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Verification Report

VS-3595131-1

Verification of the Greenhouse Gas Declaration

Energy efficiency improvement of the Nimr produced water disposal system

according to

ISO 14064 Part 2 and Austrian 'Kraftstoffverordnung' dated 27/April/2022

implementing

COUNCIL DIRECTIVE (EU) 2015/652 of 25 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

Date: 2022-May-19

Our reference:
IS-UVS-RGB

Report No. VS-3595131

This Document consists of 37 Pages.
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The test results refer exclusively to the units under test.

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Information pursuant to § 2 [1] DL-InfoV (Germany) at www.tuvsud.com/imprint

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1. Abbreviations

CDM	Clean Development Mechanism
CO_2	Carbon Dioxide
DAkkS	German Accreditation Body (Deutsche Akkreditierungsstelle)
EIA	Environmental Impact Assessment
EN	European Norm
FQD	Fuel Quality Directive
GHG	Greenhouse Gas
ISO	International Standard Organisation
KVO	Kraftstoffverordnung
LNG	Liquified Natural Gas
NGL	Natural Gas Liquids
PDD	Project Design Document
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UER	Upstream Emission Reduction

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2. Scope of the verification

TÜV SÜD Industrie Service GmbH (in the following referred to as TÜV SÜD) is an accredited verification body according to European Norm (EN) International Standard Organisation (ISO) 14065 for the validation and verification of greenhouse gas assertions according to ISO 14064 Part 1 and ISO 14064 Part 2. TÜV SÜD performed a verification of the Greenhouse Gas (GHG) Declaration for the project: Energy efficiency improvement of the Nimr produced water disposal system in order to confirm compliance of the GHG Declaration with the requirements of ISO 14064 Part 2 Austrian Kraftstoffverordnung (KVO) dated 27/April/2022 implementing COUNCIL DIRECTIVE (EU) 2015/652 of 25 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.

TÜV SÜD included all tasks and aspects as specified in § 19b of KVO and provides all required information through this verification report. The main objective of this activity is the use of the verification report by the client when applying for crediting of certified upstream emission reductions of this project activity at the Austrian authority.

TÜV SÜD nominated a verification team fulfilling the internal qualification criteria based on ISO 14064 Part 3, ISO 14065 and ISO 14066. The specification of the competence criteria according to IAF MD14:2014 is applied here. The verification process involved an in-depth review of the original set of documentation and records as well as background research regarding applied technologies, legislation and benchmarks. The verification process follows the requirements of the accreditation ordinance 2018/2067 (formerly 600/2012). Following a strategic analysis and the determination of assessment risks a detailed audit plan has been developed. Due to travel restrictions in the COVID-19 crisis the verification included three remote audits and further meetings, including all required project participants via Microsoft Teams.

Following the audits, a list with required documents and open points was provided to the client who subsequently revised the documentation and clarified open points. The revised documentation underwent a further review before issuing this final verification report. The final verification report itself has undergone an independent review by a technical reviewer (another TÜV SÜD lead auditor), who has not been part of the verification for final approval of the report.

The verification statement provides a reasonable level of assurance. When verifying baseline data, a 2% materiality threshold has been applied in analogy to the validation assessment of the project.

The verification has been carried out in the period from 21st Jan 2022 until 2nd May 2022.

3. Project details

The project Energy efficiency improvement of the Nimr produced water disposal system consists of:

The project is to improve the energy efficiency of the Nimr produced water disposal system by implementing a GHG project located at Oman. The project, an ecological wetland facility solution, allows to treat up to 115,000 m^3/day (design maximum) from the Nimr production in an energy efficient and environmentally friendly manner.

The produced water is moved through three different process stages (oil separation, reed beds, evaporation ponds) without external energy by gravity, using the vertical gradient of the local topography, for final disposal. And the expected emission reduction is 122,124 tCO2e annually.

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The project is situated at:	N 18.666667°, E 55.759722°
The project applicants are:	Energy Changes Projektentwicklung GmbH Börsegasse 10-5 1010 Vienna
The project proponents are:	Bauer Nimr LLC
Contact person:	Wolfgang Wetzer phone: +43 676 847 133 110 email: wolfgang.wetzer@energy-changes.com

Final version of the project documentation:

Monitoring report, version 2.0, 11/April/2022
(MR5_Nimr_phase1and2_11042022.pdf
Emission reduction calculation, version 1.0, 16/February/2022
(MR5_UER_calculation_Nimr_phase1and2_16022022.xls)

Applied Clean Development Mechanism (CDM) methodology: AM0020 Version 2.

Total upstream emission reductions: 99,553 tCO_2e

4. Verification approach

4.1. Contract review

There is a framework agreement between the client Energy Changes Projektentwicklung GmbH and TÜV SÜD Industrie Service GmbH for validation and verification services for upstream emission reduction projects. The framework agreement is based on a time expenditure calculation which ensures that the necessary personnel and time resources are available for the work. The scope of accreditation of TÜV SÜD as accredited validation and verification body covers all relevant scopes (for this project CDM scopes 3) of this project activity and TÜV SÜD has access to auditors covering the required competences in the sectors related to this activity. The client confirmed the independence of the verification team members and TÜV SÜD in writing.

4.2. Assessment team

The assessment team consists of the following team members:

Lead auditor:
Wittl, Daniel Scopes: 1, 2, 3, 10, 13

Country expert:
Abdul Kadar, Abdul Rahim

4.3. Preparation of the assessment

The project developer has been requested to submit the project documentation and scanned copies of relevant evidences before starting the remote audits. By reviewing and evaluating these documents a strategic and risk analysis has been performed.

The audit team assessed the likely nature, scale and complexity of the verification tasks. The audit team considered all preliminary information on the project, such as project boundaries,

sources and sinks and the required materiality threshold. It identified and analysed the inherent risks and control risks to develop an assessment plan which allows to reduce all assessment risks and to enable a statement at a reasonable level of assurance that the project complies with the requirement of the referenced standards and regulations. In addition, background information has been collected by internet research and consulting a local expert seeking information regarding Oman specifics on energy generation, its environmental legislation, legislation and common practise regarding flaring, benchmarks, information regarding the project proponents' activities as well as on the project.

The following table presents the areas of concerns, where needs for further investigation beyond the document review have been identified, the associated risks which might result in non-compliance and the initially selected assessment methods. This list has been prepared before drafting a detailed schedule for the first remote audit, which was finally shared with the project proponents and their contracted partners for ensuring appropriate arrangements in anticipation of the audit.

Area of concern	Risk	Assessment method
Applicability / boundaries	The project could have been implemented to meet legal requirements Potential physical losses of associated gas (non-CO_2) to be considered within boundaries	Discussion and review of legal requirements
Start date of the project activity	Non-compliance with Fuel Quality Directive (FQD), i.e. project start before 2011	Type plates, interviews and document review
Project lifetime; expected reductions	Inappropriate forecasts	Interviews and document review
Correctness of underlying data	Use of inappropriate measuring devices and analysis methods	Check of calibration dates
Baseline scenarios	Data of pre-project scenario Life-time of pre-project equipment Remaining evidences Description of alternative scenario as given by the project design document (PDD)	Audit Interviews
Calculations	Mistakes in calculation approach, default values or in excel sheets for calculation	Comparison with requirements and review of the calculations
Emission reduction forecast	Appropriate consideration of the associated amount of gas and the oil production activities	Interviews and comparison with empirical values
Environmental impacts	Compliance with national legislation	Interview and consultation of local expert
Inclusion of legal requirements	Project is mandatory according to local legal requirements	Interview and consultation of local expert
Inclusion in national climate change policy	Double-counting	Interviews and document review
Monitoring plan	Completeness: procedures, measurements, sampling, quality assurance, data storage	Document review
Quality assurance / quality control	Data quality of baseline and project emissions	Interviews and document review

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Area of concern	Risk	Assessment method
	Risk of data losses by monitoring approach	

For further preparation of the audits the verification checklist of ISO14064 Part 2 activities has been amended by FQD-specific aspects. The checklist is filled with information collected and verified during document reviews as well as audits and indicates any findings. It is attached to this report as Annex A.

