PROJECT REVIEW REPORT

Project ID	336
Project Name	Methane Recovery Project Houbensteyn Ysselsteyn, The Netherlands
Program(s)	VCS
Project Proponent	Houbensteyn Milieu BV
Methodology	AMS III.AO, v1.0 AMS III.D, v21 AMS I.C, v21
Sectoral Scope(s)	13: Waste handling and disposal 1: Energy industries (renewable/non-renewable sources)
Validation/Verification Body (VVB)	Carbon Check (India) Private Ltd.

Assessment Criteria	*VCS Standard, v4.1*
Date of First Issue	17 March 2022
Date of Final Issue	*17 May 2022*

Summary:

An accuracy review of **Project 336, Project Methane Recovery Project Houbensteyn Ysselsteyn, The Netherlands** Credit Period Renewal request has been conducted by Verra in accordance with Section 4.3 of the *Registration and Issuance Process*.

The accuracy review has raised ten assessment findings and one minor finding, detailed below. The VVB, in coordination with the project proponent, is hereby required to provide a response to the assessment findings presented in Section 1. The assessment findings must be addressed to the satisfaction of Verra. The VVB need not address the minor findings during this review. Please note, however, that where Verra finds consistent minor findings by the VVB in future reviews, minor findings shall be escalated to assessment findings.

This project review report will be made publicly available. Confidential information may be provided as separate attachments.

1. ASSESSMENT FINDINGS

Finding 1

- Section 3.4.1 of the *VCS Standard, v4.1* states that "the project proponent shall use the *VCS Project Description Template*…The project proponent shall adhere to all instructional text within the template".
- Section 4.1.13 of the *VCS Standard, v4.1* states that "the validation/verification body shall use the *VCS Validation Report Template*… and adhere to all instructional text within the template".

- A Proof of Right was uploaded to the registry by Natural Capital Partners on 04/04/2010. This agreement states "In accordance with the Emission Reductions Purchase Agreement dated 9 January 2008 between ARA Carbon Finance GmbH (Seller) and The CarbonNeutral Company Limited (Buyer), the Seller hereby delivers the following Contract ERs to the Buyer in accordance with the terms and conditions of the Emission Reductions Spot Purchase Agreement."
- Wanroij, Netherlands, and ABEN@ABENBV.NL are listed as the project location and contact email on the registry page.
- Section 3.1 of the validation report template requires the VVB to "Identify, discuss and justify conclusions regarding… Ownership".

The project proponent is requested to clarify the current role of Natural Capital Partners, ARA Carbon Finance GmbH, The CarbonNeutral Company Limited, and Aben in the project. The project proponent should also clarify if there have been any changes to project ownership over the lifetime of the project and update Section 1.7 of the project description, if applicable. Lastly, the project proponent is requested to confirm that the registry information for Project 336 is correct and up to date.

The VVB is requested to assess the changes and to update the validation report, as needed. The VVB is specifically requested to update Section 3.1 of the validation report to include a description of how project ownership was assessed.

Project Proponent Response:

The ownership of the project has never changed throughout its lifetime and is still Houbensteyn Milieu BV. Changes have occurred regarding 1. the responsible for the carbon activities of project Houbensteyn, 2. the company responsible for the carbon management, 3. the responsible for the project registration and 4. the buyers of the VCUs.

1. Project Houbensteyn is operated and owned by Houbensteyn Milieu BV. However, the carbon activities have been conducted and coordinated together with 4 other similar biogas projects (IDs 334-338) as a group since the start of their project activities (the biogas group). Initially, Jan Aben as owner of the Aben project (ID 335) was put in charge of coordinating the carbon activities of the biogas group. For this reason, the contact details of Jan Aben (owner of project Aben ID 335) appear in the documentation of project Houbensteyn (as well as for the other 4 projects). However, in 2012, the biogas group has founded a joined cooperative (Coöperatie Netwerk Vergisting Zuid-Nederland U.A.), through which the VCUs sales are organized, with John Horrevorts as the new contact person responsible for the VCUs handling.

2. At the beginning of the project, ARA Carbon Finance GmbH was commissioned by the project owner to carry out the carbon management. As described in the last Monitoring Report, up to the end of the first crediting period, the carbon management was done by GES Energie GmbH, which belongs to the same group of companies as ARA Carbone Finance GmbH. Now, the carbon management has been taken over by everi GmbH.

