Puro Standard

PRODUCTION FACILITY AUDIT AND OUTPUT AUDIT STATEMENT

Statement No:	Issuance date:	Production Facility Audit Statement validity: 5 years
00004-2024	12.4.2024	1.12.2023 – 30.11.2028

DNV Business Assurance Finland Oy Ab has verified, in accordance with Puro Standard General Rules (Version 3.1 published 1.6.2023), the CO_2 removal achieved by the organization:

Climeworks AG

The result of the facility and output audit is reported in the document entitled "PURO FACILITY & OUTPUT AUDIT REPORT" dated 12.4.2024 detailing the activities carried out at the following sites:

Orca (Nordurvellir 4, 816 Ölfus), operated by Climeworks (project applicant), inclusive of the transport and storage infrastructure operation subcontracted from Carbfix hf.

Facility ID: 643002406801001425

VERIFICATION OPINION

Based on the verification process, DNV states that the organization was found to have defined and maintained procedures relevant for production of CO_2 removal method: Geologically Stored Carbon (with Direct Air Capture). Based on this statement the Organization is found compliant with Puro standard requirements.

Verification opinion: POSITIVE

OUTPUT AUDIT

Audited Output production period: 1.12.2023 – 29.2.2024

Reports and data files for the quantification of CO_2 Removal have been produced and updated in a reliable way to assess the CO_2 removal achieved by Geologically Stored Carbon with Direct Air capture.

Detailed removals

CO_2 captured (C captured): 241.64 tn CO_2eq.

CO_2 losses (C loss[1]): 0.17 tn CO_2eq.

[1] See Output report for further explanation.

CO_2 stored (C stored): 241.47 tn CO_2eq.

Project Emissions (E project): 82.90 tn CO2eq.

CO_2 removal eligible for CORCs: 158.55 tn CO_2eq.

Verification Objective

The objective of this verification is to assess compliance to the below reported verification criteria. The verification results are reported in the document entitled "PURO FACILITY & OUTPUT AUDIT REPORT" dated 12.4.2024 relative to Climeworks AG. .

Verification Scope

Scope of verification

- Facility for CO_2 Removal method: Orca
- Output for the period of 1.12.2023 – 29.2.2024 for CO_2 removal method: Geologically stored Carbon with Direct Air Capture

Verified areas

- Production facility audit
- Production output of Geologically Stored Carbon for the period of 1.12.2023 – 29.2.2024

Level of Assurance

The verification was conducted by DNV with a reasonable level of assurance. An audit is based on verification of a sample of available information. Consequently, there is an element of uncertainty reflected in the audit findings. An absence of nonconformities does not mean that they do not exist in audited and/or other areas. Prior to awarding or renewing certification this report was also subject to an independent DNV internal review which may have affected the report content and conclusions.

Verification Criteria

Puro Standard General Rules (Version 3.1 published 1.6.2023)

Geologically Stored Carbon Methodology Edition 2021, V1.1

DNV Business Assurance Finland Oy Ab

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Auditor
Ali Daoud

X

Digitally signed by Aalders, Edwin
Date: 2024.05.22 10:18:29 +02'00'

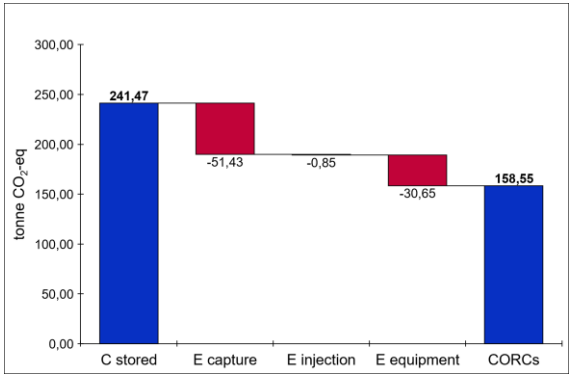
Reviewer

The contents of this sheet are meant to be public available in the Puro registry. The information provided here must reflect the audited reporting period and result in the same final numbers as audited. Certain confidential information can be either aggregated or hidden, in which case an explanation must be provided.

