SUMMARY OF PUBLIC COMMENTS: PROJECTED CARBON UNIT

1 INTRODUCTION

This document summarizes the main points of feedback received during the 3 May – 1 June 2022 consultation on the Projected Carbon Unit (PCU). Verra received input from 21 stakeholders, including industry groups, project proponents, professional developers, corporate buyers, environmental organizations, and the general public. Verra would like to extend its sincere thanks to all who submitted comments.

During the consultation, Verra sought input on the following questions:

1. Will the proposed PCU design (Section 2) likely enable early project investment as well as support PCU buyers in reducing contracting and delivery risks and facilitate credible communication of progress toward net-zero targets or other climate commitments?

2. Do you have any concerns about the ease of use or environmental integrity of the proposed PCU design (Section 2)? If so, what are your concerns and what adjustments should be considered to further strengthen the proposed PCU design?

3. The proposed maximum PCU assignment period for NCS sequestration (removal) projects, including afforestation/reforestation projects, is 40 years. Do you agree with this timeframe for NCS removal projects? If not, do you think a longer timeframe (e.g., 60 years) or a shorter timeframe (e.g., 20 years) would be more appropriate? Kindly provide your rationale.

4. This proposal includes a maximum PCU assignment period for non-NCS (e.g., technological) sequestration (removal) projects of 40 years, considering the significant upfront investment needed for these projects (e.g., Direct Air Carbon Capture & Storage) to be deployed. However, unlike NCS sequestration projects, these technological projects can immediately generate emission removals once operational. Do you agree with this timeframe for technological removal projects? If not, do you think a longer timeframe (e.g., 60 years) or a shorter timeframe (e.g., 20 years) would be more appropriate? Kindly provide your rationale.

5. The PCU assignment period is described as a static timeframe with a fixed start date and end date. Should project proponents have the option to extend a project's PCU assignment period, contingent on re-validation of relevant project documents? For example, five years past the

project's start the proponent may be able to extend the PCU assignment period by five years into the future after re-validation of key parameters, including the project's ERR projections.

6. Are the updates for PCU implementation (Section 3) clear? Do you have suggestions to clarify or better define how PCUs will be implemented within the VCS Program?

7. Consider that PCUs will enable project proponents to assign and transfer carbon units earlier in the project development cycle than otherwise possible. To ensure PCUs are underlied by robust projections, should project proponents or VVBs provide any additional information not already prompted in the VCS project description and validation report templates (Section 3.5)?

Verra analyzed consultation comments concerning each of the questions asked and general comments received. The feedback received provided a range of useful perspectives on the PCU. This document summarizes the conclusions we drew from the consultation, summarizes the comments, and presents the comments with Verra's responses.

2 CONCLUSIONS

Feedback indicated that Verra continues to demonstrate its leadership on removals and innovative approaches to project finance with its newest innovation providing access to early project finance in a manner that retains integrity and pragmatism. The PCU is expected to unlock significant new sources of carbon removal supply both from natural climate solutions and new technologies and has broadly received much positive and constructive support.

The following section provides a synthesis of comments from the public consultation as well as Verra's responses. Many of the comments have further affirmed the design of the PCU and Verra's anticipated approach to implementation and management of the PCU.

3 SUMMARY OF COMMENTS

The summary of comments below highlights some of the main inputs received as part of the consultation.

Consultation Question	Summary of Comments	Response to comments
1) Will the proposed PCU design (Section 2) likely enable early project investment as well as support PCU buyers in reducing contracting and delivery risks and facilitate credible communication of progress toward net-zero targets or other climate commitments?	More than three-quarters of respondents expressed unconditional support for the PCU. Many conveyed the need for the PCU to enable early investment, particularly for NCS sequestration projects. Respondents commented on the value of the PCU – that it can lead to greater transparency and credibility in early ERR transactions for proponents and buyers compared to using contracts alone. Less than a quarter of respondents hold mixed outlooks on the PCU's design, while no respondent shared a negative outlook. The specific concerns that give rise to mixed outlooks include underperformance risk and uncertainty in how to make claims about using PCUs. These concerns are discussed in depth in the next subsection.	Verra views comments submitted as an overall positive reception for the PCU's design, from a broad range of well-informed stakeholders. While limited concerns were raised, no respondents argued against launching the PCU. Further, respondents' concerns focused on concepts and design aspects that Verra has already considered at great length – no new issues were raised.
2) Do you have any concerns about the ease of use or environmental integrity of the proposed PCU design?	More than half of respondents have no concerns about the PCU's design. The following summarizes respondents' concerns and suggestions to improve specific PCU design aspects. Verra maintains that the core PCU design choices presented during the consultation are most appropriate. To further improve the PCU's design, we propose fine-tuning a few items as set out in responses to the below concerns. **Underperformance risk:** The most common concern is the risk that projects may underperform and verify a	**Underperformance risk:** Verra recognizes this concern about project underperformance and aims to incorporate reasonable safeguards to avoid over-assignment of PCUs. However, Verra maintains that imposing percentage-based restrictions on the volume of ERRs available for PCU assignment is a blunt and arbitrary approach and could encourage inflated projections. Further, this approach could influence the market to perceive risk based on an indirect indicator of performance, and possibly over-correct when determining PCU prices. The information within VCS project descriptions and validation reports include the best, most