5. Means of Verification

5.1. Document review

In the course of the verification, the documents mentioned in the checklist for the individual topics were reviewed and evaluated. The list of documents is compiled in annex C.

5.2. Remote audits

Due to the Covid-19 pandemic a travel of the lead auditor to the location was not possible. For that reason, the audit team in agreement with the project participants decided to have three remote audits via Microsoft Teams. The remote audits took place on 15th Mar 2022, 16th Mar 2022 and 28th April 2022.

At the end of the remote audits a list with needed evidence documents and open points was provided to the project proponents indicating the need for further clarifications, additional proofs or identified non-compliances which require the revision of documents and calculations.

The proofs (records, databases, documents) that have been checked during the strategic analysis, during and after remote audits, are listed in Annex C.

Annex D provides a list of persons that took place during the remote audits and in additional meetings.

5.3. Onsite visit

Due to travel restrictions in the COVID-19 crisis the verification included three remote audits and further meetings, including all required project participants via Microsoft Teams. Current photos with time stamps were requested to verify the situation on-site. The photos include the metering devices, oil-water separators, skimming channels, reeds beds.

5.4. Sampling

All supporting documents were completely assessed. The raw data from the flow meters of the produced water, daily production reports and monthly production reports have been completely assessed.

5.5. Follow-up of revisions

After the delivery of requested further evidences and the revision of the project documentation addressing the identified non-compliances, a further round of desk reviews has taken place, assessing these submissions. The final assessments regarding the closure of findings is documented under the finding list, attached as Annex B to this report.

5.6. Technical review

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

For this project the technical review has been conducted by:

Johann Schmidt Scopes: 1, 3, 4, 5, 7, 8, 9, 10, 11, 12, 16

6. Observations and findings

6.1. General information

All information regarding the project proponent and involved partners, organisational arrangements, the facility, the authorisation and technical features have been proven to be correct. All information in the final version is complete.

The project boundaries are clearly defined in the project document and cover the injection pumps connected with the deep-water wells for final disposal connected to the PDO power grid (baseline scenario) and the wetland facility phase 1 and 2 (controlled and directly attributable to the project). Instead of using energy to dispose water in deep geological layers, the oil-contaminated water is treated by a unique wetland solution in an energy-efficient manner (gravitational flow of water and biological purification through reedbed). It is clearly related to upstream activities; the project qualifies in principle as upstream emission reduction project.

6.2. Legal requirements

The project itself is in compliance with the host country's legislation. All licenses have been given by the host country environmental authority on the basis of the application which also covered an environmental impact assessment (EIA). There are no specific regulations about taxes or fines with regard to using intensive energy to dispose water in deep geological layers.

6.3. Data quality

Data used to calculate the emission reductions and to fix ex-ante parameter has been verified along this verification. All required data is considered being accurate and complete. The calculation is based on reproducible data.

The requirement on conservativeness is achieved by using approved standards and tools, which ensure a transparent assessment of information provided. Furthermore, the wetland plantation will produce an additional biomass stock and opportunities for further renewable energy projects (e.g. through bio-digester, bio-briquetting and improvement of soil humus etc.), which has not claimed by project in conservative manner.

The project owner calibrated electricity meters and flow meters per calibration procedures and data is stored electronically. A clear procedure is established that ensure responsibility and accountability for all parameters that are required to be monitored, measured and reported.

Thus, there is a low risk of inappropriate data quality and missing reproducibility.

6.4. Baseline scenario and additionality

The PDD describes correctly the baseline scenario. The continuation of the recent practice of continuously using intensive energy to dispose water in deep geological layers, is the most likely scenario in the absence of the project activity.

The relevant pumping and auxiliary equipment would operate without need for refurbishment beyond 2021 and the wastewater production will not decrease, hence they will continue to treat oil contaminated water in a similar amount as in the baseline. Thus, the forecasts are deemed reasonable.

The most likely reference case without the implementation of the project (as per the requirement of the KVO) is using intensive energy to dispose water in deep geological layers, which is still applied for any excess produced water. The treatment technologies have not changed to the baseline scenario assumed at validation.

6.5. Monitoring procedures

The monitoring procedures are in compliance with the applied CDM methodologies and enable delivering data at a quality comparable to the requirements under the European Emission Trading Scheme. Where applicable, the requirements of the Monitoring Regulation 2018/2066 (formerly 601/2012) are met. All data which require metering are clearly identified and respective arrangements have been made.

6.6. Social and environmental issues

A health, safety and environmental impact assessment has been conducted and provided to the audit team. The assessment concluded that all potential risks associated with the project can be controlled or reduced to non-significant levels. The EIA has been approved by the respective authority.

A stakeholder survey has been conducted for the project and provided to the audit team. There is no negative opinion on the project activity.

6.7. Findings

A detailed finding list is provided as Annex B to this report.

During this monitoring period, the amount of GHG emission reductions achieved is 99,553 tCO2e is lower than estimates as 122,124 tCO2e from the registered UER PDD. All findings have been closed before finalising the verification.

The PDD version 1.1 from 02/08/2019 was submitted at the beginning of the verification process. The project is implemented according to the project design and no change and deviations have been made during this monitoring period.

6.8. Recommendations for improvements

None

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7. Verification decision

TÜV SÜD has undertaken the verification of the GHG declaration the project Energy efficiency improvement of the Nimr produced water disposal system to be implemented by the project proponent Bauer Nimr LLC based on the requirements of ISO 14064-2 "Specification with guidance at the project level for quantification, monitoring and reporting of GHG emissions reductions or removal enhancements" and the KVO.

The project encompassed the energy (electricity) consumption of pumps used by the deep well disposal scheme of Nimr oil field in Oman. Instead of using energy to dispose water in deep well, the oil-contaminated water is treated by a unique wetland solution with the vertical gradient of the local topography to avoid any electricity consumed.

To arrive at the final verification conclusions and opinion, TÜV SÜD carried out desk reviews, background investigations, three remote audits considering the specific requirements of the KVO.

Through the verification process, the verification team identified different findings and missing documents. The project proponents have taken actions to address these findings and submitted to TÜV SÜD the revised GHG declaration, (Monitoring report) version 2.0 dated 11/April/2022 in combination with the emission reduction calculation version 1.0 dated 16/February/2022 and any other supporting evidences. All findings have been appropriately closed before the issuance of this verification report.