3. At the beginning of the project, Jan Aben was contact person for the biogas group and Natural Capital Partners was commissioned to take over the actual transfers of the VCUs sales. In 2012, John

Horrevorts overtook both responsibilities which he still heads today.

4. The Carbon Neutral Company Limited (CNCL) has bought VCUs from Project Houbensteyn. This is the reason why CNCL appears in the documentation of Project Houbensteyn as one of the different buyers of project Houbensteyn's VCUs.

VVB Response:

Please refer the justification above by the project proponent.

The project owner details are mentioned in the validation report.

Verra Response:
The above information clarifies This finding is now closed and no further action is required.

Finding 2

- Section 3.1 of the *VCS Project Description Template, v4.0* instructs the project proponent to include the title and version number of any tools applied by the project.
- Section 3.2 of the *VCS Project Description Template, v4.0* instructs the project proponent to demonstrate and justify how the project activity meets each applicability condition of the tools applied. Section 3.3.2 of the *VCS Validation Report Template, v4.0* instructs the VVB to describe the steps taken to assess the applicability of any tools applied by the project proponent.

The project proponent is requested to add tool version numbers to Section 3.1 of the project description. The project proponent is also requested to update Section 3.2 of the project description to include additional information that demonstrates and justifies how the project activity meets each applicability condition of the tools applied.

The VVB is requested to assess the changes and to update the validation report, as needed. Additionally, the VVB is requested to add tool version numbers to Section 3.3.1.

Project Proponent Response:

In Section 3.1, the version numbers of the Tools have been added. Also, the reference to the Tool 21 has been removed as this tool does not apply to the project activity within the frame of the renewal of the project crediting period.

The Section 3.2 has been updated regarding the applicability conditions of the used tools (Tool 14 and Tool 11).

VVB Response:

1. Project proponent has revised section 3.1 and 3.2 of the VCS PD to address the finding raised; checked and confirmed by the VVB. The FVR has also been revised.

Verra Response:
Section 3.1 and 3.2 of the monitoring report have been updated. This finding is now closed, and no further action is required.

Finding 3

- Section 3.1.3 of the VCS Standard v4.1 states "Projects and the implementation of project

activities shall not lead to the violation of any applicable law, regardless of whether or not the law is enforced".

- Section 1.14 of the project description states "The project has been operational since 2006 and has obtained the Environmental Impact Assessment approval from governmental authorities. This demonstrate that project is compliant with laws, status and other regulatory frameworks in the Netherlands". However, section 1.14 does describe the specific laws and the regulatory framework that are relevant to this project.
- Section 3.1 of the validation report requires VVBs to "Identify, discuss and justify conclusions regarding… Project compliance with applicable laws, statutes and other regulatory frameworks"

The PP is requested to list and describe any laws and regulations that are relevant to this project. Furthermore, the PP is requested to explain how this project is in compliance with such laws and regulations.

The VVB is requested to assess the changes and to update the validation report, as needed.

Project Proponent Response:

The project description explained that the project is compliant with all local regulations and laws since it is in operation since 2006.

The Dutch system pursues a so-called "All-in-one Permit" approach. This approach serves as a facilitation and simplification of bureaucratic procedures and replaces several individual permits. This is regulated in Annex I of the Decree on Environmental Law and the General Provisions Environmental Law Act (Wabo).[1]

According to this, companies are audited step by step and compliance with all laws is ensured. Accepted companies receive the necessary Environmental Permit (called omgevingsvergunning) and the Activity Decree, the license to operate (called activiteitenbesluit).

Both of these documents are hold by the PP and the PP is therefore authorized to have the co-fermentation biogas plant built and in operation.

The project is therefore in compliance with all:

1. building regulations concerning the design of the plant and its safety precautions (especially unwanted leakage, fire safety, odor and noise pollution),
2. environmental regulations (groundwater protection),
3. labor regulations (safety measures to protect workers) and
4. (renewable) energy regulations.

Also, the transports of the waste and the manure are reviewed and approved. Likewise, the generation and supply of electricity and heat are following all laws.

Furthermore, the project activity is in compliance with further laws: These are, on the one hand, European regulations and, on the other hand, Dutch laws. This involves laws that regulate the handling of emissions, the trading of these, the handling of natural resources, agricultural practices, and additional construction regulations.

In particular, these are:

European laws
Treaty on the Functioning of the European Union, sect. 191 et seqq.