	volume of ERRs lower than those projected and assigned through PCUs. To mitigate this risk, some respondents suggest either restricting the volume of ERRs available for PCU assignment on a percentage basis or enabling PCUs to "roll over" into the next vintage period rather than expire, as Verra proposed. **PCUs and claims:** Another common concern is that buyers lack guidance about the kinds of sustainability claims they could make using PCUs. Considering that a given block of PCUs could expire without converting into VCUs, respondents suggest that buyers might use PCUs only for financial contribution claims to avoid accusations of greenwashing. **Trading of PCUs:** Some respondents question if trades of PCUs may be considered to be a regulated activity by the CFTC, which regulates commodity derivatives. Respondents also emphasize that the PCU should be designed as collateral for VCU delivery, rather than as a new financial product, to further distinguish it from derivatives. **Minor concerns:** A minor concern is that introducing PCUs could simply prove too confusing for carbon market participants and observers. Another minor concern is that the Verra Registry might not display all of the technical information about PCUs that potential buyers would need to make an informed decision.	direct indicators of expected project performance and this consultation confirms that the existing templates for these documents are sufficient to ensure robust PCU projections (see Section 2.8 for more). Any percentage-based restriction could lead to more harm than good. And the market is more likely to accurately determine and respond to risk by examining a given project's approved documents. Verra also maintains that PCU expiry, rather than a "rollover" mechanism for excess PCUs, is a critical design choice (e.g., PCUs that are not converted into VCUs for a particular vintage will expire). Not all projects will exceed projected ERRs for every vintage period and potential buyers will rely on expiry as a market signal to determine projects' risk profiles. Further, a "rollover" mechanism would undermine vintage distinctions and depress demand for later-vintage PCUs. Consider that buyers would not buy later-vintage PCUs if there is a chance that earlier-vintage units could roll over and take priority under a "rollover" scenario. PCU expiry is critical to preserving vintage distinctions and ensures that buyers can readily identify projects that have underperformed. In Verra's view, ARR and blue carbon sequestration projects pose the greatest risk of underperformance, given the longer PCU assignment period and the potential for relatively greater volatility in project performance over this longer period. Verra proposes an additional control to mitigate the underperformance risk of such NCS sequestration projects. As a control, proponents must determine the tree survival rates (potentially including replacement saplings) for planted plots at least three years after initial planting date and adjust initial ERR estimates, as needed. Projects that complete validation and registration after making this adjustment may request up to the full volume of PCUs projected over the 40-year period. Projects that complete validation and registration before making this adjustment may request PCU

		assignment at up to 50% of estimated ERRs for any given vintage year within the 40-year period. For these projects, the 50% restriction will be lifted after the project determines tree survival rates and a VVB re-validates the ERR Quantification section of the project description. **PCUs and claims:** Verra agrees that buyers should only use PCUs for reasonable claims to credibly communicate progress toward climate commitments. It is outside of Verra's purview or ability to certify or regulate claims. Notwithstanding, Verra will endeavor to communicate that PCUs cannot be used for offsetting claims. Additionally, Verra will continue engaging with American Forests, American Forests Foundation, and other early adopters of the PCU, to share feedback on what constitutes credible claims. We expect to see a community of proponents navigate claims and develop their own best practices and guidance. Verra would inform these discussions but cannot appear to regulate claims. **Trading of PCUs:** Verra continues to engage with the CFTC with the view that regulatory questions will be positively resolved (see Section 6 for more on this engagement). In summary, arguments against the PCU as a forward or future include that PCU transactions will require transfer of title upfront (consistent with other existing intangible commodities) and that PCUs offer a consumption value, enabling buyers to communicate progress toward climate commitments. The PCU does not meet the swap definition given no exchange of payments, no optionality, and no event-based trigger of payments. Similarly, the PCU does not meet the option definition because the transaction occurs upfront. **Minor concerns:** PCUs will add complexity, and still, Verra believes the instrument's potential to add value and scale to climate action is worthwhile. To avoid misunderstandings about the PCU and its role in the voluntary carbon markets,