The verification team is of the opinion that the GHG declaration of the project: Energy efficiency improvement of the Nimr produced water disposal system with verified revision is in accordance with all the relevant GHG program requirements as well as the host country's national requirements and achieved the verified upstream emission reduction of

10,000* tCO_2e

in the period from

01/January/2021 to **31/December/2021**

and will contribute to the sustainable development of the host country. Therefore, TÜV SÜD hereby certifies that the GHG declaration (Monitoring report) version 2.0 dated 11/April/2022, of the proposed upstream emission reduction project Energy efficiency improvement of the Nimr produced water disposal system of the project proponent Bauer Nimr LLC is in accordance with the above stated requirements.

Lead Auditor

Technical Reviewer

Verification body

* In addition to its core market in Austria, Energy Changes Projektentwicklung GmbH may submit partial amounts of UER under the FQD in other EU Member States. Since the exact demand of UERs in the individual Member States is not known yet, Energy Changes Projektentwicklung GmbH reserves the right to submit the UER project Nimr Water Treatment partly or entirely in one or more EU Member States.

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To avoid double-counting and misuse, the verification team declares that the verified upstream emission reductions of 10,000 tCO2e is part of the total emission reductions of achieved 99,553 tCO2e for the project "Energy efficiency improvement of the Nimr produced water disposal system." in the 5th monitoring period from 01/Jan/2021 to 31/Dec/2021.

Report No VS-3595131-1: 10,000 tCO2e (reported here)

Remaining reductions: 89,553 tCO2e

This report No VS-3595131-1 and subsequent reports replace the report No VS-3595131, dated 03 May 2022.

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Annex

A. Checklist of the verification assessment plan

Verification of UER Project	3595131-1

Document check - contents of the GHG declaration according to EN ISO 14064-2

Subject / context	Content - in keywords	Audit result
1) The GHG report contains the name of the project proponent.	Energy efficiency improvement of the Nimr produced water disposal system	ok
2) A brief description of the GHG project, including size, location, duration and types of activities	The project purpose is to improve the energy efficiency of the Nimr produced water disposal system by implementing an ecological wetland facility solution (= GHG project) located at Oman. The project, an ecological wetland facility solution, allows to treat up to115,000 m^3/day (design maximum) from the Nimr production in an energy efficient and environmentally friendly manner. And the expected emission reduction is 122,124 tCO2e annually. The project was implemented in two phases, where under phase 1 all process stages were established and under phase 2 the reed bed area was extended from 234 ha to 351 ha. The phase 1 was completed on the 15/01/2011 and phase 2 on the 07/10/2012, respectively.	ok
3) A GHG statement(s), including a statement of GHG emission reductions and removal enhancements stated in units of CO_2e, e.g. tonnes of CO_2e	Amount of GHG emission reductions achieved during this monitoring period 99,553 tCO2e.	ok
4) A statement describing whether the GHG statement has been verified and/or validated, including the type of verification or validation and level of assurance achieved.	The validation report is available. Verification will be done by TÜV SÜD naming the level of assurance with 2 %.	ok
5) A list of all relevant GHG sources and sinks controlled by the project, as well as those related to or affected by the project, including the defined criteria for their selection for inclusion in quantification.	GHG sources include the injection pumps connected with the deep-water wells, on four sites, for final disposal and the wetland facility phase 1 and 2 (controlled and directly attributable to the project) and the PDO power grid (related and directly attributable to the project).	ok

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6) A statement of the aggregate GHG emissions and/or removals of GHG for the GHG project that are controlled by the project proponent, stated in unit of CO_2e, e.g. tonnes of CO_2e, for the relevant time period (e.g. annual, cumulative to date, total)	Estimated UERs in 2020: 122,124 t CO2e	ok
7) A statement of the aggregate GHG emissions and/or removals by GHG quality assurance system for the GHG baseline scenario, stated in units of CO_2e, e.g. tonnes of CO_2e, for the relevant time period.	Amount of GHG emission reductions achieved during this monitoring period 99,553 tCO2e.	ok
8) A description of the GHG baseline scenario and demonstration that the GHG emission re-ductions or removal enhancements are not overestimated.	In the baseline scenario, the total produced water is moved into deep water wells via injection pumps for final disposal. These injection pumps consume a high amount of fossil fuel-based grid electricity, which causes a significant amount of CO2 emissions. The requirement on conservativeness is achieved by using approved standards and tools, which ensure a transparent assessment of information provided. Furthermore, the wetland plantation will produce an additional biomass stock and opportunities for further renewable energy projects (e.g. through biodigesters, bio-briquetting and improvement of soil humus etc.), which has not claimed by project as well.	ok
9) A general description of the criteria, procedures or good practice guidance used as a basis for the calculation of project GHG emission reductions and removal enhancements.	The baseline scenario of the project is the same as the scenario existing prior to the start of implementation of the project. The calculation is aligned with the criteria and procedures of the approved UNFCCC CDM methodology AM0020/version 2 "Baseline methodology for water pumping efficiency improvements" and the associated UNFCC CDM tools: Tool 05 V3, Tool 07v7.	ok
10) A statement on uncertainty, how it affects the GHG statement and how it has been addressed to minimize misrepresentation.	The project owner calibrated electricity meters and flow meters at per calibration procedures and data is stored electronically. A clear procedure is established that ensure responsibility and accountability for all parameters that are required to be monitored, measured and reported. Thus,	ok

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	there is a low risk of inappropriate data quality and missing reproducibility.	
11) The date of the report and the time period covered	11/Apr/2022, version 2.0, 01/Jan/2021-31/Dec/2021,	ok
12) As applicable, an assessment of permanence	Not applicable. The emission reductions produced by this project cannot be reversed as this project does not use any GHG sinks or reservoirs, that are under risk to have a short longevity.	ok
13) An evidence of the appointment of the authorized representative on behalf of the project proponent, if different from the proponent.	Wolfgang Wetzer, Energy Changes Projektentwicklung GmbH	ok
14) If applicable, the GHG programme(s) to which the GHG project subscribes.	CDM methodology AM0020v2 and Austrian Kraftstoffverordnung 2012	ok
15) If required by intended users, changes to the project or monitoring system from the project plan and assessment of its conformity to criteria, applicability of methodologies and any other requirements.	Since the exact demand of UERs in the individual Member States will only be fully known after the compliance year 2021, Energy Changes Projektentwicklung GmbH reserves the right to submit the UER partly or entirely in one or more EU Member States other than Austria.	ok
Checklist Verification of UER Project		
Project documentation	**Result of the verification**	**Audit result**
Is the project objective clearly defined?	The project purpose is to improve the energy efficiency of the Nimr produced water disposal system by implementing an ecological wetland facility solution (= GHG project) located at Oman. The project, an ecological wetland facility solution, allows to treat up to 115,000 m^3/day (design maximum) from the Nimr production in an energy efficient and environmentally friendly manner. And the expected emission reduction is 122,124 tCO2e annually.	ok
Is the method to be used appropriate for the project?	CDM AM0020v2, ISO 14064-2 and Austrian Kraftstoffverordnung 2012	ok
Are there any requirements differing from the level of security?	No	ok
Is misuse of the GHG declaration and the val./ver. confirmation excluded?	The monitoring report with final verification report will be submitted to authorities.	ok
Is the plant not part of the European emission trading scheme?	No, the plant is located in Oman	ok
Does the project get no financially support in Germany?	According to validation report no.	ok
Are the project boundaries clear?	Project boundary encompasses the injection pumps connected with the deep-water	ok

