <input type="checkbox"/> Calculation <input type="checkbox"/> Other:	The approach meets the data quality requirements comparable to the EU ETS.	OK
Electricity consumed by the LPG plant, measured by the Energy meters (Schneider PM5560)	MWh	<input type="checkbox"/> Estimation <input type="checkbox"/> Modelling	The approach meets the data quality requirements comparable to the EU ETS.	OK

Parameter	Units	Monitoring Methodology	Verified situation	Concl.
<i>MWhproject</i>		<input checked="" type="checkbox"/> Measurement <input checked="" type="checkbox"/> Calculation <input type="checkbox"/> Other: lab analysis		

Monitoring procedures of above parameter	Verified situation	Concl.
<b>Implementation of the procedure:</b> 1. Confirm that the monitoring arrangements described in the monitoring procedure, including roles and responsibilities, are feasible within the project design.	Monitoring arrangements as well as roles and responsibilities have been checked by means of auditable evidence during the verification process.	OK
2. Confirm that the means of implementation of the MP, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by / resulting from the proposed GHG project can be reported ex post and verified.	Management structure and responsibilities for data management and quality assurance are clearly defined and addressed. Based on the consistent data management system and its quality and quality control procedures the emission reductions from the project activity can be reported and verified.	OK



### SECTION 3. Assessment of data and calculation of GHG emission reductions

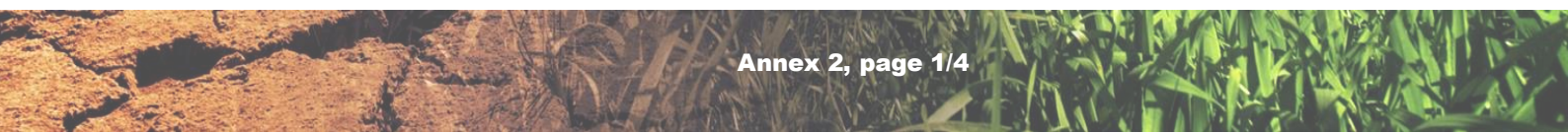
Requirement	Verified situation	Concl.																																														
<p>3.1 Have calculations of baseline emissions, project activity emissions and emissions related and/or affected by the GHG project, as appropriate, been carried out in line with the formulae and methods described in the applied criteria, procedure and/or methodology?</p> <p>Check consistency in the ERs spreadsheet</p>	<p>It is determined appropriately as per the conservative approaches based on the reading records of the flowmeters and laboratory test results for NCV during this monitoring period.</p> <table> <tr> <th rowspan="2">Month</th> <th><math>V_{F,MP10}</math></th> <th><math>NCV_{RG,MP10}</math></th> <th><math>FC_{i,j,MP10}</math></th> <th><math>NCV_{i,MP10}</math></th> </tr> <tr> <th>Nm<sup>3</sup></th> <th>TJ/Nm<sup>3</sup></th> <th>Nm<sup>3</sup></th> <th>TJ/Nm<sup>3</sup></th> </tr> <tr> <td>Jun.2023</td> <td>23,476,041</td> <td>0.00004052</td> <td>682,718</td> <td>0.00004536</td> </tr> <tr> <td>Jul.2023</td> <td>27,647,749</td> <td>0.00004055</td> <td>641,488</td> <td>0.00004536</td> </tr> <tr> <td>Aug.2023</td> <td>29,694,568</td> <td>0.00004112</td> <td>701,875</td> <td>0.00004536</td> </tr> <tr> <td>Sep.2023</td> <td>34,573,495</td> <td>0.00004090</td> <td>759,378</td> <td>0.00004536</td> </tr> <tr> <td><b>Total</b></td> <td><b>115,391,852</b></td> <td></td> <td><b>2,785,459</b></td> <td></td> </tr> </table> <p>The Project emissions <math>PE_{EC,MP}</math> due to the use of electricity in the operation of the LPG plant are determined based on the data below.</p> <table> <tr> <th>Month</th> <th>MWh<sub>project</sub> (MWh)</th> </tr> <tr> <td>Jan.2023</td> <td>107.70</td> </tr> <tr> <td>Feb.2023</td> <td>94.30</td> </tr> <tr> <td>Mar.2023</td> <td>111.08</td> </tr> <tr> <td>Apr.2023</td> <td>107.24</td> </tr> <tr> <td><b>Total</b></td> <td><b>420.32</b></td> </tr> </table> <p>According to the formula (2) to (5) of the MR, the spreadsheet has been checked and found the calculation to be appropriate.</p> <p>Finally, the emission reductions are determined as below.</p> <p>BE= 258,131 tCO<sub>2</sub>e</p> <p>PE= 7,805 tCO<sub>2</sub>e</p>	Month	$V_{F,MP10}$	$NCV_{RG,MP10}$	$FC_{i,j,MP10}$	$NCV_{i,MP10}$	Nm <sup>3</sup>	TJ/Nm <sup>3</sup>	Nm <sup>3</sup>	TJ/Nm <sup>3</sup>	Jun.2023	23,476,041	0.00004052	682,718	0.00004536	Jul.2023	27,647,749	0.00004055	641,488	0.00004536	Aug.2023	29,694,568	0.00004112	701,875	0.00004536	Sep.2023	34,573,495	0.00004090	759,378	0.00004536	<b>Total</b>	<b>115,391,852</b>		<b>2,785,459</b>		Month	MWh <sub>project</sub> (MWh)	Jan.2023	107.70	Feb.2023	94.30	Mar.2023	111.08	Apr.2023	107.24	<b>Total</b>	<b>420.32</b>	OK
Month	$V_{F,MP10}$		$NCV_{RG,MP10}$	$FC_{i,j,MP10}$	$NCV_{i,MP10}$																																											
	Nm <sup>3</sup>	TJ/Nm <sup>3</sup>	Nm <sup>3</sup>	TJ/Nm <sup>3</sup>																																												
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<b>Total</b>	<b>420.32</b>																																															