[1] Netherlands Enterprise Agency, RVO: Https://Business.Gov.Nl/Regulation/Applying-For-All-In-One-Permit-Physical-Aspects/

Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources
Directive (EU) 2018/2001 of the European Parliament and the Council of 11 December 2018 on the promotion of the use of energy from renewable sources
Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC Consolidated text: Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC
Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work Consolidated text: Council Directive of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work (89/391/EEC)

Dutch laws	Translation of Dutch laws
Wet van 6 november 2008, houdende regels inzake een vergunningstelsel met betrekking tot activiteiten die van invloed zijn op de fysieke leefomgeving en inzake handhaving van regelingen op het gebied van de fysieke leefomgeving. Wet algemene bepalingen omgevingsrecht (Wabo)	Act of 6 November 2008, containing rules on a permit system with regard to activities that affect the physical living environment and on enforcement of regulations in the field of the physical living environment. General Provisions Environmental Law Act (Wabo).
Besluit van 25 maart 2010, houdende regels ter uitvoering van de Wet algemene bepalingen omgevingsrecht (Besluit omgevingsrecht)	Decree of 25 March 2010, containing rules for the implementation of the General Provisions Environmental Law Act (Environmental Law Decree)
Regeling van de Minister van Landbouw, Natuur en Voedselkwaliteit van 4 november 2005, nr. TRCJZ/2005/3295, houdende regels ter uitvoering van de Meststoffenwet (Uitvoeringsregeling Meststoffenwet)	Regulation of the Minister of Agriculture, Nature and Food Quality of 4 November 2005, no. TRCJZ/2005/3295, containing rules for the implementation of the Fertilizers Act (Implementation Regulations for the Fertilizers Act)
Besluit van 29 augustus 2011 houdende vaststelling van voorschriften met betrekking tot het bouwen, gebruiken en slopen van bouwwerken (Bouwbesluit 2012), Stb. 2011, 416, laatstelijk gewijzigd bij het Besluit van 22 december 2021 tot wijziging van het Bouwbesluit 2012 en het Besluit bouwwerken leefomgeving in verband met hernieuwbare energie bij ingrijpende renovatie (Stb. 2021, 658)	Decree of 29 August 2011 establishing regulations with regard to the construction, use and demolition of structures (Building Decree 2012), Stb. 2011, 416, last amended by the Decree of 22 December 2021 amending the Building Decree 2012 and the Buildings and Living Environment Decree in connection with renewable energy in the event of major renovation (Stb. 2021, 658)

Wet van 18 maart 1999, houdende bepalingen ter verbetering van de arbeidsomstandigheden (Arbeidsomstandighedenwet 1998)	Act of March 18, 1999, containing provisions for the improvement of working conditions (Working Conditions Act 1998)

Hence, the project is in compliance with laws, status and other regulatory frameworks.

VVB Response:
Based on the justification above and interviews during the remote inspection, VVB confirms that project is in compliance with laws and regulations of the host country and the region.

Verra Response:
The above information addresses the findings raised. However, this information should be included in Section 1.14 of the PD. The VVB is requested to confirm that Section 1.14 of the PD has been updated with this information.

Section 3.1 of the validation report should be updated to include a statement that identities, discusses and justifies the VVBs conclusions on the project's compliance with applicable laws, statutes and other regulatory frameworks.

Project Proponent Response:
The information above has been included in Section 1.14 of the PD.

VVB Response:
Section 3.1 of the validation report been revised to include a statement that identities, discusses and justifies the VVBs conclusions on the project's compliance with applicable laws, statutes and other regulatory frameworks.

Verra Response:
Section 1.14 of the PD and Section 3.1 of the validation report have been updated. This finding is now closed and no further action is required.

Finding 4

- Section 3.8.9 of the VCS Standard v4.1 states "The following shall apply with respect to the renewal of the project crediting period under the VCS Program a full reassessment of additionality is not required when renewing the project crediting period. However, regulatory surplus shall be demonstrated in accordance with the requirements set out in the VCS Program rules and the project description shall be updated accordingly."
- Section 3.2, Table 3, Number 3 of the project description states, "No methane recovery and destruction by flaring or combustion for gainful use takes place in the baseline scenario, as this is not required by law." However, according to the Government of the Netherlands, one of the measures that the government implement to reduce GHG emissions in the agricultural and Land use sector is "Reducing methane emissions from livestock through improved processing of manure."
- Section 3.5 of the project description states, "As at the time of the original PDD, still no regulation exists in the Netherlands requiring the collection and/or destruction of methane from livestock manure. It is common practice to store livestock manure in pits, tanks or lagoons without capturing the methane generated during the storage period, as described in Annex 7 of the National Inventory Report 2021 of the Netherlands17. The storage of manure as described above is the most economic, viable and reasonable option for farm owners. Therefore, the project goes beyond compliance and is deemed as additional."