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	wells, on four sites, for final disposal and the wetland facility phase 1 and 2 (controlled and directly attributable to the project) and the PDO power grid (related and directly attributable to the project).	
Periods of practical project implementation	For 5th monitoring period: 01/Jan/2021-31/Dec/2021	ok
Unique location reference (4 digits)	The geographical location of the project (water intake) is N18.666667, E55.759722.	ok
Is public funding, if so to what extent, used for the project?	According to validation report no.	ok
Are public subsidies for financing used?	According to validation report no.	ok
Is public funding for investment safeguards used?	According to validation report no.	ok
Does the working environment and site conditions give rise to risks? Are management systems installed at the operator's organization?	For risks see risk analysis. Management systems are in place according to monitoring report and PDD.	ok
Have control procedures been installed? Is there information on successful external or internal inspections and audits?	A clear procedure is established that ensure responsibility and accountability for all parameters that are required to be monitored, measured and reported. Validation was done by Verico.	ok
Is there a conflict between validation/verification depending on the state and implementation of the Upstream Emission Reduction (UER) Directive?	Validation was done by Verico.	ok
Approvals / Management systems	**Result of the verification**	**Audit result**
Legal basis UER to be considered: national regulation in the country of submission	Austrian Kraftstoffverordnung 2012	ok
Official approval of the plants: are there any requirements for emission reduction or project measures?	The EIA was submitted to the Ministry of Environment and Climate Affairs of the Sultanate of Oman, and environmental approval has been issued.	ok
Have other environmental impacts been considered and described?	Analysis of environmental impacts in PDD	ok
Are there expert reports available on the environmental impacts of the project or parts of the project?	EIA and EIA approval	ok
Expert opinion on EIA	EIA and EIA approval	ok
Documents on public participation in the approval process	Part of the validation report ('OMV_Nimr-Water-Treatment_Validation Report_v5.0_20191029.pdf')	ok

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Classification and perception of validation or verification by interested parties	Part of the validation report ('Final Bauer P1&2_VAL-20191029_v5_TR.pdf')	ok
Project documentation	**Result of the verification**	**Audit result**
Site plan, system diagram, process sequence	UER_Nimr_phase1_2_PDD_02082019	ok
Technical documentation of the plant	220327_BNO-89000076-PRO-001 Rev 02 Upstream Emission Reduction Procedure.pdf; UER_Nimr_phase1_2_PDD_02082019; BNO-DE-11049000-PLAN-001-Z01-191121_A1A302-Overall-Layout_Ph_1_2_3.pdf	ok
Forecast data on input quantities and production quantities	The project, an ecological wetland facility solution, allows to treat up to115,000 m^3/day (design maximum) from the Nimr production in an energy efficient and environmentally friendly manner. And the expected emission reduction is 122,124 tCO2e annually.	ok
Do the current operating conditions reflect the assumptions, constraints, procedures and uncertainties of the project plan?	In the operational phase, Nimr project is evaluated on a regular basis as per the stipulated requirements therein and reported as required by law. As for this monitoring period, the project is implemented according to the project design and no changes have been made during the monitoring period.	ok
Comparisons with known or industrial benchmarks	Additionality in line with the guidance provided under ISO 14064-2, is demonstrated by the additionality with reference to the project being the "first of its kind" (FOIK) worldwide.	ok
Data availability of the basic data calculations	MR5_UER_calculation_Nimr_phase1and2_16022022.xlsx	ok
GHG emissions: intentional and unintentional omissions of potentially significant emission sources	Not identified	ok
GHG emissions: significant emissions outside the operations of the responsible entity	As discussed during verification, the wetland plantation will produce an additional biomass stock and opportunities for further renewable energy projects (e.g. through biodigesters, bio-briquetting and improvement of soil humus etc.), which has not considered intentional, due to technical and conservative consideration.	ok
Significant regulatory changes	Not identified	ok
Significant economic changes with effects on GHG declaration	Not identified	ok

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Project Methodology	Result of the verification	Audit result
Is the description of the project activity complete?	The project was implemented in two phases, where under phase 1 all process stages were established and under phase 2 the reed bed area was extended from 234 ha to 351 ha. The phase 1 was completed on the 15/01/2011 and phase 2 on the 07/10/2012, respectively.	ok
Planned credit period	Intended crediting period 01/Jan/2021 to 31/Dec/2021	ok
Calculation method defined and applicable	MR5_UER_calculation_Nimr_phase1and2_16022022.xlsx	ok
Sources and sinks fully identified	In the operational phase, Nimr project is evaluated on a regular basis as per the stipulated requirements therein and reported as required by law. As for this monitoring period, the project is implemented according to the project design and no changes have been made during the monitoring period.	ok
Is shift of emissions taken into account?	Not identified	ok
Validity of the current baseline scenario for the next crediting period: Assess compliance of the current baseline scenario with relevant mandatory national and/or sectoral policies. Assess the impact of circumstances. Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested. Assessment of the validity of the data and parameters.	The continuation of the recent practice of deep well disposal of the consumed water would be the most likely scenario in the absence of the project activity. The installed equipment can operate without need for refurbishment beyond 2020 and the oil production activities will not decrease, hence they will continue to produce consumed water in a similar amount as in the baseline.	ok
Additionality guaranteed	Additionality in line with the guidance provided under ISO 14064-2, is demonstrated by the additionality with reference to the project being the "first of its kind" (FOIK) worldwide.	ok
Is the proposed project activity the first-of-its-kind?	Yes	ok
Identification of alternatives to the project activity is consistent with mandatory laws and regulations	The continuation of the recent practice of deep well disposal of the consumed water would be the most likely scenario in the absence of the project activity, which is	ok

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	compliance to the local laws and regulations.	
Do the calculations correspond to the method description?	The calculation is aligned with the criteria and procedures of the approved UNFCCC CDM methodology AM0020/version 2 "Baseline methodology for water pumping efficiency improvements" and the associated UNFCC CDM tools:Tool 05 V3, Tool 07v7.	ok
Commitment: no double use of the reduction	Self-commitment: no multiple use of the reduction: 220418azd_Cofirmation Statement - UER Regulations.pdf	ok
Monitoring plan	**Result of the verification**	**Audit result**
Are sources and sinks for GHG data complete?	GHG sources include the injection pumps connected with the deep-water wells, on four sites, for final disposal and the wetland facility phase 1 and 2 (controlled and directly attributable to the project) and the PDO power grid (related and directly attributable to the project). The deep water well disposal (DWD) of the produced water is highly energy intensive and consumes about 5.72 kWh/m³ of fossil-fuel based electricity and emits 3,519 g of CO2e/m³ at the same time. Grid emission factor refer to the UNFCCC Methodological tool Tool to calculate the emission factor for an electricity system Version 07.0, as 0.62 CO2e/MWh	ok
Detailed levels of available documentation (proofs, evidence)	All required evidence was submitted and is consistent.	ok
Are measuring instruments described completely?	UER monitoring procedures, technical data and calibration certificates were submitted.	ok
Is the data acquisition described completely?	UER monitoring procedures and clarification has been done during the remote audits	ok
Is the data evaluation described completely?	Yes	ok
Is the data storage described completely	Yes	ok
Is the derivation of not measured parameters complete?	It is in line with the parameter at validation stage.	ok
Is the calculation procedure documented?	MR5_UER_calculation_Nimr_phase1and2_16022022.xlsx	ok
Are there possible sources and sinks outside the project boundary?	The wetland plantation will produce an additional biomass stock and opportunities for further renewable energy projects (e.g. through biodigesters, bio-briquetting and	ok