Requirement	Verified situation	Concl.
	<p>ER= 250,326 tCO<sub>2</sub>e</p> <p>Based on estimated emission reductions of 809,640 tCO<sub>2</sub>e.for 2023 in the validated PDD, this four (4) months monitoring period (from 01/06/2023 to 30/09/2023), the equivalent amount for this monitoring period is approx.269,880 tCO<sub>2</sub>e.</p> <p>The UER achieved in this monitoring period is less than the estimated value by 7.25%, which is mainly caused by 79 hours of shut-down for system maintenance during this monitoring period. The details was checked against the operation records “Operating and Shutdown Hour (June -September).xlsx”</p>	
<p>3.2 Has the calculation tool been correctly documented? Check its consistency and formulae.</p> <ul style="list-style-type: none"> <li>• baseline emissions</li> <li>• project emissions</li> <li>• controlled by the PP</li> <li>• related to the project.</li> <li>• affected by the project</li> <li>• emission reductions of the project.</li> </ul>	<p>The spreadsheet “ER Calculation MR11.xlsx” has been checked and found the appropriateness.</p>	OK
<p>3.3 Is a complete set of data available during the specified monitoring period? If only partial data is available because activity levels or non-activity parameters have not been monitored in accordance with the applied criteria, procedure and/or methodology, conduct an assessment of the potential impacts of these changes.</p>	<p>The raw data records and sampling test data of SCADA system have been checked on-site by the lead auditor and found complete. The records titled are as below:</p> <p>The verified reading records:</p> <ul style="list-style-type: none"> <li>• Feed gas: Daily reports “Flowcom Raw Gas .pdf (from 01-06-23 to 30-09-2023); Spreadsheet “Feed Gas Summary June-September 2023.xlsx”;</li> </ul>	OK

Requirement	Verified situation	Concl.
	<ul style="list-style-type: none"> <li>Fuel gas Spreadsheets "06-June-23.xlsx" "07-July-23.xlsx" "08-August-23.xlsx" "09-September-23.xlsx" "Jun - Sept 23 Fuel Gas Summary.xlsx"</li> <li>Electricity consumption  Summary spreadsheet "June-Sept Electric Consumption.xlsx" Monthly invoice "511209981258.pdf" Monthly "Data Log #1 for Meter1.xlsx" from Jun to Sept 2023</li> <li>"ER Calculation MR11.xlsx"</li> </ul> <p>Above evidence has been verified and found consistent.</p>	
3.4 Has information provided for quantifying GHG emissions reductions been cross-checked with other sources such as plant logbooks, inventories, purchase records, laboratory analysis?	All data inputs to UER calculations have been cross checked with the data records	OK
3.5 Have appropriate emission factors, IPCC default values, and other reference values been correctly applied?	All the data applied appropriately as per the validated PDD, which are in line with the requirements in EU FQD rules	OK



## Annex 2 Verification Finding List







## Non-Conformities

None



## Clarifications

None

## Forward Action Request

<b>Finding FAR#01</b>	Next calibration by end of 2023	
<b>Non-conformity</b>	Given that the next monitoring period is planned to end on 31/12/2023 while the calibration reports of Rosemount Flow Meter and the Energy meters are valid until the end of 2023, it is necessary to perform the next calibration by the end of 2023 so as to guarantee the validity period is uninterrupted.	
<b>Correction/Response</b>	N/A	
<b>Assessment Method</b>	<input checked="" type="checkbox"/> Inspection <input type="checkbox"/> Interview <input checked="" type="checkbox"/> Check of docs <input type="checkbox"/> Sample	<input type="checkbox"/> calculation <input type="checkbox"/> Comparison <input type="checkbox"/> Other

