

# Baseline and Additionality Assessment

The baseline and additionality assessment is a requirement for eligibility under the Puro Standard. The assessment is made by the CO<sub>2</sub> Removal Supplier and verified by the independent 3<sup>rd</sup> party auditor. **The assessment made in this document will be publicly available in the Puro Registry.**

The Puro Standard only certifies durable carbon removals from the atmosphere that are net-negative and does not certify emissions reductions or avoidance. The CORCs (Carbon dioxide removal certificates), issued therefore represent a net carbon removal (1 tCO<sub>2</sub>eq. net) from the atmosphere to a durable storage of minimum 100 years, and for mineralization and geological storage minimum 1000 years. Net carbon removal is determined from stored gross CO<sub>2</sub> volume by subtracting supply-chain emissions from the project, any re-emissions over the guaranteed storage time, any baseline removals taking place in a baseline scenario, and any negative indirect leakage effects relative to the baseline scenario.

The CO<sub>2</sub> Removal Supplier must in this assessment:

- **Define** and quantify all reasonable **baseline alternatives** to the proposed project activity to remove carbon with carbon financing. A baseline is a scenario that reasonably represents the natural and anthropogenic carbon removals to a permanent storage (storage durability over 100 or 1000 years) in the absence of the carbon removal activity proposed by the CO<sub>2</sub> Removal Supplier. Although anthropogenic emissions may take place in the baseline scenarios, these emissions do not constitute a reference point for the quantification of CORCs (only the baseline removals do).
- Demonstrate **carbon additionality to the baseline**, meaning that the project must convincingly demonstrate that it is resulting to higher volumes of carbon removals than the likely baseline alternatives (question A1 and A2.).
- Demonstrate **regulatory additionality**, meaning that the project is not required by existing laws, regulations, or other binding obligations (question A4.).
- Demonstrate **prior consideration of carbon credits** through documentation demonstrating that the time period between the commitment date and production facility audit is max. 3 years. (question A5)
- Demonstrate **financial additionality**, meaning that the CO<sub>2</sub> removals achieved are a result of carbon finance. This means that the CO<sub>2</sub> Removal Supplier must show that the carbon credits were needed to secure the investment or to overcome specific barriers to the investment.
- To support the claim of financial additionality, the project activity cannot already be *common practice* without carbon finance (question A6).

Reference documents: [Puro Standard general Rules v4.0](#), section 6.5 and [Additionality Assessment requirements v2.0](#).

## 1. General questions to all CO<sub>2</sub> Removal Suppliers

A1. Baseline Determination			
Activity name	Activity description	Removals to storage (100+ yr) due to project activity (human activity)	Natural removals to storage (100+ yr), not man-made
Current Demonstration Dry Stack Baseline	<p>InterEarth is utilised mixed Eucalyptus regrowth forest that has been cleared for fire breaks and requisite land management purposes.</p> <p>The cleared woody biomass is collected from the firebreak into windrows, and allowed to dry. The dried cleared woody biomass is then burnt, returning the great majority of photosynthetically captured CO<sub>2</sub> to the atmosphere. Average yields of tree waste (5% moisture, 46% TOC) are around 30t ha equating to around 47t CO<sub>2</sub>e / ha.</p>	<p>None.</p> <p>Current cleared woody biomass incineration practices are net CO<sub>2</sub> emitting and are replaced with long-term, net carbon sequestration under our business plan.</p>	<p>None.</p> <p>Soil carbon stores will not be impacted. Burnt Eucalyptus tree waste ash (up to 4.5% of biomass) can contain up to 24.7% TOC, however the C content of the post-Eucalyptus fire soil is commonly lower than pre-fire, due largely to the fine particle size and high solubility of ash C, allowing for air-and water-borne re-distribution in the exposed, post-fire landscape (Santin, et al 2015).</p> <p><small>C. Santin, S.H. Doerr, X.L. Otero, C.J. Chafer Quantity, composition and water contamination potential of ash produced under different wildfire severities Environ. Res., 142 (2015), pp. 297-308</small></p>
Next Commercial 3PB Dry Stack Baseline: <i>Logging of plantation Blue Gums</i>	<p>InterEarth is targeting Blue Gum plantations that have already been logged. The tree trunks have previously been removed for wood chipping by another entity. The tree waste, branches, tree tops and leaves are left on the plantation floor by the loggers. The plantation landowner currently collects the tree waste into windrows, and allows it to dry. The dried tree waste is then burnt, returning the great majority of photosynthetically captured CO<sub>2</sub> to the atmosphere. Average yields of tree waste (15% moisture, 46% TOC) are around 35t ha equating to around 50t CO<sub>2</sub>e / ha.</p>	<p>None.</p> <p>Current tree waste incineration practices are net CO<sub>2</sub> emitting and are replaced with long-term, net carbon sequestration under our business plan.</p>	<p>None.</p> <p>Soil carbon stores will not be impacted. Burnt Eucalyptus tree waste ash (up to 4.5% of biomass) can contain up to 24.7% TOC, however the C content of the post-Eucalyptus fire soil is commonly lower than pre-fire, due largely to the fine particle size and high solubility of ash C, allowing for air-and water-borne re-distribution in the exposed, post-fire landscape (Santin, et al 2015).</p> <p><small>C. Santin, S.H. Doerr, X.L. Otero, C.J. Chafer Quantity, composition and water contamination potential of ash produced under different wildfire severities Environ. Res., 142 (2015), pp. 297-308</small></p>
Future Grow-your-own Biomass Dry	InterEarth is targeting marginal farmland for woody Biomass	None.	None.