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	improvement of soil humus etc.), which is not claimed as conservative manner	
Organizational structures for monitoring (responsibilities)	O-chart is available in 220327_BNO-89000076-PRO-001 Rev 02 Upstream Emission Reduction Procedure.pdf	ok
Is a quality assurance procedure established?	220327_BNO-89000076-PRO-001 Rev 02 Upstream Emission Reduction Procedure.pdf; KROHNE Altometer Calibration Procedure	ok
Risk assessment of the operator	Explained during audits. Not included in detail in the monitoring report.	ok
Characteristics and performance of controls used for monitoring and reporting by the responsible body	Cross checks are implemented.	ok
Effectiveness of the control system of the responsible body, identification of errors or omissions	Data is correctly checked.	ok
Experience, skills and qualifications of the personnel involved	Described in 'Integrated Management System' form: 220327_BNO-89000076-PRO-001 Rev 02 Upstream Emission Reduction Procedure.pdf	ok
appropriate training is planned or carried out	Described in 'Integrated Management System' form: 220327_BNO-89000076-PRO-001 Rev 02 Upstream Emission Reduction Procedure.pdf	ok

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B. List of findings

Documentation Audit closure	
Reporting period	**01 Jan 2021 – 31 Dec 2021**
Company	Energy Changes Projektentwicklung GmbH (Project applicant), Bauer Nimr LLC (Project owner)
Contact person	Mr. Wolfgang Wetzer (Energy Changes Projektentwicklung) Mr. Younis Al-Rawahi (Bauer Nimr LLC)
Date of the audit	15 Mar 2022 (Remote audit), 16 Mar 2022 (Remote audit), 28 Apr 2022 (Remote audit)
Basis of audit / Standard	EN ISO 14064-2, EN ISO 14064-3, EN ISO 14065, Austrian Kraftstoffverordnung 2012, CDM AM0020
TÜV SÜD Order number (ITAS):	3595131
Lead Auditor	Wittl, Daniel
additional examiners	Auernhammer, Katrin
Independent reviewer	Johann Schmidt
External observer (DAkkS)	--

Nr.	Audit result/determination	Date	Classi-fication	Planned/appropriate corrective action documents to be submitted.	Respon-sibility	Date	Com-pliance	Materi-ality	Correction done
1	Detailed information about the biological processes of the wetlands (degradation and purification of the contami-nated water) were not present at the time of the audit.	15.03. 2022	Docu	A study on the biological activities will be submitted, which was conducted prior to the project start.	Energy Changes	11.04. 2022	Yes	No	References were provided. See file Constructed Wet-lands_study.pdf. It was revised and no concerns regarding the project were determined. Finding closed.

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2	Information about the wetland management was requested, which includes - among others - harvest of the reeds, control of inflow of contaminated water into the wetlands, avoidance of ecological tipping point, etc.	15.03. 2022 & 16.03. 2022	Docu	It was explained that the water quality is controlled by sampling on a daily basis. PDO (the oil field operator) is obligated to provide a certain concentration in ppm of oil in water (ranges from 500-800 ppm). Two samples are taken: one before the skimming channel and one before the metering skids. An EXCEL file will be shared that shows the records of the daily water sampling. The harvest of the reeds happens approximately every 10 years and depends on the height and density of the reed vegetation. Other routine works, such as emptying clogged channels or skimming off oil from the water surface, are carried out on a daily basis.	Bauer Nimr	11.04. 2022	Yes	No	The incoming hydrocarbon composition as per the project contracting company i.e., the Petroleum Development Oman (PDO) contract is 150 ppvm, whereas the contractual oil-in-water quality shall be less 0.5 ppvm at the project outlet. Both values are regularly monitored and reported. For water sample records, see 2.Q4 2021 Third Party report.pdf. Also, an EXCEL file with hourly measurement readings on air (H2S, NO2, SO2, CO) and noise quality control was provided (4.nrk_AAQ and Noise data 2021.xlsx). Documents were revised and no concerns regarding the project were determined. Finding closed.
3	Additional to the water samples conducted by the project operator, an environmental assessment is being done on a quarterly basis by a third party, which sends the reports to the environmental ministry.	15.03. 2022 & 16.03. 2022	Note	The project owner will share a sample environmental assessment report.	Bauer Nimr	11.04. 2022	Yes	No	The Nimr Water Treatment Project Environmental Management Services Report of quarter 1/2021 was provided. It was revised and no concerns regarding the project were determined. Finding closed.
4	Information about the handling of residues (minerals, salts, etc.) and depleted/abandoned ponds was requested.	15.03. 2022	Note	The amount of residues is very little and no treatment is required so far. Local environmental laws would be relevant and apply in case the amount of residues passes certain thresholds.	Bauer Nimr	16.03. 2022	Yes	No	Finding closed.

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5	It was requested to provide explanations about the consideration of methane, which might be either stored or released from the wetlands.	15.03.2022	Docu	This topic was considered before the project start and respective evidence will be delivered. If defined as a relevant GHG sink or source, this should be mentioned in the Monitoring Report.	Energy Changes, Bauer Nimr	11.04.2022	Yes	No	The Environmental Impact Assessment report (see 3.5OES_Bauer_3035_EIA.Final.Rev.i NWTP, Phase 2.pdf) investigated possible GHG emissions including CH4, N2O and CO2 for the construction phase of the project, for the solid waste generation, and wastewater treatment of the project. It was concluded that no or little (unsignificant) GHG emission are produced. Finding closed.
6	No technical information on the oil-water separators was available.	15.03.2022	Note	The data sheets of the separators will be provided.	Energy Changes, Bauer Nimr	11.04.2022	Yes	No	The instruction manual of the oil separator system was provided (5.Instruction Manual Galaxie 2002 NS 520_Vers_3_5_2010.pdf). Finding closed.
7	It was requested to explain the handling of the separated oil from the contaminated water. According to the project owner, the oil is pumped back to the oil field operator for further usage. It was asked wether this pump is to be considered within the project boundaries.	15.03.2022 & 16.03.2022	Docu	The project proponent explained that in previous verifications it was assessed and concluded that the pump is not considered within the project boundaries. This is documented in the monitoring report ID 21247887, issued 2020-06-06, prepared by TÜV Rheinland Energy GmbH for the monitoring period 01.01.2020-31.03.2020.	Energy Changes	11.04.2022	Yes	No	Finding closed.
8	In satellite imagery, the three oil-water separators were not clearly identifiable.	15.03.2022	Note	Project owner will provide photos recently taken on-site.	Bauer Nimr	29.04.2022	Yes	No	Photos with time stamps (27 Apr 2022) of the oil separator were provided. Finding closed.

