

PROJECT REVIEW REPORT

This project review report includes findings raised during Verra’s review of the Project specified below. The V.V.B. must address the findings before the project request can be considered for approval by Verra. The project review report will be made publicly available on the Verra Registry. Confidential information may be provided in separate attachments.

Project ID	2649
Project Name	Housing Decarbonisation in the United Kingdom
Review Type	Verification Approval
Program(s)	V.C.S. Program
Verification Period	01-07-2022 to 31-12-2022
Project Proponent	Arctica Partners (PNZ Carbon)
Methodology	VM0008 Methodology for Decarbonisation of Single and Multi-Family Buildings, Version 1.1
WB	Earthood Services Private Limited
Assessment Criteria	V.C.S. standard Version 4.4
Date of First Issue	11-09-2023
Review Conclusion	Closed
Date of Final Issue	15-11-2023

FINDINGS

#	Finding Description	V.V.B. Response	Status
1	<p>Missing information in section 1.1</p> <p><u>Issue</u> Under section 1.1 of the Monitoring Report, the following information is missing.</p> <ol style="list-style-type: none"> 1. A summary description of the implementation status of the Project 2. Implementation dates 3. Total GHG ERR achieved during the monitoring period? <p><u>Action Required</u></p> <ol style="list-style-type: none"> 1. P.P. must add the required information and submit the revised documents. <p><u>Program Rule(s)</u> V.C.S. Monitoring Report Template, Sections 1.1</p>	<p>Round 1</p> <p><u>V.V.B. Response</u></p> <p>Section 1.1 of M.R. has been updated. VVB has reviewed the updates in section 1.1 and notes that:</p> <ol style="list-style-type: none"> 1. Detailed summary of the project now includes description of the implementation status of the project at end of the monitoring period- including the measures installed and future installation plans. 2. The duration in which the measures were implemented is reflected in section 1.1 now. The measures have been implemented between July 1 2022 and December 31 2022. The exact dates of implementation are available in the ER sheet as 'completion date' of each measure. 3. Total GHG ERR are now mentioned in section 1.1 accurately as 1,481 tCO2e. <p><u>Verra Response</u> <u>Details are added in the Monitoring report. The issue is closed now.</u></p> <p>Round 2</p> <p><u>V.V.B. Response</u></p> <p><u>Verra Response</u></p>	Close

2 Inconsistent Information in Validation Paramèter		
<p><u>Issue</u> In Section 4.1 of M.R., community value 0.000311 tCO₂e / kWh is applied for parameter El_{ecCO₂}, which is not mentioned in the registered P.D.</p> <p><u>Action Required</u></p> <ol style="list-style-type: none"> 1. P.P. must follow the monitoring plan and parameters of the registered P.D. V.V.B. must justify the above values and make necessary corrections in documents. <p><u>Program Rule(s)</u> V.C.S. Monitoring Report Template, Sections 4.1</p>	Round 1	Close
	V.V.B. Response	
	<p>Section 4.1 of M.R. has been updated to remove this reference. The reference is also removed from the verification report. It is to be noted that the value was not applied in the calculations of the emission reductions.</p>	
	Verra Response	
	Value is not applied in the calculation, and the revised MR is updated.	

3 Unclear information in Monitored Parameters, ERR and F.V.R		
<p><u>Issue</u> In Sections 4.2 and 5.2 of M.R., clarity is required for the following parameters /values.</p> <ol style="list-style-type: none"> 1. EL_{pre,i} and EL_{post,i} values are not reported in the M.R and ERR sheet. F.V.R. states that the value is determined individually for each dwelling and reported in the emission reduction calculation sheet. 2. On Page 98 of the M.R., the value of El_{ecb,i,j} is mentioned as 1,261,253 kWh. However, the ERR sheet does not reflect this value and relevant calculation. 3. On page 98 of the M.R. value of F_{b,i,j} is mentioned as 2,508,421 m³. However, the ERR sheet does not reflect this value and relevant calculation. 4. Page 95 of M.R. states E.D.F. is the calculated value. However, it is not calculated in ERR, and the formula is not reflected. 	Round 1	Close
	V.V.B. Response	
	<ol style="list-style-type: none"> 1. EL_{pre,i} and EL_{post,i} values are already reported in the MR under section 4.2 as the first 2 parameters, now reported in the ERR (Confidential) sheet (columns AG and AH). The value is determined and reported individually for each dwelling. 2. Elec_{b,i,j} value is now calculated in the ERR (Confidential) sheet (cell F6720). The correct value is now reflected on Page 98 of the M.R. 3. F_{b,i,j} value is now calculated in the ERR (Confidential) sheet (cell O6720). The correct value is now reflected on Page 98 of the M.R. 4. EDF value is calculated in the ERR (Confidential) sheet 	

<p>5. T-test: The ERR sheet only states the results of the T test. F.V.R. states that ‘a t-test was conducted using an online tool, “GraphPad,” and the t-test function in Microsoft Excel. However, no information is reflected in the web link of the GraphPad in Appendix 1. V.V.B. needs to provide a screenshot of the real calculation of the T_Taste through “ Graphpad,” and an Excel formula is required to include in the ERR calculation.</p> <p>6. Cooling Parameters CDD_y, CDD_b, as mentioned in Table 10 of the methodology, are not included in the M.R. and F.V.R.</p> <p><u>Action Required</u></p> <ol style="list-style-type: none"> 1. P.P. must clarify the above parameters/values/information and submit the revised documents along with the ERR calculation. 2. V.V.B. must make an assessment and give an opinion on all monitored parameters, ERR and evidence checked, included in Appendix I. <p><u>Program Rule(s)</u></p> <p>V.C.S. Monitoring Report Template, Sections 4.2, Section 5 V.C.S Final Verification Report, Section 4.4 and other relevant sections ERR Calculation sheet with all formulas</p>	<p>(column K).</p> <ol style="list-style-type: none"> 5. The ERR sheet includes the dataset for the T-test on tab ‘QA Group’. The T-test was conducted using the t-test function in Microsoft Excel. The Excel formula is included on tab ‘QA Working’ allowing replication by the user. The step by step instruction in the QA working tab can be followed to replicate the calculations and was found resulting in the values reported by PP. Reference to graphpad has now been removed from FVR since it was just an informal additional check. 6. The parameters CDD_b, CDD_y are not part of the Project design and according to methodology page 24 point 2.1, "Emission reductions shall be adjusted for changes in electricity demand over time and adjusted for heating/cooling degree days during the project crediting period", thus indicating that either HDD or CDD can be used, not both. Also, footnote 112 of the PDD clarifies, "In accordance with the VM0008 Methodology, HDDCF replaces CDDCF in the equation because electricity is typically the central heating source post-retrofit". Therefore, the mentioned parameters are intentionally not included in MR and FVR <p><u>Verra Response</u></p> <p>Required Parameters are addressed in MR and ERR. Issue is closed now.</p>	
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