<p>Stack Baseline: <i>Cereal crop production</i></p>	<p>production. In Australia this land is currently used cereal crop production that is characterised by low, and highly variable yields, relatively high production costs, little-to-no government subsidies and declining terms of trade, relative to other cropland elsewhere in the world. The targeted land is becoming less sustainable, environmentally and economically, under the dual pressures of climate change and competition from agro-economically superior production areas elsewhere in Australia and the world. In the medium term the targeted land is at risk of loss to secondary salination and/or desertification if the current land use is continued. In terms of carbon balance, conventional dryland cropping results in estimated emissions of 0.49 t CO<sub>2</sub>e ha<sup>-1</sup> yr<sup>-1</sup> (Western Australia Department of Agriculture Eastern Wheatbelt Carbon Calculator <a href="#">Carbon Calculators - Western Australian example farms   Agriculture and Food</a>; this closely corresponds to the 0.5 t CO<sub>2</sub>e ha<sup>-1</sup> yr<sup>-1</sup> reported by Flugge and Abadi (2006)).</p>	<p>Current farming practices are net CO<sub>2</sub> emitting and are replaced with a net carbon sequestering and land use, under our business plan. This is an additional benefit of our business plan.</p>	<p>Soil carbon is inherently low and has been degraded over time (&lt;1% C). Soil C is extremely difficult to increase due to low soil moisture, high temperatures, and low soil biota levels.</p>
<p>Current Project activity: <i>Demonstration Dry Stack solution</i></p>	<p>We collect dried, mixed Eucalyptus woody biomass cleared for the construction of firebreaks and required fenceline reconstruction at the centre of the firebreak zone. We sequester this collected biomass and its contained carbon in safe long-term storage, by encapsulating it in a chamber, engineered to close all pathways for biomass decomposition.</p>	<p>Some CO<sub>2</sub> emissions during biomass collection and Dry Stack construction which are accounted for in LCA.</p> <p>Projected net CDR in the range of 47 CORCs ha<sup>-1</sup></p>	<p>Minor CO<sub>2</sub> emissions due to soil disturbance during construction of the Dry Stack, which are accounted for in LCA.</p> <p>Soil is undisturbed within the firebreak zone and soil C values are unchanged (see above).</p>
<p>Next Project activity: <i>Commercial 3PB Dry Stack solution</i></p>	<p>We will collect dried, plantation Blue Gum tree waste, left on the ground after the plantation has been logged and tree trunks removed.</p>	<p>Some CO<sub>2</sub> emissions during biomass collection and</p>	<p>Minor CO<sub>2</sub> emissions due to soil disturbance during construction of the Dry Stack, which are accounted for in LCA.</p>