## Annex 3 List of Reviewed Evidences

Reviewed Evidences	
<b>General background information</b>	/1/ COUNCIL DIRECTIVE (EU) 2015/652 of 20 April 2015 laying down calculation methods and reporting requirements pursuant to Directive 98/70/EC of the European Parliament and of the Council relating to the quality of petrol and diesel fuels
	/2/ DIN EN ISO 14064-2:2012; Greenhouse gases – Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements
	/3/ Directive 2009/30/EC of the European Parliament and of the Council of 23 April 2009
	/4/ COMMISSION REGULATION (EU) No 600/2012 of 21 June 2012 on the verification of greenhouse gas emission reports and tonne-kilometre reports and the accreditation of verifiers pursuant to Directive 2003/87/EC of the European Parliament and of the Council
	/5/ COMMISSION REGULATION (EU) No 601/2012 of 21 June 2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council
	/6/ GUIDANCE NOTE on approaches to quantify, verify, validate, monitor and report upstream emission reductions
<b>Project-specific background</b>	/7/ Approved baseline methodology AM0009: "Recovery and utilization of gas from oil wells that would otherwise be flared or vented" (Version 07.0)
	/8/ UNFCCC CDM methodological tool 03: "Tool to calculate project or leakage CO <sub>2</sub> emissions from fossil fuel combustion" (Version 03.0)
	/9/ UNFCCC CDM methodological tool 05: "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" (Version 03.0)
	/10/ UNFCCC CDM methodological tool 07: "Tool to calculate the emission factor for an electricity system" (Version 07.0)
	/11/ GPA Standard 2261 "Analysis for Natural Gas and Similar Gaseous Mixture by Gas Chromatography"



## Reviewed Evidences

### Project-specific documents

- /12/ Monitoring Report version 1.1 dated 02 October 2023
- /13/ Monitoring Report version 2. dated 18 October 2023
- /14/ Project Design Document version 11 dated 3<sup>rd</sup> February 2023
- /15/ Validation report-version 1 dated 3<sup>rd</sup> February 2023
- /16/ Business license of the project owner
- /17/ Environmental monitoring and management plan "RKL-RPL Rinci sem. 1 2022 final.pdf"

#### Records of measurement instrument:

- /18/ Weekly production data 2023.xlsx
- /19/ Feed Gas Summary June-Sept 2023
- /20/ Fuel gas consumption summary June-Sept 2023.xlsx
- /21/ Plant Report (June-Sept 2023).pdf
- /22/ June-Sept 2023 Electric consumption summary.xlsx
- /23/ June-Sept 2023 Electric Consumption.xlsx
- /24/ Max Compressor Gas Consumption.xlsx
- /25/ Monitoring Manual of the operator
- /26/ Flowmeter instruction manual
- /27/ Power consumption invoice "511209981258.pdf"

#### Records of Sampling and Laboratory testing:

- /28/ Flowcom raw gas (01/06/2023 to 30/09/2023) analysis reports.pdf.
- /29/ Feed Gas Summary June-Sept 2023.xlsx

#### Records of Calibration:

- /30/ Calibration reports of the flow meters (Ultrasonic) dated 08/09/2021 and 15/06/2021
- /31/ Calibration reports of the flow meters (Compact Orifice Plate) dated 10/01/2022 and 04/01/2023
- /32/ Calibration reports of energy meters(Schneider PM5560) dated 09/12/2021 and 05/01/2023.


#### Calculation sheets and raw data:

- /33/ ER Calculation MR11.xlsx dated 18 October 2023
- /34/ GHG per MJ Data, June-Sept 2023.xlsx"
- /35/ GOR June-Sept 2023.xlsx"

**Photos** (on-site inspection 10 October 2023)

## Annex 4


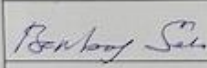
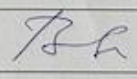
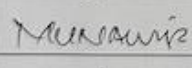
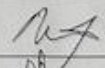
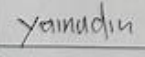