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9	No technical information on the flow-meters was available.	15.03. 2022	Docu	The data sheets of the flow meters will be provided.	Energy Changes, Bauer Nimr	11.04. 2022	Yes	No	Technical datasheet was provided (8.technical_datasheet_optiflux_2000_r1 1_en_gb.pdf). Finding closed.
10	No statement on uncertainty in the quantification of the GHG reductions (according to ISO 14064-2) is included in the monitoring report.	15.03. 2022	M	The monitoring report will be updated accordingly.	Energy Changes	11.04. 2022	Yes	No	Chapter 1.13 ("Uncertainty in the quantification of the GHG reductions") was added to the Monitoring Report. Revised and finding closed.
11	No statement on permanence of the project (according to ISO 14064-2) is included in the monitoring report.	15.03. 2022	M	The emission reductions produced by this project cannot be reversed as this project does not use any GHG sinks or reservoirs, that are under risk to have a short longevity.	Energy Changes	11.04. 2022	Yes	No	Finding closed.
12	No comparison (according to ISO 14064-2) between the estimated GHG reductions before project start and actually achieved during operation is included in the monitoring report.	15.03. 2022	M	The monitoring report will be updated accordingly.	Energy Changes	11.04. 2022	Yes	No	Chapter 1.12 ("Comparison of emission reductions or net anthropogenic removals achieved with estimates in the validated project documentation") was added to the monitoring report. Revised and finding closed.
13	In the monitoring report (chapter 4.1), the date of the calibration of the two flow meters is indicating that the two flow meters were calibrated on the same day (98-FICA-004 and 98-FICA-006 on 13 Oct 2020 and 98-FICA-005 and 98-FICA-007 on 24 July 2020). However, it was explained that the flow meters are always changed separately during different times of	15.03. 2022 & 16.03. 2022	M	It was requested to clarify the exact calibration dates and to update the monitoring report accordingly. The fourth calibration certificate and additional proof for the exact dates of the calibration shall be provided. Also, a calibration schedule for the upcoming calibrations will be shared. Besides the calibration done by the manufacturer, a monthly meter proofing is done by the project owner. A record of this routine will be shared.	Energy Changes, Bauer Nimr	11.04. 2022	Yes	Yes	The project proponent provided the current calibration certificates with the latest calibration dates: 98-FICA-004: 13/10/2020 98-FICA-005: 24/07/2020 98-FICA-006: 13/10/2020 98-FICA-007: 23/07/2020 First 98-FICA-005 and 98-FICA-007 are calibrated parallel (24/07/2020), which allows the continuous operation of metering skid point 1 (98-FICA-004; 98-FICA-005) and metering skid point

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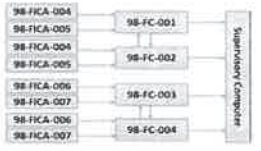
	the year in order to always have at least one flow meter operating. The whole calibration process takes approximately two months. The provided calibration certificates showed one calibration being done on 23 Jul 2020 (98-FICA-007), one on 24 Jul 2020 (98-IFICA-005) and one on 13 Oct 2020 (98-FICA-004). The fourth calibration certificate for 98-FICA-006 was missing.								2 (98-FICA-006; 98-FICA-007) with 98-FICA-004 and 98-FICA-006. Afterwards 98-FICA-004 and 98-FICA-006 are calibrated parallel, which allows the continuous operation of metering skid point 1 and metering skid point 2 with the new calibrated 98-FICA-005 and 98-FICA-007.  Calibration schedules were also provided (220115_Instrument calibration schedule.pdf) as well as pictures of installed meters see (220315_Metring Skid Measuring Device images_phase12.pdf). Finding closed.
14	Additional to the previous point (calibration of the flow meters), in the monitoring report (chapter 4.1) the exact product model for the flow meters is stated as "Optiflux 2300 C", whereas in the calibration certificates the product model "OPTIFLUX 2000" is stated.	15.03. 2022	M	It was requested to clarify the exact product model of the flow meters and -if applicable- to update the respective and relevant documents accordingly.	Energy Changes, Bauer Nimr	11.04. 2022	Yes	No	The correct model is "OPTIFLUX 2000" as stated in the technical datastheet. The Monitoring Report was updated accordingly. Revised and finding closed.

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15	In the "Integrated Management System" file (20200723_Ph-1_Master meter calibration Certificate_98-FICA-005_A1069402.PDF), which describes the monitoring procedures for the UER project, the organigram in Attachment 4 is not up to date.	15.03. 2022	M	The organigram will be updated.	Energy Changes, Bauer Nimr	11.04. 2022	Yes	No	File was updated with correct organigram (220327_BNO-89000076-PRO-001 Rev 02 Upstream Emission Reduction Procedure.pdf). Finding closed.
16	It was requested to explain the duties and tasks of the operator´s staff on site.	15.03. 2022 & 16.03. 2022	Note	It was explained that 52 people are employed and on average 35 people are present on site. There are several teams according to their scope of tasks: Agricultural, turn-over point operators, environmental, technician. The environmental team is taking samples to monitor the air quality in the wetland. A record of the sampling results is kept in an EXCEL sheet. The EXCEL sheet was requested.	Bauer Nimr	11.04. 2022	Yes	No	An EXCEL file with hourly measurement readings on air (H2S, NO2, SO2, CO) and noise quality control was provided (4.nrk_AAQ and Noise data 2021.xlsx). Finding closed.
17	No maintenance shut-downs or overhaul breaks were mentioned in the monitoring report or identifiable from the operation logs of the flow meters.	15.03. 2022 & 16.03. 2022	Docu	It was explained by the project operator that in the wetland facility no maintenance works are done that require a complete shutdown of the wetland facility. Maintenance shutdowns occur only in the upstream part of the oil field , which would lead to a cut-off in the supply of contaminated water into the wetland. However, in the respective monitoring period no maintenance shutdown was done in the upstream part of the oil field.	Bauer Nimr	16.03. 2022	Yes	No	Finding closed.

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18	The operator of the oil field (PDO) has a flow meter installed for measuring the flow of contaminated water to the wetland in order to cross-check the meter readings of Bauer as Bauer issues invoices to the oil field operator for the purification of the contaminated water.	15.03. 2022 & 16.03. 2022	Docu	It was requested to provide sample invoices from Bauer to PDO for the months January, June and December 2021 in order to cross-check the registered meter flow values at the wetland facility with the billed values.	Energy Changes, Bauer Nimr	28.04.2022	Yes	No	Invoices were provided for January, June and December 2021. The shown quantities of billed water are higher than actually registered with the flow meter. It was explained that the oild field operator PDO and Bauer Nimr agreed on a minimum amount of water which needs to be payed by PDO, independently if the actually supplied water quantity is lower. This was the case in this period. Finding closed.
19	A statement is missing that the UER were not and will not be used in other country of the EU (KVO §19b (5) 6))	15.03. 2022	M	The statement will be provided.	Energy Changes	11.04. 2022	Yes	No	The project applicant is obligated to provide this statement to the respective authority upon UER submission. Finding closed.
20	An evidence is missing that the UER is not used for the host country´s obligations (KVO §19b (2) q)).	15.03. 2022	M	The evidence will be provided.	Energy Changes	11.04. 2022	Yes	No	The statement was provided (220418azd_Cofirmation Statement - UER Regulations.pdf). Finding closed.
21	If applicable, a certificate of retirement/cancellation in the registry through Umweltbundesamt or CDM needs to be provided (KVO §19b (4) 3)).	15.03. 2022	M	The certificate will be provided, if applicable.	Energy Changes	11.04. 2022	Yes	No	No applicable, the project activity was and is not a registered CDM project, see See CDM project registry https://cdm.unfccc.int/Projects/projsearch.html. Finding closed.
22	Photos of the installation are missing.	15.03. 2022 & 16.03. 2022	Docu	Photos with time stamp of the flow meters from Bauer and PDO, technical plates, separators, oil pump, skimming channel, reed beeds, local monitoring system on site as well as a drone flight video will be provided.	Energy Changes, Bauer Nimr	28.04. 2022	Yes	No	Photos with time stamps (27 Apr 2022) of the buffer pond, oil separator and reed beds were provided. Also, a drone video of the installation, dated 16 Marc 2022, was shown. Finding closed.