- Section 3.3.5 in the verification report states, "For each of the applied methodology's applicability conditions, describe the steps taken to assess compliance of the project with the applicability condition. Provide a conclusion with respect to each applicability condition."

The project proponent is requested to update the text in Section 3.5 to justify how this project demonstrates compliance with the regulatory surplus requirements under section 3.8.9 of the VCS Standard v4.1. The project proponent is also requested to update any other relevant sections.

The VVB is requested to review the updates, assess whether the project meets the regulatory surplus requirement under section 3.8.9 of the VCS Standard v4.1, and update the validation report as needed.

Project Proponent Response:

It is correct that the Netherlands has set ambitious targets for reducing its GHG. As the linked government document shows, the reductions are also foreseen for GHG emissions from agriculture, Intended measures to reduce GHG emissions in the sector of dairy and pig farming are described in the National Climate Agreement of the Netherlands under Section C4.4[2]. Regarding manure processing, the focus is laid on measures which will reduce the use of chemical fertilizers, resulting in a reduction of the use of fossil energy and the emission of nitrous oxide, and on potential sites for the development of high-quality manure processing techniques, where manure processing is focused on integral processing and creating value out of fresh pig manure in regional clusters. The objective is also to explore the difficulties regarding the permit procedure for large-scale low-emission manure processing in regional clusters [3].

These are measures the government is currently working on and not measures that have already been implemented. The reason is partly that the country is confronted with two competing goals: On the one hand, a large and profitable part of agriculture consists of livestock and the sale of the resulting products. On the other hand, the flip side is that the Netherlands has one of the highest per capita GHG emission levels in Europe and the country has been stuck in the so-called "nitrogen crisis" for years because of the high amounts of manure. This situation is also referred to by some as the "Dutch dilemma".[4]

In their recent study „Aligning agricultural production and environmental regulation: An integrated assessment of the Netherlands", Gonzalez-Martinez et al. (2021) directly pointed out the lack of instruments to address the situation:

> „The first one is about the choice of the proper policy objectives, which should take into account the multiple commitments that The Netherlands has made with respect greenhouse gas emission reductions and nutrient emissions, e.g. N, ammonia, P, etc. As the current policy debate in The Netherlands shows, this is not yet clear and a politically contested issue. Then the next policy challenge is to think of designing a set of policy measures that could help to achieve the fixed policy targets. From our study it appears that there are two important policy dimensions which should be distinguished. Firstly, there is the design and selection of policy measures that contribute to making new emission reducing innovations available and which subsequently help farmers to adopt such measures or make investments in new technologies, e.g. the building of low-emission stables. The second dimension relates to policy measures facilitating the structural adjustments in the animal sectors, e.g. reduction of livestock numbers.

2 Dutch Climate Agreement (2019): https://www.klimaatakkoord.nl/binaries/klimaatakkoord/documenten/publicaties/2019/06/28/national-climate-agreement-the-netherlands/20190628+National+Climate+Agreement+The+Netherlands.pdf p. 133.

3 Dutch Climate Agreement (2019): https://www.klimaatakkoord.nl/binaries/klimaatakkoord/documenten/publicaties/2019/06/28/national-climate-agreement-the-netherlands/20190628+National+Climate+Agreement+The+Netherlands.pdf p. 141.

4 Gassy grazers: The Dutch Dilemma (12.11.2021): https://www.france24.com/en/tv-shows/down-to-earth/20211112-gassy-grazers-the-dutch-dilemma

Aside from direct regulation, e.g. via a restrictive licensing of agricultural activities, there are several other ways to facilitate this"[5].

The project treats manure in anaerobic digesters, which is an additional measure that goes beyond the current requirements and laws in the Netherlands.

Also, the regulations for the storage of manure are laid down in § 3.4.6 of the already mentioned Activities Decree (Activiteitenbesluit milieubeheer).[6] Two essential contents are determined there: First, that minimum distances to odour-sensitive facilities must be maintained (Art. 3.51) and second, that leakage into the soil is prevented by appropriate construction measures (Art. 3.52). This is particularly related to the EU Nitrates Directive (91/676/EEC), whose primary objective is to protect the groundwater.