	We sequester this collected waste biomass and its contained carbon in safe long-term storage, by encapsulating it in a chamber, engineered to close all pathways for biomass decomposition.	Dry Stack construction which are accounted for in LCA. Projected net CDR in the range of 50 CORCs ha <sup>-1</sup>	Soil is undisturbed within the previously logged plantation zone and soil C values are unchanged (see above).
Future Project activity: <i>Grow-your-own Biomass Dry Stack solution</i>	In principle our grow-your-own biomass Dry Stack solution is simple: (1) Grow a multi-species selection of highly adapted, high biomass production Australian dryland, coppicing, woody plants on degraded, low rainfall, failing and previously cleared farmland. (2) Periodically harvest these plants of their above ground biomass (which will regrow rapidly given their coppicing characteristic). And (3) sequester this harvested biomass and its contained carbon in safe long-term storage, by first drying it and then encapsulating it in a chamber, engineered to close all pathways for biomass decomposition.	Some CO <sub>2</sub> emissions during biomass growing, harvesting, and Dry Stack construction which are accounted for in LCA.  Projected net CDR in the range of 13 CORCs ha <sup>-1</sup> y <sup>-1</sup> on an ongoing basis	Some  Soil C may improve within the coppicing plantation over time but no projections of extra CO <sub>2</sub> removal have been included in our LCA. This is a matter for site-by-site measurement and potential inclusion, over time.
Alternative scenarios: <i>Demonstration Dry Stack solution</i>	The cleared biomass has no other commercial or practical use. It is unsuitable for lumber or woodchipping. Its value as commercial firewood is less than the collection, processing and transport and sale cost. In paddock incineration is the cheapest method of disposal.	Some.  The Demonstration 3PB Dry Stack solution intercepts CO <sub>2</sub> that could be returned to the atmosphere due to incineration as commercial firewood.	None  Soil is undisturbed within the firebreak zone and soil C values are unchanged.  C in commercial firewood ash does not return to the soil.
Alternative scenarios: <i>Commercial 3PB Dry Stack solution</i>	The biomass waste has no other commercial or practical use. It is unsuitable for lumber or woodchipping. Its value as commercial firewood is less than the collection, processing and transport and sale cost. In paddock incineration is the cheapest method of disposal.	Some.  The Commercial 3PB Dry Stack solution intercepts CO <sub>2</sub> that could be returned to the atmosphere due to incineration as commercial firewood.	None  Soil is undisturbed within the previously logged plantation zone and soil C values are unchanged.  C in commercial firewood ash does not return to the soil

<p>Alternative scenarios: <i>Grow-your-own Biomass Dry Stack solution</i></p>	<p>Standard monoculture tree farming for carbon certificates is a potential alternative land use. Indeed, tree planting in the Australian wheatbelt is recognized as a potential mitigation to dryland salinisation and has been strongly promoted across the wheatbelt for that purpose, and more recently for carbon sequestration and offsets. Kingwell (2021) estimated that across a 100-year commitment, the annualized carbon storage of tree plantations was in the range of 1.8 – 2.6 t CO<sub>2e</sub> ha<sup>-1</sup> yr<sup>-1</sup> in this part of the Wheatbelt. This estimate assumes that the tree plantations maximize their carbon sequestration at maturity of up to age 40 (Yin et al. 2003) and remain undisturbed and unburnt.</p>	<p>Some</p> <p>The Grow-your-own Biomass Dry Stack solution is superior in removing and storing up to 6 times more carbon in 100 years plus the fire risk and CO<sub>2</sub> return to the atmosphere, associated with standard tree farming.</p>	<p>Some</p> <p>Soil C may improve within the perpetual plantation over time, and is likely to be the same as for the coppicing plantation.</p>
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A2. Does the project lead to higher volumes of durable carbon removal than the baseline?	Yes / No
<p>Demonstration Dry Stack: a net negative emission activity of around 47 CORC / ha, replaces a net zero activity.</p> <p>Commercial 3PB Dry Stack: a net negative emission activity of around 50 CORC / ha, replaces a net zero activity.</p> <p>Grow-your-own Biomass Dry Stack: a net negative emissions activity of up to 13 CORCs ha<sup>-1</sup> yr<sup>-1</sup> replaces a net positive emissions activity (of about 0.5 t CO<sub>2e</sub> ha<sup>-1</sup> y<sup>-1</sup>).</p>	<p>YES</p>