		Verra will proactively engage and educate market participants and the public on the PCU, its purpose, its legal character, and how to request and transfer PCUs on the Verra Registry. Verra plans to host a webinar prior to the PCU's launch. This webinar will be publicized widely, including in Carbon Pulse and other industry fora. Certainly, the Verra Registry will be updated to display all relevant information about PCU blocks. In fact, the vast majority of functionality needed to display information is already built. Novel registry development for the PCU is limited to the following: enabling PCU assignment requests, enabling PCU trades, enabling PCU-to-VCU conversions, and developing a public interface for viewing PCU block data. Buyers will be able to view project-specific information and a project's historic PCU assignments before deciding to buy PCUs.
3) The proposed maximum PCU assignment period for NCS sequestration (removal) projects, including afforestation/reforestation projects, is 40 years. Do you agree with this timeframe for NCS removal projects? If not, do you think a longer timeframe (e.g., 60 years) or a shorter timeframe (e.g., 20 years) would be more appropriate? Kindly provide your rationale.	More than half of the respondents expressed that NCS removal projects should have a maximum PCU assignment period of 40 years or longer. Many of these respondents agreed that 40 years is the minimum feasible length for this period given that many tree species outside of the tropics reach an inflection point in growth curves after 40 to 60 years. Some of these respondents agreed that a period of fewer than 40 years could perversely incentivize proponents to plant fast-growing, non-native monocrop forests with limited biodiversity co-benefits. Less than a quarter of respondents prefer shorter periods, of about 20 years, to mitigate underperformance risk. Another consideration is that climate policies change over time and that Verra should consider how PCUs, as well as VCUs, will align with compliance mechanisms on corresponding adjustments and/or additionality. The remainder suggested aligning maximum PCU assignment periods with alternative timeframes such as	Verra views these comments as positive support for relatively longer periods. And while some see value in a 60-year maximum, as an option, it seems the majority of NCS sequestration projects can pencil out with a 40-year maximum period. Verra appreciates the concern about the risk of underperformance and proposes a more appropriate control to mitigate this risk (restricting removals available for PCU assignment to 50% until a proponent adjusts and validates ERR estimates based on survival rates, see Section 2.3). The suggestions to align this period with the duration of project plans or crediting periods introduces too much variability given that each project can have a unique lifetime and that ARR and IFM projects' crediting periods are based on project-specific harvest cycles. Verra will maintain the 40-year maximum PCU assignment period for this category of activities.

	the duration of the project plan or project crediting periods.	
4) This proposal includes a maximum PCU assignment period for non-NCS (e.g., technological) sequestration (removal) projects of 40 years, considering the significant upfront investment needed for these projects (e.g., Direct Air Carbon Capture & Storage) to be deployed. However, unlike NCS sequestration projects, these technological projects can immediately generate emission removals once operational. Do you agree with this timeframe for technological removal projects? If not, do you think a longer timeframe (e.g., 60 years) or a shorter timeframe (e.g., 20 years) would be more appropriate? Kindly provide your rationale.	For non-NCS removal projects, more than half of respondents agree with the proposed 40-year maximum PCU assignment period. The remainder suggest that these periods should be either shorter (at 20 years) or aligned to other timeframes such as the productive lifetime of the technology. No respondents suggested a period longer than 40 years. Those in favor of 40-year periods emphasize the scale of investment needed to support Direct Air Capture and other emerging removal technologies. These same respondents also express comfort in the fact that non-NCS activities generally lead to more consistent and predictable supplies of removals, meaning there is lower underperformance risk compared to NCS activities. Those respondents that propose shorter periods reiterate general concern about underperformance risk over longer terms.	Verra finds support in these comments for a 40-year maximum PCU assignment period for non-NCS activities, recognizing the great potential for proponents to scale-up climate action using PCUs within this timeframe. In Verra's view, this category of activities faces a lower level of underperformance risk. In conversation with stakeholders, we expect proponents to mitigate this risk themselves by employing a conservative approach to PCU use. Established proponents will likely begin requesting assignment of conservative PCU volumes (at less than 20% of ERRs available for assignment) before gradually increasing assignment requests over time.
5) The PCU assignment period is described as a static timeframe with a fixed start date and end date. Should project proponents have the option to extend a project's PCU assignment period,	Nineteen of the 21 respondents agree that proponents should have the option to extend a project's PCU assignment period. Those in favor of this option cite the benefits of additional investment revenue for projects balanced with the requirement for projects to re-validate. Those against this option again cite underperformance risk and seek to reduce this risk by	Verra will enable projects to seek the extension of their PCU assignment periods, contingent on re-validation. Projects most likely to seek extension of their periods are those with 7-year, renewable crediting periods or those facing baseline reassessments every 6 or 10 years. Given the requirement to

