

GHG & Co-Benefits in Watershed Carbon v1.0

Expert Peer - R2 Review Round

Reviewer #3

December 5, 2023

CONTENT referenced by reviewer's comment <i>e.g. Section number + paste exact text</i>	REVIEWER'S COMMENT <i>Please paste the comment from the reviewer</i>	AUTHOR'S RESPONSE <i>Please describe how the comment was addressed and include new content in quotations</i>	Reviewer's Conclusion [PASSED/ REJECTED WITH COMMENTS]
Section 2.2. Co-Benefits	Remove Sections 2.2.2-2.2.5: I support encouraging multiple co-benefits, but the authors have not provided enough information to demonstrate Ecosystem Health (2.2.2)- which is defined as water quality; Soil Health (2.2.3)- there are no methods I saw for this; Community Health (2.2.4)- this confounds biodiversity and human health, not all project activities would actually reduce toxic exposure or increase nature contract.	Agreed, we have left only water quality co benefits.	PASSED

<p>Section 3.0</p>	<p>Change to “projects implemented in US watershed”: I don’t think this protocol applies to watersheds outside the United States</p>	<p>Added many examples of watershed programs for water quality compliance from outside of USA. “Phosphorus - see example Lake Winnipeg trading system architecture, Manitoba Canada. Nitrogen - see proposed nitrogen trading application in Suffolk, England, the Taupo Nitrogen Market in New Zealand” “Salinity - see example Hunter River Salinity Trading Scheme in New South Wales, Australia”</p>	<p>REJECTED: Yes, there are also watershed programs in China, South America, etc. But the defining tools cited in 3.1 are US-based, section 4.3 cites to USEPA. This is much better, but still needs work for global application</p> <p>The Methodology gives a nod to users needing to use tools applicable in other countries. But all the guidance still points to US tools and data.</p> <p><i>Authors response:</i> <i>This is a fair critique. In response, we have split the defining tools section into ‘Global’ and ‘United States’ and have populated the Global section with 5 new models and 8 examples of quality standards and protocols. We have also added many more international databases,</i></p>
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			<i>environmental standards and Life Cycle Analyses guides.</i>
Section 3.1	Most of the mentions of third party validators or verifiers are related to the green infrastructure; It's much more important to have third party verification of A) the basis of the gray infrastructure option, B) the LCA calculations, and C) the timing of when the avoided GHG emissions occur	We have clarified the requirements for the third party verifier.	PASSED
Section 3.1	All of the references included apply to green infrastructure, and not LCA or engineering alternative analysis for gray infrastructure.		PASSED
Section 3.2.1	Change to "applicable anywhere in the United States..."	Intend for this to be used outside of USA. Added many examples of watershed programs for water quality compliance from outside of USA. "Phosphorus - see example Lake Winnipeg trading system architecture , Manitoba Canada. Nitrogen - see proposed nitrogen trading application in Suffolk, England, the Taupo Nitrogen Market in New Zealand" "Salinity - see	REJECTED: Yes, there are also watershed programs in China, South America, etc. But the defining tools cited in 3.1 are US-based, section 4.3 cites to USEPA. This is much better, but still needs work for global application

		example Hunter River Salinity Trading Scheme in New South Wales, Australia”	<p><i>Authors response:</i></p> <p><i>This is a fair critique. In response, we have split the defining tools section into ‘Global’ and ‘United States’ and have populated the Global section with 5 new models and 8 examples of quality standards and protocols. We have also added many more international databases, environmental standards and Life Cycle Analyses guides.</i></p>
Section 3.3.	What is the additionality justification for an adoption date 10 years prior to the Project Registration Date? There is no justification currently	We have extensively revised the additionality definition to clarify this.	<p>REJECTED: Section 5.1 is a much better definition of additionality. It does not justify why a 10yr lookback is justifiable.</p> <p><i>Author’s response:</i></p> <p><i>We concur and have further justified this based on the reality of project timelines and consistent with precedence in the</i></p>

			<p>VCM around lookbacks, revised as:</p> <p>Green infrastructure programs implemented by water treatment facilities often require 10-year or longer planning, approval, implementation and monitoring periods. The start of implementation (including pilot or smaller scale demonstrations) may occur before stakeholders, including the facilities or regulators, have committed to avoiding the construction of gray infrastructure upgrades. Therefore, recognizing the lengthy timelines for project development, approval and/or implementation, and consistent and predicated on the definition and demonstration of Additionality in this Credit Class, projects registered under this Credit Class will</p>
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			<p><i>accept an Adoption Date date up to 10 years prior to Project Registration Date provided the Project deployment is on-going and not fully implemented by the Project Registration Date. In order to claim an Adoption Date before the Project Registration Date, the Project Proponent must have maintained clear historical records demonstrating the implementation design and timeline, as specified in the Approved Methodology.</i></p>
Section 4.3 Aggregate Projects	Aggregate Projects–Why would you prorate the GHG credits if the modeled/measured shortfall in water quality goals occur? The GHG credit is based on avoided emissions; the co-benefit is based on WQ goals. This is fine, but unnecessary	Agreed, removed.	PASSED
Section 4.4.	This is confusing for me. If a	1) Water quality trading has been	REJECTED : This