Reporting period & Facility	
Reporting period start	Dec 1, 2023
Reporting period end	Feb 29, 2024
Facility name	Orca, Hellisheidi

Contributions		**Total over period, tonne CO2-eq**	**Source / Clarification / Footnote**
Level 1	**Level 2**		
C stored	C captured	-241,64	A
C stored	C loss	0,17	A
E capture	Energy capture	35,505	B
E capture	Sorbent	11,647	C
E capture	Water	4,28	D
E injection	Energy storage	0,85	E
E equipment	Injection + transport e	4,36	F
E equipment	DAC project equipmer	26,28	G
	CORCs	158,55	
	CORC factor (net removed / gross stored)	0,66	
	Carbon stored (deducting losses)	-241,47	
	Grey emissions / loss to LCA	82,9	

Contributions	**Total over period, tonne**
Level 1	
C stored	241,47
E capture	-51,43
E injection	-0,85
E equipment	-30,65
CORCs	158,55



Space below can be used to provide further contextual information and data sources, as relevant via the Footnote table
Instructions: in any of the tables above, in the column "Source / Clarification / Footnote" insert one or several footnotes ID (e.g. A, B, C, D ...). In the table below, provide the footnote ID and text explanation as needed
This information will be added to the public disclosure, where relevant e.g. near the CORC figure or table, possibly as bullet points. Only formatting change may be performed by Puro.

Footnote ID	**Topic**	**Public clarification**
A	CO2 Captured	The figures reporting the capture, release and storage of CO2 are provided monthly by Climeworks' partner, Carbfix. Climeworks and Carbfix co-developed the world's first full-chain verification methodology dedicated to carbon dioxide removal via DAC and underground mineralization storage. Following ISO 14064-2, this methodology has been validated by DNV, an independent quality and assurance leader. In conducting one of their onsite audits, DNV concluded that Climeworks and Carbfix measured net capture accurately, avoided any chance of double counting and were transparent and accountable to the verification process.
A	CO2 Released	
B	Energy capture	Thermal and electrical energy use in MWh is based on monthly invoices from the energy provider, ON. The energy source is Hellisheidi geothermal plant with an emission factor based on a 2019 LCA specific to that plant and their double flash geothermal technology. Emission factors for thermal and electrical energy for Orca are calculated on an exergy-based allocation. This allocation system is compliant with the World Resource Institute and GHG Protocol on Combined Heat and Power and it is highly recommended and widely used in LCA studies of the geothermal sector.
C	Sorbent	Climeworks uses a portfolio of sorbents at its plant at Orca. For each sorbent, Climeworks has commissioned ISO 14040 cradle-to-gate and gate-to-grave LCAs and the weighted average the sorbents' emission factors is used in the verification process.
D	Freshwater pumping	This figure represents the electrical energy associated with pumping freshwater and is based on monthly invoices from the energy provider, ON.
E	Energy injection	This figure represents the electrical energy associated with injecting CO2 and is based on monthly invoices from the energy provider, ON. This figure includes energy use while injection system is on standby (not receiving CO2).
F	Equipment injection	Climeworks and its partner, Carbfix, commissioned an external cradle-to-gate and gate-to-grave LCA for the Injection and Transport System of captured CO2. This LCA includes raw materials acquisition, pre-processing, construction, transport, and end-of-life of all materials. Excluding ramp-up and phase-down periods, these emissions are amortized monthly over the course of 10 years.
G	Equipment DAC project	Weighted average of steel, concrete and other ancillary materials used in plant construction. As Orca is a first of a kind plant, a generous contingency for repairs and maintenance has been included. Excluding ramp-up and phase-down periods, these emissions are amortized monthly over the course of 10 years.