contingent on re-validation of relevant project documents? For example, five years past the project's start the proponent may be able to extend the PCU assignment period by five years into the future after re-validation of key parameters, including the project's ERR projections.	any means, including prohibiting the extension of PCU assignment periods.	re-validate, Verra sees this as a conservative approach to enabling projects to access additional upfront investment.
6) Are the updates for PCU implementation (Section 3) clear? Do you have suggestions to clarify or better define how PCUs will be implemented within the VCS Program?	The consultation document sets out detailed PCU concepts, definitions, and near-final text for the requirements as they will appear in VCS Program documents and project templates. All but one of the 21 respondents agree that PCU implementation is clearly defined. One respondent provides a minor suggestion to make the PCU-to-VCU conversion process clearer. Based on experience with Pending Issuance Units (PIUs), they caution that automatic unit transfers can prove confusing to operations teams when units automatically appear in a holder's account.	This feedback nearly reached consensus, and Verra views this as broad support that PCU implementation is clearly stated. Verra will endeavor to make the automatic conversion of PCUs into VCUs easier to anticipate and manage for holders. Verra will consider a registry mechanism whereby the PCU holder must accept the incoming VCU block that replaces the corresponding PCU block.
7) Consider that PCUs will enable project proponents to assign and transfer carbon units earlier in the project development cycle than otherwise possible. To ensure PCUs are underlied by robust projections, should project proponents or VVBs provide any additional information not already prompted in the VCS	Twenty of the 21 respondents agree that these project templates require no additional information to ensure that PCU projections are robust. These 20 respondents state that the templates prompt proponents to specify enough information about project activities and ERR calculations. One respondent suggests that for ARR projects, Verra require proponents to disclose more information about data, modeling, and forecasting uncertainties used to estimate ERR volumes.	Verra views this feedback as support that project description and validation report templates require no more prompts for additional project information. Any party that reviews project documents will find adequate information about a project's underlying ERR data, modeling (application of the methodology), and uncertainties (data management). Further, third-party validation ensures that ERR calculations are carried out in a transparent and conservative manner.

project description and validation report templates (Section 3.5)?		

4 COMMENTS AND VERRA RESPONSES

1. Will the proposed PCU design (Section 2) likely enable early project investment as well as support PCU buyers in reducing contracting and delivery risks and facilitate credible communication of progress toward net-zero targets or other climate commitments?

Comment #	Issue Raised	Verra Response
1	Yes - the proposed PCU will be extremely beneficial to project proponents looking to secure upfront financing for the kinds of projects we're looking to do - ARR - and creates the communication and commitment tracking tool that is needed by corporates in this net-zero goal moment.	Thank you for your input. No change needed.
2	Yes, based on our organization's experience transacting and investing in afforestation/reforestation and agroforestry carbon removal projects over the last 11+ years, the proposed PCU design appears to have a solid framework in place to unlock more early project investment for both retirement by corporate buyers and trading in the secondary markets. Many contracting and delivery risks remain throughout a project lifecycle, but PCUs are a great way to utilize Verra's familiar and widely-used standard/registry infrastructure to bring greater credibility and transparency to buyers and investors. Regarding facilitating credible climate comms claims, PCUs have the potential to improve an organization's shared understanding of forecasting and the timing for recognizing their future VCM investments.	Thank you for your input. No change needed.