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Classification:

NC	Non-conformity / deviation because requirement not fulfilled
M	Error, misrepresentation, omission
Re	Recommendation for improvement (proposal of the inspection body)
Docu	Note on documentation (e.g. missing document)
Note	Note (supplementary and not included in the verification report)

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C. Document list

Monitoring reports:

1	MR5_Nimr_phase1and2_11042022.pdf
2	MR5_Nimr_phase1and2_16022022.pdf

Emission reduction calculation:

3	MR5_UER_calculation_Nimr_phase1and2_16022022.xlsx

PDD and validation report:

4	UER_Nimr_phase1_2_PDD_02082019.pdf
5	Final Bauer P1&2_VAL-20191029_v5_TR.pdf

Previous monitoring reports:

6	MP1_UER_MR_Nimr_phase1and2_13122019.pdf (1st monitoring period)
7	MP2_UER_MR_Nimr_phase1and2_13012020.pdf (2nd monitoring period)
8	MP3_UER_MR_Nimr_phase1and2_23012020.pdf (3rd monitoring period)
9	MR4_UER_Nimr_phase1and2_14012021.pdf (4th monitoring period)

Previous verification reports:

10	Final Bauer 1&2_1st VER_20191223_v3.0.pdf (1st monitoring period)
11	DVR Bauer 1&2_2ndVER_-20200113_v1.1.pdf (2nd monitoring period)
12	Final VR Bauer 1&2_3rdVER_-20200224r2.pdf (3rd monitoring period)
13	Verification Report Nimr_20210315_Austria.pdf (4th monitoring period)

Project documentation:

14	01_January 2021_Combined Monthly Report Phase I and II.pdf
15	02_February 2021_Combined Monthly Report Phase I and II.pdf
16	03_March 2021_Combined Monthly Report Phase I and II.pdf
17	04_April 2021_Combined Monthly Report Phase I and II.pdf
18	05_May 2021_Combined Monthly Report Phase I and II.PDF
19	06_June 2021_Combined Monthly Report Phase I and II.PDF
20	07_July 2021_Combined Monthly Report Phase I and II.PDF
21	08_August 2021_Combined Monthly Report Phase I and II.PDF
22	09_September 2021_Combind Monthly Report Phase I and II.pdf
23	10_October 2021_Combined Monthly Report Phase I and II.pdf
24	11_November 2021_Combined Monthly Repoert Phase I and II.pdf
25	12_December 2021_Combined Monthly Report Phase I and II.pdf
26	Combined Daily Report Phase I and II_20210101_100000.pdf
27	Combined Daily Report Phase I and II_20220101_100000.pdf
28	5OES_Bauer_3035_EIA.Final.Rev.i - NWTP, Phase 1.pdf
29	5OES_Bauer_3035_EIA.Final.Rev.i - NWTP, Phase 2.pdf
30	2020 3 points - Calibration procedure Rev 2.pdf

31	110314_Nimr_Water_Treatment_Plant_Phase1_Completion_Certificate.pdf
32	120912_Nimr_Water_Treatment_Plant_Phase2_Completion Certificate.pdf
33	191216_BNO-11077500-PRO-001 Rev 01 Upstream Emission Reduction Procedure.pdf
34	220327_BNO-89000076-PRO-001 Rev 02 Upstream Emission Reduction Procedure.pdf
35	210118aed_Produced Water with the Power of Nature.pdf
36	210225_awy_Maintenance Info.pdf
37	Bauer Commercial Registeration.pdf
38	BNO-DE-11049000-PLAN-001-Z01-191121_A1A302-Overall-Layout_Ph_1_2_3.pdf
39	C-4 section PDO Contract.pdf
40	NWTP and DWD location.jpg
41	Projectboundary_Nimrphase1&2.pdf
42	1.M16024 BNO NWTP QEPR - Q1 2021- Rev2.0.pdf
43	2.Q4 2021 Third Party report.pdf
44	3.5OES_Bauer_3035_EIA.Final.Rev.i NWTP, Phase 1.pdf
45	3.5OES_Bauer_3035_EIA.Final.Rev.i NWTP, Phase 2.pdf
46	4.nrk_AAQ and Noise data 2021.xlsx
47	5.Instruction Manual Galaxie 2002 NS 520_Vers_3_5_2010.pdf
48	8.technical_datasheet_optiflux_2000_r11_en_gb.pdf
49	220115_Instrument calibration schedule.pdf
50	220315_Metring Skid Measuring Device images_phase12.pdf
51	20200724_Ph-1_Master meter calibration Certificate_98-FICA-005_A1069402.PDF
52	20200724_Ph-2_Master meter calibration Certificate_98-FICA-007_A1166024.PDF
53	20201014_Ph-1_Duty meter calibration Certificate_98-FICA-004_A1069403.pdf
54	20201014_Ph-2_Duty meter calibration Certificate_98-FICA-006_A1166023.pdf
55	Constructed Wetlands_study.pdf
56	NWTP Phase I&II Dec 2021 Invoice.pdf
57	NWTP Phase I&II Jan 2021 Invoice.pdf
58	NWTP Phase I&II June 2021 Invoice.pdf
59	220418azd_Cofirmation Statement - UER Regulations.pdf
60	Various photos

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D. List of interviewed persons

Date of the audits and meetings	**15 March 2021 (1st remote audit)**
Company	Energy Changes Projektentwicklung GmbH
Lead Auditor	Wittl, Daniel
additional examiners	Auernhammer, Katrin
The below named participants took part in different constellations in the audits and meetings.	
Name, first name	**Area of responsibility / department**
Wolfgang Wetzer	Technical Consultant

Date of the audits and meetings	**16 March 2022 (2nd remote audit)**
Company	Bauer Nimr LCC, Energy Changes Projektentwicklung GmbH
Lead Auditor	Wittl, Daniel
additional examiners	Auernhammer, Katrin; Abdual Kadar, Abdul Rahim
The below named participants took part in different constellations in the audits and meetings.	
Name, first name	**Area of responsibility / department**
Younis Al-Rawahi	UER Project Manager (Bauer Nimr LCC)
Shahad Al-Zakwani	UER Project Manager (Bauer Nimr LCC)
Wolfgang Wetzer	Technical Consultant (Energy Changes Projektentwicklung GmbH)

Date of the audits and meetings	**28 April 2022 (3rd remote audit)**
Company	Bauer Nimr LCC
Lead Auditor	Wittl, Daniel
additional examiners	
The below named participants took part in different constellations in the audits and meetings.	
Name, first name	**Area of responsibility / department**
Younis Al-Rawahi	UER Project Manager (Bauer Nimr LCC)
Dennis Alexandersen	UER Project Manager (Bauer Nimr LCC)

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E. Accreditation certificate of Verification Body

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DAkkS
Deutsche
Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH

Entrusted according to Section 8 subsection 1 AkkStelleG in connection with Section 1 subsection 1 AkkStelleGBV
Signatory to the Multilateral Agreements of EA, ILAC and IAF for Mutual Recognition

Accreditation

The Deutsche Akkreditierungsstelle GmbH attests that the verification body

TÜV SÜD Industrie Service GmbH
Westendstraße 199, 80686 München, GERMANY

is competent under the terms of DIN EN ISO 14065:2013 for

Verification of greenhouse gas emission reports and tonne-kilometre reports
according to Regulations (EU) No. 2018/2067 and (EU) No. 2018/2066 for Activities as listed in the Annex.