A3. Is the project scenario aligned with net-zero transition? The following activities are considered not to be aligned with net-zero transition: a) directly leading to an increase in the extraction of fossil fuels, b) relating to coal-fired electricity generation, or c) involving other unabated fossil fuel-powered electricity generation, other than new gas-fired generation that is part of increased zero-emissions generation capacity in support of national low carbon energy transitions	Yes / No
<p>Terrestrial storage of biomass aligns with the net-zero transition by sequestering carbon dioxide from the atmosphere through natural processes without relying on fossil fuel extraction or generation. It contributes to negative emissions and avoids activities like coal-fired power or unabated fossil fuel use, directly supporting sustainable climate goals.</p>	<p>YES</p>

A4. Is the project required by existing laws, regulations, or other binding obligations?	Yes / No
<p>The InterEarth initiative is envisaged and designed as a commercial response to the emerging requirement and market for high quality, long duration carbon dioxide removal and is in no sense a legal requirement or other obligation of InterEarth Pty Ltd.</p>	<p>NO</p>

A5. What was the Commitment Date of this facility? Commitment Date is defined as "The calendar date on which the CO <sub>2</sub> Removal Supplier committed to implementing the CO <sub>2</sub> Removal activity (e.g., the date when contracts for the purchase or installation of equipment required for the mitigation activity were signed). In the case where a	Date

mitigation activity does not involve capital expenditure, it refers to the date when the first physical actions were taken to implement the mitigation activity.” If an exception listed in clause 2.1.3 of the Additionality Assessment Requirement applies, describe the situation here.	
This is the date the contract was signed with the Demonstration Dry Stack biomass supplier	29/APR/2024

<b>A6. Is the Technological Readiness Level of the Methodology 8 or 9?</b>	<b>Yes/No</b>
We have been identified by an independent industry advisor as part of the Australian Industry Growth Advisory Program as TRL 7.	NO

If the answer to question A6 is Yes, please answer question A6.1 to A6.3. Questions A6.2 and A6.3 are different based on whether you are applying a distributed technology (such as enhanced rock weathering) or more centralized technology based on plants/factories producing something. See clauses 3.2.5 and 3.2.6 in the Puro Additionality Assessment Requirements with references for more information.

<b>A6.1. Please define the region being considered and explain why it is relevant level of aggregation for the assessment if different from the host country.</b>
[Information]

<p><b>A6.2. Market size or current installations</b></p> <p><b>Distributed technology:</b> What is your estimate for a realistic target market size and what constraints to the market size growth have you identified?</p> <p><b>Centralized technology (plants):</b> What projects have you identified that fulfil the criteria in Additionality Assessment Requirements clause 3.2.6?</p> <p>a) output range of +/- 50% of the project,  b) located in the same region,  c) applying the same measure,  d) produce comparable goods or services in terms of quality, properties, and applications,  e) started commercial operation before the proposed start date of the project, and  f) are not registered in a carbon crediting program.</p> <p>How many of them apply a different technology?  <b>Please mention or link to any sources you have.</b></p>
[Information]

<p><b>A6.3. Market penetration rate</b></p> <p><b>Distributed technology:</b> What is your estimate of the market penetration rate of the activity? How common or widespread is the project activity or similar activities in the relevant sector and region, and what is the trend of adoption over time?</p> <p><b>Centralized technology (plants):</b> Provide your calculation of market penetration rate based on the formula in clause 3.2.6 in Additionality Assessment Requirements.</p>
[Information]

<b>A7. Does the carbon removal project have other income sources besides carbon finance? Include also information about any subsidies you receive or expect to receive. Please describe your business model here, in a short answer (max. 100 words).</b>	<b>Yes / No</b>
InterEarth is a CDR business that relies on sales of CORCs. As a start-up we have received some funding through capital raises and have applied for, although have yet received, federal and state grants.	NO

**Please note:** Questions under headings '2. Simple cost analysis', '3. Investment analysis', and '4. Barrier Analysis' are mutually exclusive options.