Further laws relevant in this context do not exist so that it is common practice to store manure in pits, tanks, or lagoons without capturing the leaking methane. This statement is supported by the wording in the National Climate Agreement of the Netherlands where "options"[7] are presented which famers might implement to reduce GHG emissions from storing manure. However, these are neither mandatory, required by law nor incentivized through other mechanisms.

Therefore, the project fulfils the requirements and meets the regulatory surplus set out in 3.8.9 of the VCS Standard v4.1.

VVB Response:
Based on the justification above and review of section 3.3 of the VCS PD, VVB confirms that the measures involved under the project that goes beyond the current requirements and laws in the Netherlands and thus confirms it as regulatory surplus in line with requirements of section 3.8.9 of the VCS Standard v4.1.

Verra Response:
This finding is now closed, and no further action is required.

Finding 5

- Section 3.6 of the PD states "The reason for measurements on fresh basis is that fresh manure is the main data on which are based the *subsidies for the power generation*. It is mandatory for co-digestion projects in the Netherlands to treat at least 50% of feedstock with manure. This is verified by CertiQ, the Dutch issuing body for guarantees of origin and certificates of origin for heat and electricity generated from sustainable sources".
- Section 1.16 of the PD states "The project is currently not part of any other GHG program, emission trading scheme or environmental credit, that means double counting can be exempted. The project also receives no other form of incentives for the activities that cause the emission reduction.".

The PP is requested to further clarify the additionality of the project in particular with reference to the subsidies for power generation. The PP is requested to explain whether or not such "subsidies for the power generation" are part of the incentives for activities for emission reduction. Finally, the VVB is requested to assess whether such a demonstration by the PP is appropriate.

[5] Aligning agricultural production and environmental regulation: An integrated assessment of the Netherlands, Gonzalez-Martinez et al. (2021), https://www.sciencedirect.com/science/article/pii/S0264837721001113 , Section 5.2

[6] Activiteitenbesluit milieubeheer: https://wetten.overheid.nl/jci1.3:c:BWBR0022762&hoofdstuk=3&afdeling=3.4&paragraaf=3.4.6&z=2021-07-01&g=2021-07-01

[7] Dutch Climate Agreement (2019): https://www.klimaatakkoord.nl/binaries/klimaatakkoord/documenten/publicaties/2019/06/28/national-climate-agreement-the-netherlands/20190628+National+Climate+Agreement+The+Netherlands.pdf p. 136, paragraph g.

Project Proponent Response:

"The PP is requested to explain whether or not such "subsidies for the power generation" are part of the incentives for activities for emission reduction"

In the Netherlands, the subsidies for power generation are granted under the SDE regulation (Stimulering duurzame energieproductie = Dutch subsidy for stimulating sustainable energy production). The SDE is the central instrument to support the renewable energy production in the Netherlands. The subsidies under SDE aim to compensate the difference between the higher production costs of renewable energy and the market prices of the competing non-renewable energy and are granted for 12 to 15 years. The SDE scheme started 2008 and has been updated twice: in 2013 (SDE+) and in 2020 (SDE++)[8]. Subsidies from the SDE programs are capped and, therefore, competition within the system exists. All renewable energy technologies compete for the same budget on a first-come-first-served basis, with priority given to low-cost technologies. So, particularly, solar PV projects are first in line.[9]

The SDE+ is the scheme under which the subsidies are granted for project Houbensteyn, as can been seen in the attached document "SDE2014 Beschikking Houbensteyn", with the period of subsidy before 2020 (p. 2). This scheme is designed to encourage maximum energy generation at minimum costs, but do not take into account the GHG emission abatement benefits of technologies[10]. Only the new SDE++, available since 2020, gives the opportunity to compete on the basis of (expected) subsidy requirements per avoided ton of CO_2 equivalent instead of competition on the basis of the cost price for renewable energy[11]. But here, it is important to mention that only the avoided CO_2e emissions from displacing fossil fuel with renewable energy are taken into account and not the avoided methane emissions from manure treatment in the biogas plants.

However, project Houbensteyn falls till 2030 under the SDE+ program, which is not part of the incentives for activities for emission reduction. Project Houbensteyn does not receive any subsidies for GHG emission reductions for the current crediting period.