Verification and Validation according to DIN EN ISO 14064-3:2020
for non-regulated Greenhousegas schemes according to DIN EN ISO 14064-1:2019 and DIN EN ISO 14064-2:2020.

The accreditation certificate shall only apply in connection with the notice of accreditation of 04.03.2022 with the accreditation number D-VS-14153-01-00 and is valid until 13.12.2023. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 4 pages.

Registration number of the certificate: **D-VS-14153-01-00**

Berlin, 04.03.2022	B.Sc. Malik Kadraba Head of Technical Unit	Translation issued: 04.03.2022	Head of Technical Unit

The certificate together with the annex reflects the status as indicated by the date of issue.
The current status of any given scope of accreditation may be found respectively in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH https://www.dakks.de/en/content/accredited-bodies-dakks.

This document is a translation. The definitive version is the original German accreditation certificate.

See notes overleaf.

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Deutsche Akkreditierungsstelle GmbH

Office Berlin
Spittelmarkt 10
10117 Berlin

Office Frankfurt am Main
Europa-Allee 52
60327 Frankfurt am Main

Office Braunschweig
Bundesallee 100
38116 Braunschweig

The publication of extracts of the accreditation certificate is subject to the prior written approval by Deutsche Akkreditierungsstelle GmbH (DAkkS). Exempted is the unchanged form of separate dissemination of the cover sheet by the conformity assessment body mentioned overleaf.

No impression shall be made that the accreditation also extends to fields beyond the scope of accreditation attested by DAkkS.

The accreditation was granted pursuant to the Act on the Accreditation Body (AkkStelleG) of 31 July 2009 (Federal Law Gazette I p. 2625) and the Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products (Official Journal of the European Union L 218 of 9 July 2008, p. 30). DAkkS is a signatory to the Multilateral Agreements for Mutual Recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Cooperation (ILAC). The signatories to these agreements recognise each other's accreditations.

The up-to-date state of membership can be retrieved from the following websites:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

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DAkkS Deutsche Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-VS-14153-01-00 according to DIN EN ISO 14065:2013

Period of validity: **04.03.2022 to 13.12.2023**

Date of issue: 04.03.2022

Holder of certificate:

TÜV SÜD Industrie Service GmbH
Westendstraße 199, 80686 München, GERMANY

Verification of greenhouse gases emissions reports and tonne-kilometres reports according to DIN EN ISO 14065:2013 and Regulation (EU) No. 2018/2067 and (EU) No. 2018/2066 in the following group of activities according to Annex I of directive 2003/87/EG and other activities according to Art. 10a and Art. 24 of subject directive

No.	Scope of Accreditation
1a	Combustion of fuels in installations, where only commercial standard fuels as defined in Regulation (EU) No. 601/2012 are used, or where natural gas is used in category A or B installations
1b	Combustion of fuels in installations, without restrictions
2	Refining of mineral oil
3	Production of coke Metal ore (including sulphide ore) roasting or sintering, including pelletisation Production of pig iron or steel (primary or secondary fusion) including continuous casting
4	Production of processing of ferrous metals (including ferroalloys) Production of secondary aluminium Production or processing of non-ferrous metals, including production of alloys

The management system requirements of DIN EN ISO 14065 are written in the language relevant to the operations of greenhouse gas validation and verification bodies. Validation and verification bodies that conform to the requirements of this standard, operate generally in accordance with the principles of DIN EN ISO 9001.

The certificate together with the annex reflects the status as indicated by the date of issue.
The current status of any given scope of accreditation may be found respectively in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH https://www.dakks.de/en/content/accredited-bodies-dakks.

Abbreviations used: see last page

This document is a translation. The definitive version is the original German annex to the accreditation certificate.

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Annex to the Accreditation Certificate 14153-01-00

No.	Scope of Accreditation
5	Production of primary aluminium (CO2 and PFC emissions)
6	Production of cement clinker Production of lime or calcinations of dolomite or magnesite Manufacture of glass including glass fibre Manufacture of ceramic products by firing Manufacture of mineral wool insulation material Drying or calcination of gypsum or production of plaster boards and other gypsum products
7	Production of pulp from timber or other fibrous materials Production of paper or cardboard
8	Production of black carbon Production of ammonia Production of bulk organic chemicals by cracking, reforming, partial or full oxidation by similar processes Production of hydrogen (H_2) and synthesis gas by reforming or partial oxidation Production of soda ash (Na_2CO_3) and sodium bicarbonate ($NaHCO_3$)
9	Production of nitric acid (CO_2 and N_2O emissions) Production of adipic acid (CO2 and N_2O emissions) Production of glyoxal and glyoxylic acid (CO_2 and N_2O emissions) Production of caprolactam
12	Aviation activities (emissions and tonne-kilometre data)
98	Other activities pursuant to Article 10a of Directive 2003/87/EC

Verification and Validation according to DIN EN ISO 14065:2013 and DIN EN ISO 14064-3:2020 for non-regulated Greenhousegas schemes according to the following standards:

DIN EN ISO 14064-1:2019 Greenhouse gases - Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals in the following sectors:

Sectors for Organization Verification according to IAF MD 14:2014 – Annex A
Power Generation and Electric Power Transaction
General Manufacturing (physical or chemical transformation of materials or substances into new products)
Oil and Gas Exploration, Extraction, Production and Refining, and pipeline distribution, including Petrochemicals

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Sectors for Organization Verification according to IAF MD 14:2014 – Annex A
Metals Production
Aluminum Production
Mining and Mineral Production
Pulp, Paper and Print
Chemical Production
Carbon Capture and Storage
Transport
Waste Handling and disposal
Agriculture, Forestry and Other Land Use
Facility Management, Operation of Buildungs and related Infrastructure, etc.

DIN EN ISO 14064-2:2020 Greenhouse gases - Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements in the following sectors:

Sectors for Project Validation and Verification according to IAF MD 14:2014 – Annex A
Energy generation from renewable and non-renewable sources
Energy Distribution
Energy Demand
Manufacturing Industry (Cement sector, Aluminum, Iron and Steel, Refinery
Chemical Industry
Construction
Transport
Metal Production
Fugitive Emissions from Fuels (solid, oil and gas)
Fugitive Emissions from Production and Consumation of Halocarbons and Sulphur Hexafluoride (Chemical process industries, GHG capture and destruction)
Solvent use in chemical process indstries
Waste Handling and Disposal
Agriculture, Afforstation and Reforestation
Carbon Capture and Storage of CO_2 in Geological Formations

Period of validity: 03.04.2022 to 13.12.2023
Date of issue: 03.04.2022

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Deutsche Akkreditierungsstelle

Abbreviations used:

DIN	German Institute for Standardization – DIN e.V.
EN	European Standard
EU	European Union
IAF	International Accreditation Forum
ICAO	International Civil Aviation Organization
IEC	International Electrotechnical Commission
ISO	International Standardization Organisation
MD	Mandatory Document