## 2. Simple cost analysis or investment analysis

Some projects may demonstrate additionality through simple cost analysis: this is applicable for projects that have no other source of income besides carbon finance or where ex-ante investment analysis is not applicable, because capital expenditure (capex) is modest compared to operating expenditure (opex). This can include e.g. enhanced rock weathering projects.

B1. Describe how the criteria above applies to your project
Not applicable.

B Simple cost analysis	Project response
<b>B2. Please describe your cost structure here and include evidence in attachment.</b>	
<b>B3. Please summarize the simple cost analysis here. Please include any public subsidies received or expected. Compare with alternative scenarios, if relevant.</b>	
<b>B4. Please provide additional calculation spreadsheet in attachment. All formulas used in the spreadsheet shall be readable to the verifier and all relevant cells shall be viewable and unprotected. Mark confidential when needed.</b>	
<b>B5. Are you willing to provide full calculation spreadsheet to be visible in Puro Registry? If yes, please specify the name of the file that has been provided. If not, please ensure that there is sufficient information provided in your answers in this document.</b>	
<b>B6. Is the information shared here consistent with information presented to the company's decision-making management, investors or lenders?</b>	
<b>B7. Is the information shared here consistent with the information in the audit documentation presented to Puro and its verifiers (e.g. LCA model)? If not, please explain why there are differences.</b>	

### 3. Investment Analysis

CO<sub>2</sub> Removal Suppliers can be guided by the CDM Methodological Tool 27 of the UNFCCC Clean Development Mechanism "[Investment Analysis](#)" to demonstrate financial additionality with Investment Analysis.

C. Financial Additionality – Investment analysis	Project response
<p><b>C1. Describe the relevant alternative scenarios in terms of investments analysis.</b>                      If the only alternative scenario is to carry out the project without CORCs, please answer the following questions:                      Please show your calculations to determine the benchmark rate for either equity IRR or WACC, whichever you are using. Please include documentation of how the rate is suitable for the technology and region. Please specify the currency and whether the rate is nominal or real.</p>	<p>As InterEarth is a company established solely to conduct carbon dioxide removal, financial additionality is clear. However, in the interest of transparency please find attached our financial modelling (see assumptions tab for WACC etc).</p>
<p><b>C2. Please state how CORC revenues change the expected IRR or NPV of the project.</b></p>	<p>InterEarth is a CDR business, without CORC revenues there is no business. CORC revenues are the only revenues.</p>
<p><b>C3. Please conduct a sensitivity analysis in relation to the investment analysis and summarize the results here.</b></p>	<p>Please see the "sensitivity analysis" section in the attached financial modelling document.</p>
<p><b>C4. Is the information shared here consistent with information presented to the company's decision-making management, investors, or lenders?</b></p>	<p>Yes</p>
<p><b>C5. Is the information shared here consistent with the information in the audit documentation presented to Puro and its verifiers (e.g. LCA model)? If not, please explain why there are differences.</b></p>	<p>Yes</p>
<p><b>C6. Are you willing to provide full calculation spreadsheet to be visible in Puro Registry? If yes, please specify the name of the file that has been provided.</b></p>	<p>Please find attached our financial modelling "F2.1_Interearth consolidated update nov 24b.xls".                      Note: this document is provided in confidence, and all financial and operational information are confidential and should be treated as such.</p>
<p><b>C7. If you are not willing to disclose the full spreadsheet, please provide here a summary of the confidential file that has been provided to the Auditor and Puro.earth. Please include:</b></p> <ul style="list-style-type: none"> <li>• Overall description of the spreadsheet, including type of terms (real/nominal), currency, forecasting periodicity</li> <li>• Capital structure, if the measure is based on equity return</li> <li>• Information sources on main revenues and costs</li> <li>• Expected breakdown of income from the different sources</li> <li>• Expected or already received public subsidies</li> <li>• Growth assumptions</li> </ul>	<p>The spreadsheet is an xls-based financial model being a multi-sheet-linked document, whereby values for assumptions, capital expenditure, operating costs, and other key business parameters are entered into relevant sheets and summary values calculated. Relevant summary values from each sheet are linked to, and further processed in, another sheet which projects annual costs and revenues out to 25 years. There is a cost and revenue inflation function which are deemed to be equal in value, thus values are real. Future NPAT values are time-discounted to calculate NPV and IRR. The model uses the simplest practical xls functions, to allow for review by the widest possible audience, without requiring high-level xls skills.</p> <p>Required fund raisings are based upon 50% equity raising, 50% debt raising. The NPV and IRR metrics</p>