"The PP is requested to further clarify the additionality of the project in particular with reference to the subsidies for power generation"

The Dutch agricultural biogas sector is experiencing difficult times, especially for co-fermentation plants. Until 2011, the agricultural biogas sector has grown considerably, but since then, the number of plants decreased continuously, i.e. from 105 units in 2013[12] to 89 in 2019[13]. End of 2017, almost 30% of those installations were out of operation because of the crisis in the agricultural biogas sector[14].

The main reasons for this crisis are the prices and availability of co-ferments, the struggle for financial support under the SDE scheme, the reliability of financial incentives and finally, a financial stimulation of alternative biogas technologies (mono-fermentation and biogas-to-biomethane upgrading instead of co-digestion plants with CHP engines). Co-digestion projects in operation (like project Houbensteyn) are

[8] Expert Views on the Future Development of Biogas Business Branch in Germany, The Netherlands, and Finland until 2030, 2021, https://www.mdpi.com/2071-1050/13/3/1148/htm section 2.3.2.
9 Netherlands; 3.53 GW Solar PV In SDE++ 2020 round, June 2021, http://taiyangnews.info/markets/netherlands-3-53-gw-solar-pv-in-sde-2020-round/
10 Anaerobic digestion, market report, The Netherlands, World Biogas Association, http://www.worldbiogasassociation.org/wp-content/uploads/2018/07/The-Netherlands-International-Market-Report.pdf, p. 3
11 Dutch subsidies for renewable energy: the end of the SDE+ scheme and the launch of the broadened SDE++, Apr. 2020, https://www.dentons.com/en/insights/alerts/2020/april/16/ams-dutch-subsidies-for-renewable-energy-the-end-of-the-sde-scheme
12 European Biogas Association, EBA Statistical Report: 2019, January 2020, https://www.europeanbiogas.eu/eba-statistical-report-2019/, p. 2
13 Expert Views on the Future Development of Biogas Business Branch in Germany, The Netherlands, and Finland until 2030, 2021, https://www.mdpi.com/2071-1050/13/3/1148/htm , Section 2.3.2
14 BiogasAction – The Netherlands intervention report, FEDARENE, Nov. 2017 https://www.construction21.org/articles/h/biogasaction-the-netherlands-intervention-report.html

directly affected by this crisis, which endangers the continued operation of this type of projects.

In the Netherlands, co-fermentation plants treat at least 50% of the manure of the total input biomass[15]. Manure, however, has a low calorific value due to its high water content (over 90%) which means, that the electricity production potential from manure is very low. In order to generate enough electricity for a profitable operation, biogas operators depend on co-ferments, which are organic substrates from agriculture and industrial food industries, that are digested together with the manure. Pig manure, for example, has a biogas potential of around 20 m^3 biogas per ton of fresh manure, while the biogas potential for food waste is 6 times higher and for glycerin even 30 times higher[16].

Like other co-digestion plants operators, project Houbensteyn faces the problem of constantly rising prices for co-substrates since the beginning of the Dutch biogas industry. The consequences are that, on the one hand, operation costs are rising while income from electricity production do not increase (or even decrease)[17]. The average cost price of co-substrates used to be 2 ct. per kW installed electric capacity in 2007. In the year 2021, the price rose to 10 ct/kWel. More precisely, when the biogas technology was introduced, the price for glycerin or corn was at 34 €/ton and 30 €/ton, respectively; today, the prices are 200 €/ton, resp. 85 €/ton[18]. On the other hand, co-substrate suppliers do not conclude delivery contracts, not even short-term ones because they want to remain independent in order to benefit from the market development. In the meantime, co-substrate suppliers deliver to the neighbour countries because the subsidies for electricity production are higher there than in the Netherlands. Thus, biogas operators are willing to pay higher prices than Dutch operators could.

In summary, co-digestion projects are not only confronted with continuously rising prices for co-substrates but are also affected from their scarcity. This provides insights about the high risks for the continuation of the project since the volatile costs of co-substrates and their uncertain availability affect not only the financial robustness and the further operation of the project, but also the possibility of obtaining loans from banks for necessary technical investments (i.e CHP replacements). Since the availability of the most important para meter for biogas /electricity production is based on day-to-day agreements with rising prices, the banks generally classify co-digestion projects as financial high-risk projects.

Regarding the subsidies for power generation: although the budget for renewable energy subsidies is growing, the government is lowering the height of the subsidies gradually, as stated by the European Federation of Agencies and Regions for Energy and the Environment (FEDARENE)[19]. Furthermore, FEDARNE describes that “the decline in subsidies is at a faster pace than the technological learning in the biogas sector, making it difficult to build solid business cases. This means that additional sources of income, subsidies and financing will become more and more important for the biogas sector”.