	<p>utility decided after all to build a gray infrastructure alternative, wouldn't the GHG credit just go away? Like you'd have the annual emissions reduction for say 5yrs instead of the full 30 years?</p> <p>Maybe there needs to be a section dealing with if the gray infrastructure gets built midway through the Project Period?</p>	<p>formally used in the USA since 1986. The scenario that the reviewer describes has never happened. 2) The most clear instances of regulatory agencies demonstrating patience in waiting for a watershed restoration project to achieve its goals are in Wisconsin and Oregon. In Wisconsin's Department of Natural Resources' technical handbook (https://apps.dnr.wi.gov/swims/Documents/DownloadDocument?id=83656445), the DNR states that when using adaptive management, "A maximum duration of twenty years can be granted to achieve compliance with P criteria; PS compliance with permit requirements based on criteria being attained." The same handbook states that water quality trading "May be used to demonstrate compliance indefinitely, as long as credits are generated". Oregon's Department of Environmental Quality has consistently offered longer compliance schedules for watershed restoration programs - in this regulatory document for the Hells Canyon Dam relicensing (https://www.oregon.gov/deq/wq/Documents/HCCFinalEvalReport.pdf), ODEQ's response on page 122 is</p>	<p>scenario has occurred. The City of Woodburn Oregon used to spread wastewater on poplar plantations. And then it decided to construct a mechanical chiller using more electricity. https://www.woodburn-or.gov/wastewater. Under the poplar plantation, this protocol would have awarded GHG credits. But there is no provision to revoke those credits once Woodburn built its gray infrastructure.</p> <p>In my original comment, I wasn't disagreeing with a credit term of 30 years. I wanted clarity on what would happen to the GHG credits if the utility picked a different compliance solution within the 30-yr time window. <i>Author's response: Given</i></p>
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Section 5.1	<p>The a,b,c additionality criteria don't make sense to me. They focus on the green infrastructure. But the GHG reduction is from the avoided gray infrastructure? What are the additionality criteria there?</p> <ul style="list-style-type: none"> - Demonstrated "realistic" gray inf. Alternative? - Some guarantee not to do an upgrade for a period of time? 	<p>We have extensively revised the additionality description.</p>	PASSED

	<ul style="list-style-type: none"> - Some attestation that the green infrastructure project had something to do with that decision? 		
5.2. Leakage	I think you do need an attestation that the water utility is not getting its water treatment from a gray infrastructure upgrade outside the project area (i.e., send its wastewater to a neighboring city who just built a new treatment plant)	This is not consistent with how discharge permits are issued. They are “per pipe” - a utility can’t outsource compliance with their discharge to another utility.	<p>REJECTED: The scenario I’m describing is that one city “avoids” a gray infrastructure upgrade by piping its wastewater to a facility in a neighboring watershed (and giving up its own discharge permit).</p> <p>This process called “regionalization”. https://efc.sog.unc.edu/resource/regionalization-of-water-and-wastewater-systems/. Is actively promoted by EPA, HUD, and others. https://online.flippingbook.com/view/329354245/.</p> <p>For example the Village of Coal City shouldn’t be able to generate GHG</p>

			<p>reductions by piping its wastewater to the neighboring Village of Essex' treatment plant.</p> <p><i>Author response: Upon further review, we agree with the Reviewer's concern here, and have added the following in the Additionality paragraph of Section 1: "Attestation shall also include confirmation that the facility is not and will not shift its water treatment obligations to a neighboring facility during the crediting period."</i></p>
5.3. Permanence Period	<p>This is where I may not be familiar with the REGEN language. This document sometimes confounds "credits" with "projects"--The project is permanent so long as the green infrastructure continues to help avoid construction of gray. But that's different than the credit, yeah--Which is an ton of CO₂e</p>	<p>The electricity is avoided for the entire lifetime of the gray infrastructure as of the time the alternative is approved. This has been clarified throughout the document and in the preamble.</p>	<p>REJECTED: The authors are clear. This comment is now for REGEN--Are your GHG reductions issued as a ton of CO₂e with a vintage year?</p> <p>In Section 1 of the Methodology, the authors state "This</p>

	reduced per specific vintage year?		<p>Methodology assumes that the full lifetime avoided emissions are achieved as of the approval and establishment of the green alternative, and not annually.”</p> <p>I don’t see how that is responsible without some guarantee that the utility will not choose to build gray infrastructure during the middle of the permanence period (e.g., after 10 years)</p> <p><i>We concur and have revised the credit class to issue only ex-post, annually.</i></p>
5.6.2	I don’t think a utility attestation as to the selected gray infrastructure option is adequate. That choice is so fundamental to the quantity and timing of the GHG credits, I’d want that to be the focus of verification.	We have extensively revised the additionality description and edited this section for consistency.	PASSED