### List of Interviewed Persons



**Teilnehmerliste / Participant List:**

Allgemein / General	
Auftragsnummer / Order No.	UER-097 Verification (period from 01/06/2023 to 30/09/2023)
Firma / Company	PO and Operator: PT. Arsynergy Resources Contracting party: Agasco Ltd
Anlage / Project	Recovery and Utilization of Associated Gas at Bukit Tua LPG Plant – PT. Arsynergy Resources
Datum des Audits / Date of Audit	10 October 2023 On-site visit

Name / Name	Funktion / Function	Unterschrift / Signature
Robin Wang	Verico, Lead Auditor	
Werner Betzenbichler	Verico, Auditor	
	Arsynergy	
	Arsynergy	
	Arsynergy	

ver-46 2013-09-24

VE-UER-097-III\_VerBukit Tua LPG Participant list #1.docx Seite 1/2



## **Annex 5**

# **Appointment Certificates**





## Ernennungsurkunde

### Certificate of Appointment

**Robin Wang**

erfüllt die Voraussetzungen der Prüfstelle der **verico** SCE und wird ernannt zum  
fulfills the requirements according to the guidelines of the verification body of **verico** SCE and is  
appointed as

**Auditor / Lead Auditor**

**für Verifizierungen nach ISO 14064-3**

für die folgenden Scopes/Sektoren  
for the following scopes/sectors

**ISO14064-1: 1, 2, 16**

**ISO14064-2: 1, 3, 8, 10 (CDM Sektoren)**

Die Anforderungen des QM-Handbuches der Prüfstelle von verico SCE sind bindend.

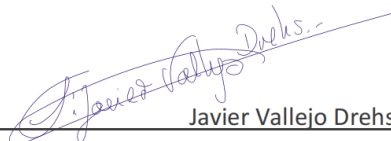
The requirements of the QM-Manual of the verification body of verico SCE are binding.

Diese Ernennung gilt 5 Jahre.

This appointment is valid for 5 years.

Zertifikat Nr. 14064 A29 ISO14064-3

Langenbach, 28.11.2020

  
Javier Vallejo Drehs

ver-A10e-2013-06-24

Annex B4 - Ernennungsurkunde RobinWang ISO14064\_3.docx Seite 1/1

ZERTIFIKAT CERTIFICATE







## Ernennungsurkunde

### Certificate of Appointment

**Werner Betzenbichler**

erfüllt die Voraussetzungen der Prüfstelle der **verico SCE** und wird ernannt zum  
fulfills the requirements according to the guidelines of the verification body of **verico SCE** and is  
appointed as

**Auditor / Lead Auditor / Technischer Rezensent**

**für Verifizierungen nach ISO 14064-3**

für die folgenden Scopes/Sektoren  
for the following scopes/sectors

**ISO14064-1: 1, 2, 4, 6, 7, 8 (AVR Scopes), 14, 17, 20**

**ISO14064-2: 1-13 (CDM Sektoren)**

Die Anforderungen des QM-Handbuches der Prüfstelle von **verico SCE** sind bindend.

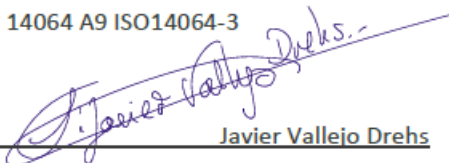
The requirements of the QM-Manual of the verification body of **verico SCE** are binding.

Diese Ernennung gilt 5 Jahre.

This appointment is valid for 5 years.

Zertifikat Nr. 14064 A9 ISO14064-3

Langenbach, 16.3.2023

  
Javier Vallejo Drehs

verA10e-2013-06-24

Annex B4 - Ernennungsurkunde Betzenbichler ISO14064\_3 2023.docx Seite 1/1

ZERTIFIKAT CERTIFICATE





## Ernennungsurkunde

### Certificate of Appointment

**Luis Robles Olmos**

erfüllt die Voraussetzungen der Prüfstelle der **verico** SCE und wird ernannt zum  
fulfills the requirements according to the guidelines of the verification body of **verico** SCE and is  
appointed as

### Lead Auditor / Technical Reviewer

für die folgenden Scopes/Sektoren  
for the following scopes/sectors

**ISO14064-1: 1, 6, 14, 15, 21**

**ISO14064-2: 1, 3, 7, 10, 13, 14, 15**

**CLIMA: 1, 3, 4, 7, 13, 15, 17**

Die Anforderungen des QM-Handbuches der Prüfstelle von verico SCE sind bindend.

The requirements of the QM-Manual of the verification body of verico SCE are binding.

Diese Ernennung gilt 5 Jahre.

This appointment is valid for 5 years.

Zertifikat Nr. 14064 A16 ISO14064-3

Langenbach, 03.05.2023

Javier Vallejo Drehs

ver-A10e-2013-06-24

ZERTIFIKAT CERTIFICATE