Also, a change in the financial support structure from the Dutch state within the domestic biogas market can be observed since there has been a significant shift from co-fermentation of manure towards mono-fermentation of manure[20] and green gas installations[21] (conversion from biogas to biomethane). The main reasons for this are that co-digestion plants with power generation are financially not attractive, partly due to “high costs of co-products and low electricity prices resulting from competition from solar and wind energy, and government subsidies for co-fermentation have

15 Rijksdienst voor Ondernemend Nederland: https://www.rvo.nl/onderwerpen/agrarisch-ondernemen/mest/mest-bewerken/digestaat-als-mest-gebruiken
16 Bayerische Landesanstalt für Landwirtschaft (Lfl), https://www.lfl.bayern.de/iba/energie/049711/, Data and calculation methods are recognized and commonly used as reference values in practice in the biogas field
17 BiogasAction – The Netherlands intervention report, FEDARENE, Nov. 2017 https://www.construction21.org/articles/h/biogasaction-the-netherlands-intervention-report.html
18 John Horrevorts, Nov. 2021, operations manager at VTTI B.V. and responsible for the VCS biogas projects ID 335, ID 336 and ID 338
19 BiogasAction – The Netherlands intervention report, FEDARENE, Nov. 2017 https://www.construction21.org/articles/h/biogasaction-the-netherlands-intervention-report.html
20 Expert Views on the Future Development of Biogas Business Branch in Germany, The Netherlands, and Finland until 2030, 2021, https://www.mdpi.com/2071-1050/13/3/1148/htm , p. 6.
21 European Biogas Association, EBA Statistical Report: 2019, January 2020, https://www.europeanbiogas.eu/eba-statistical-report-2019/

somewhat decreased"[22].

As described by the European Federation of Agencies and Regions for Energy and the Environment (FEDARENE), "large-scale co-fermentation plants with a mixture of 50% maize and 50% manure used to dominate the biogas market in the Netherlands in the past. Biogas from these plants was used in CHP engines and the electricity was fed into the grid"[23]. Because of the complications mentioned above, the Dutch government and actors of the biogas sector are promoting alternative biogas technologies like mono-fermentation plants or green gas production plants in order to implement the Dutch energy transition faster.

To ensure the future viability of their projects in the coming years, co-fermentation operators have to convert their installed systems to state-subsidized technologies. Whereas a shift to mono-fermentation plants would not be profitable because of the high investment and operational costs of their current units compared to low electricity production from manure, it is technically possible to convert a co-fermentation plant for green gas production. However, the barrier of high investment costs for the biomethane conversion unit remains. Moreover, a given biogas plants must reach a certain size, before the investment into the new technology is economically viable.

Therefore, although the project grants subsidies for power generation, the economic viability of the project is not secured, and the continuation of the project activity is clearly endangered. Please note that already 2 of the 5 registered VCS biogas projects (ID 334 and ID 338) had to cease operations in 2020 due to the above-mentioned situation. In this context, the project activity is deemed additional.

VVB Response:
In the opinion of PP, the demonstration above and as explained in the VCS PD is appropriate and thus the project is deemed additional.

Verra Response:
The VVB stated above "In the opinion of PP, the demonstration above and as explained in the VCS PD is appropriate and thus the project is deemed additional.".

It is unclear if this is a typo. The VVB is requested to clarify if it is the opinion of the VVB or PP that the "demonstration above and as explained in the VCS PD is appropriate and thus the project is deemed additional".

VVB Response:
Yes, indeed its an opinion of the VVB. We sincerely apologies for the inadvertent mistake. Please find below the correct assessment.

In the opinion of VVB, the demonstration above and as explained in the VCS PD is appropriate and thus the project is deemed additional.

Verra Response:
This finding is now closed, and no further action is required.

Finding 6

- Section 3.16.1 in the VCS Standard v4.1 states, "The project proponent shall demonstrate how the project activities, or additional activities implemented by the project proponent, contribute to sustainable development, as defined by and tracked against the United Nations Sustainable Development Goals (SDGs). The project proponent must demonstrate that a

22 Expert Views on the Future Development of Biogas Business Branch in Germany, The Netherlands, and Finland until 2030, 2021, https://www.mdpi.com/2071-1050/13/3/1148/htm , p. 6.
23 BiogasAction – The Netherlands intervention report, Nov. 2019, FEDARENE, https://www.construction21.org/articles/h/biogasaction-the-netherlands-intervention-report.html

project contributes to at least three SDGs by the end of the first monitoring period, and in each subsequent monitoring period."