	For me, the only verification really needed for the green infrastructure is that A) it exists, and B) the water quality benefit calculations are CLOSE to the WQ goal & documented so credit buyers can look into it		
6.0	I need clarification on “100% of the credits can be issued” before I am OK with this. If it’s 100% of the credits for that year–OK; But not 100% of credits for the entire 30 years.	The electricity is avoided for the entire lifetime of the gray infrastructure as of the time the alternative is approved. This has been clarified throughout the document and in the preamble.	<p>REJECTED: The authors are clear. This comment is now for REGEN–Are your GHG reductions issued as a ton of CO₂e with a vintage year?</p> <p><i>We concur and have revised the credit class to issue only ex-post, annually.</i></p>

Post here any additional feedback or comments that are more general:

Generally, the concept behind this credit class (avoided emissions from the construction, operation, and end life of gray infrastructure) is sound–and would be good to encourage. I appreciate and support approving this type of credit class.

There are also a lot of areas that are unclear and confusing about both the credit class report and the methodology report. Here are some assumptions I have + some overall thoughts:

- It is most important to demonstrate A) the gray infrastructure option chosen for GHG calculations is realistic, and B) it is important to demonstrate the likely timing of construction and operations of the gray infrastructure option.

PASSED

- The Credit Class says GHG reductions need to be quantified for each gray infrastructure alternative–But it does not say which alternative should ultimately be the basis for crediting–Would it be the least cost Gray alternative, the one with the most GHG emissions, what?

PASSED

- The authors provide a logic for how to quantify the electricity use and materials use- see specific comments above.

PASSED

- The water quality benefits A) There is a base eligibility criterion to demonstrate a water quality benefit that is CLOSE to what the gray infrastructure would have provided–using the same parameters the gray infrastructure would have treated for

PASSED

- There is not a robust methodology or protocol provided to demonstrate Ecosystem Health, Soil Health, or Community Health benefits– If the authors want to claim these co-benefits, there's a lot more work to do

PASSED

- I think the authors are designing water quality modeling, monitoring, and verification requirements that are too extensive (and likely too expensive) for quantifying a water quality co-benefit.

PASSED

- I don't think the authors provide protocols of methodologies that are clear enough to apply in a global context. These are written through a US-focused lens, and so should be for US-based projects as currently written.

REJECTED

- The Credit Class and Methodology are unclear about drinking water (e.g., defining a 'water intake' as a project boundary), wastewater (e.g., most of the regulatory references cited), and stormwater (but there is almost no discussion of this). I think the protocol should not apply to stormwater (or drinking water or wastewater conveyance or storage-just treatment), and should be clearer about differences in application to drinking water treatment and wastewater treatment scenarios.
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- **Concur, we have removed stormwater and extensively clarified where drinking water is applicable.**

REJECTED: I do not think the authors adequately justified the applicability of this credit class to stormwater.

Concur, we have removed stormwater.

- I don't think any of the carbon sequestration benefits from the green infrastructure benefits should be creditable—I think that is a different class than "Avoided gray infrastructure emissions". I would encourage an eligibility criterion that only green infrastructure actions that produce zero or net zero carbon emissions are eligible.

- *Author's response: As noted above, we agree with the Reviewer's logic and have added language in the Life Cycle Analysis sections to set the green infrastructure emissions to '0' even where those programs are calculated to have net sequestration, so that project developers must use other sequestration-based methodologies to generate those credits if they choose. However, the author's have intentionally included project activities that are likely to have net positive carbon emissions (such as pressurized irrigation, or livestock fencing) given the greatly higher climate impact of downstream water treatment vs those dispersed activities. These activity types have been included in 'conservation' programs for decades, because of their ability to conserve water quantity or preserve water quality when compared to status quo. The authors strongly believe that keeping these project types eligible is necessary to achieve large-scale emissions reductions and water quality improvements using this methodology. Lastly, justification for stormwater applications has been added.*

REJECTED: I still believe that no GHG credits should be awarded under this credit class for the green infrastructure's sequestration itself. I do think the list of BMPs in 3.1 are zero or net zero GHG, which I like- nice work. See my comments on the Methodology.

Concur, revised as above.

- **TIMING:** I'm not clear if the CO2 credits have a vintage year? I think there needs to be a credit start date that is equal to something like the realistic start year of a gray infrastructure construction and and end date of the expected life of that infrastructure.

REJECTED: But this is a question for REGEN

We concur and have revised the credit class to issue only ex-post, annually.