<ul style="list-style-type: none"> <li>• <b>Model duration and a comparison with expected lifetime</b></li> </ul>	<p>are for the enterprise as a whole, and are not equity based.</p> <p>CORC revenue is assumed to be USD100/t for the entire project life.</p> <p>Operating and capital costs are based upon market and operator surveys, recent experience, and public domain documentation.</p> <p>The only income is CORC revenues; 100% CORC revenues.</p> <p>The model assumes the currently identified and likely accessible 3PB biomass resource of around 141 000t (of &lt;20% moisture biomass) will be exhausted by Dec 2026. (Currently we have around 35,000t under contract. A greater 3PB resource has been identified and is planned become accessible for Dry Stacking, beyond 2026). Planned annual production for CY2025 is 56000t and CY2026 is 85000t; an annualised growth rate of 52%.</p> <p>Dry Stacked biomass is assumed to have a duration of +100years. Financial model runs for 25 years.</p>
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### 4. Barrier Analysis

In Barrier Analysis only one barrier needs to be demonstrated but there needs to be clear, objective, and verifiable evidence to demonstrate its existence. If possible, please provide quantitative estimates for the barrier.

D. Barrier Analysis	No/yes	Project response
<b>D1. Are there financial barriers?</b> (e.g., financing is not accessible for the type of activity in the country due to the risks)	YES	Upfront Capital Investment: The cost of acquiring, building and modifying equipment, acquiring land, developing infrastructure, and research and development is significant. Some federal and state grants and funding is available although the funding schemes are competitive, not timely, and generally do not coincide with business operations. To date we have not received any government grants or funding.
<b>D2. Are there institutional barriers?</b> (e.g., the investor not being the beneficiary of cost savings associated with the investment)	NO	
<b>D3. Are there information barriers?</b> (e.g., lack of awareness of the financial benefits of by-products)	NO	
<b>D4. Please explain how CORC revenues are crucial element in overcoming identified barrier(s)</b>		CORC revenues will assist in providing further investment for new storage chambers, provide infrastructure for future activities and fund research and development activities to improve efficiency and efficacy of operations.
<b>D5. Are there subsidies for the carbon removal activity?</b> If yes, please explain how they are not sufficient to overcome the barrier.	NO	
<b>D6. Please attach verifiable evidence for the existence of the barrier and describe the evidence here. If the file can be included publicly in the Puro registry, please specify the name of the file here. If the evidence is not public, please ensure</b>		Examples of funding guidelines for two recent grant funding (one state and one federal) are attached.

<p>that you describe it in sufficient detail.</p>		
<p><b>D7. Please demonstrate that at least one other alternative in baseline determination (first question) does not face any significant barriers, including the barriers faced by your project.</b></p>		<p>The only viable alternative identified; perpetual tree farming does not face significant barriers from funding, institutional or information barriers. Tree farming in the Australian wheatbelt is recognized as a potential mitigation to dryland salinisation and has been strongly promoted across the wheatbelt for that purpose, and more recently for carbon sequestration and offsets.</p>

I hereby declare that all information provided is truthful and precise to the best of my knowledge.



Date, Place:

Representative name, title, organization

19<sup>th</sup> November 2024

147 Samson St White Gum Valley, WA, 6162 Australia

Dr Howard William Carr

CEO

InterEarth