- Section 1.17 of the project description template states "Sustainable Development: Describe how the project contributes to achieving any nationally stated sustainable development priorities, including any provisions for monitoring and reporting same."

The project proponent is requested to update Section 1.17 to include information on how they will monitor and report on sustainable development contributions.

The VVB is requested to assess the updates and to update the validation report, as needed.

Project Proponent Response:

The PP has submitted the project description of Project Houbensteyn ID 336 to Verra in December 2021. The version of the VCS Standard that was valid at the time was VCS Standard version 4.1, which does not require information regarding the United Nations Sustainable Development Goals (SDGs). Only VCS Standard Version 2.0 from 20 January 2022 requires the above-mentioned information concerning the SDGs.

VVB Response:
The above justification by the project proponent is deemed to be appropriate as per VCS Standard version 4.1 (applicable to the project) and thus acceptable to the VVB.

Verra Response:
This finding is now closed, and no further action is required.

Finding 7

Section 3.1 of the validation report template requires the VVB to:

- "Identify, discuss and justify conclusions regarding the following: … other entities involved in the project… Sustainable development contributions "
- "Provide an overall conclusion regarding whether the description in the project description is accurate, complete, and provides an understanding of the nature of the project. "

The VVB is requested to clearly identify the other entities involved in the project, and identify, discuss and justify the project's sustainable development contributions. The VVB is also requested to provide an overall conclusion per the above requirements.

VVB Response:

1. As per the paragraph 3.16.1 of the VCS standard version 4.1 states about "No Net Harm", PP has submitted the project description for the Project "Houbensteyn" VCS ID 336 to Verra in December 2021 where VCS standard Version 4.1 was applicable. Furthermore, VCS Standard version 4.1, does not state about the United Nations Sustainable Development Goals (SDGs), justification provided by PP is deemed acceptable.

2. The section 3.1 of the FVR has been revised in FVR.

Verra Response:
Section 3.1 of the validation report has updated. This finding is now closed and no further action is required.

Finding 8

Section 3.3.8 of the validation report template requires the VVB to "Identify the parameters to be monitored and describe the steps taken to validate the suitability and eligibility of monitoring equipment and procedures."

In section 3.3.8 of the validation report, the VVB is requested to list the parameters to be monitored and describe the steps taken to validate the suitability and eligibility of monitoring equipment and procedures.

VVB Response:
As per the above comment the section 3.3.8 of the validation report has revised.

Verra Response:
This finding is now closed, and no further action is required.

Finding 9

The project proponent provided an estimate of net GHG ERRs in a table in Sections 1.10 and 4.4 of the project description. However, the project proponent is requested to provide specific start and end dates for the year vintages. Vintages should include the date, month, and year for each row in the table.

Project Proponent Response:
The specific start and end dates for the year vintages with date, month, and year have been added in Sections 1.10 and 4.4 of the project description.

VVB Response:
Based on the justification above and review of section 1.10 and 4.4 of the VCS PD, VVB confirms that the section has been revised and deemed to be acceptable.

Verra Response:
Section 1.10 and 4.4 of the project description have been updated. This finding is closed and no further action is required.

Finding 10

Section 2.5.1 in the validation report template states "Provide details of any forward action requests raised during the validation, for the benefit of subsequent project audits."

The VVB is requested to state that no FARs were raised during the validation.

Project Proponent Response:

VVB Response:

The section 2.5.1 of the validation report has revised.

Verra Response:
Section 2.5.1 of the validation report has been updated. This finding is closed and no further action is required.

2. MINOR FINDINGS

Finding 1
The VVB refers to “VERs” under several sections of the validation report and therefore requested to update these with VCUs the correct units of tonnes of CO2 used under the VCS program.

3. ASSESSMENT CONCLUSION

On March 17, 2022, Verra sent Carbon Check (India) Private Ltd. and Houbensteyn Milieu BV the project review report with ten assessment findings and one minor finding.

On 13 May 2022, Verra closed assessment finding 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10. However, further action is required for any findings not closed (3 and 5).

On 17 May 2022, Verra closed all assessment findings. No further action is required.