3	Yes, but it will depend on the market value and market demand of PCUs. If PCUs are not demanded and/or valorized in the market, project proponents might face problems in project implementation, due to lack of financial resources.	Thank you for your input. No change needed.
4	It will facilitate credible communication of progress towards net-zero goals and other climate targets. What is less clear is how the program will reduce contracting and delivery risks beyond what is currently practiced in pre-purchase agreements. It may allow smaller, less experienced brokerages and developers to pre-sell credits where they may not have had the ability to do so before, increasing crediblilty risk to the program as a whole.	The advantage of PCUs, compared to contracts, is that negotiated ERR estimates have been validated and that buyers hold registry-backed assets. Buyers are expected to conduct due diligence to inform PCU purchases, just as for VCU purchases. The Verra Registry will host all relevant project information.
5	The proposed design is likely enabling early project investments. The advancement of third-party validation and generation of PCUs is also likely to support buyers in reducing contracting hurdles. Nevertheless, Climeworks remains in doubt if the proposed design will achieve the foreseen impact on reducing delivery risks and facilitating credible communication of progress toward net-zero targets or other climate commitments. It is likely that, based on a first-come first-serve basis, project developers will face pressure on prices for "higher-numbered" PCUs, albeit the ongoing need to financing these "later" tons. On communication: Since PCUs will become VCS after verification only, PCUs claims need to be restricted to buyers' strategic investments claim and can thus only facilitate the assessment of ambitions towards reaching climate goals, rather than the actual achievement of such strategies/ambitions. Given a general lack of understanding of carbon markets, it remains unclear if PCUs are correctly understood by all stakeholders.	**Design**: Converting VCUs to PCUs on a senior (first-come, first-served) basis could lead to differing prices based on the seniority of PCU blocks within a vintage, considering the risk of under-delivery. However, markets should determine prices based on perceived risk. And proponents can set their preferred vintages periods, with shorter periods less likely to wide dispersion of prices. **Communication**: Verra will proactively communicate PCU's purpose, and that these units cannot be used for offsetting Verra will engage with market participants using PCUs and provide suggestions to inform best practices for credible claims. Regulating PCU claims is beyond Verra's mandate as a standards body, and we cannot regulate claims made using any units.

6	Yes, PCUs will definitely help to provide a higher level of comfort and transparency for entities considering investments in ARR projects especially those that are publicly trading companies with firm commitments to their investors to ensure that such mechanisms are used where available.	Thank you for your input. No change needed.
7	We support early investment of ERR projects to mitigate or eliminate the upfront costs of developing a project through the proposed PCU design with modification and clarification. See "General Comments." In Section 2.3 in reference to PCUs "cannot be used to support offsetting claims." This is somewhat conflicting with your message of facilitating "credible communication of progress toward net-zero targets or other climate commitments." See "General Comments."	Thank you for your input. No change needed.
8	Yes	Thank you for your input. No change needed.
9	While this is not a huge shift in the context of all options available today, it could reduce these risks for certain purchase scenarios.	Thank you for your input. No change needed.
10	Yes, we agree that the proposed PCU design will enable early investment, reduce risk and improve communication of progress towards net-zero targets. We add that evidence from schemes with similar advanced purchase units demonstrates this to be effective, especially with more extended time frame projects such as afforestation.	Thank you for your input. No change needed.
11	In general - yes, we see most of the design choices from Section 2 to be clear and conducive to incentivize project investment. Even the most sophisticated forward buyer / investor could still benefit from it in a sense that their respective accounting departments now may have a tangible unit to value & book-keep their climate action project investments. However - in the context of ARR projects - we do see potential challenges / considerations needed in section 2.4, 2.5, 2.6 and 2.7. (Covered in next page in details in the next tab)	Thank you for your input. No change needed.

12	No. The proposed design indicates the need "to know the order of available PCUs relative to already assigned PCUs for a given project" for purposes of conversion. However, the consultation document provides no proposed solution here. An explicit solution to knowing the order of available PCUs for conversion is necessary for the proposed design to enable early investment and reduce contracting risks.	In fact, Section 2.10 (PCUs on the Verra Registry) addresses how potential buyers can use the Registry to see exactly what volume of PCUs have been assigned for each vintage period.
13	Yes, but it will depend on the market value and market demand of PCUs. If PCUs are not demanded and/or valorized in the market, project proponents might face problems in project implementation, due to lack of financial resources.	Thank you for your input. No change needed.
14	Definitely yes. Defining a system to reflect the ERRs that a given project is projected to generate in the future, would favor investments and regulate the demand for futures that already exists in the market.	Thank you for your input. No change needed.
15	1. If the aim of PCU is to get early action finance - future contracts already enable this. E.g., you can engage with prospective buyer with future contacts for buying a certain amount of VCUs from project x. 100% of the credits are not required to kick start a project. 2. Instead of increased credible communication, trading of PCU have higher chances of green washing by the prospective buyer, especially as there would be risks associated with PCUs not converting to VCUs, especially in case of NBS project today. There is risk of market perspection that PCUs are ex-ante credits 3. One commitment that maybe demonstrated via PCUs is contribution claims.	**Design**: Not all proponents and developers will find the same value in PCUs. While some see limited value-added, the majority see great potential to scale-up project investment based on PCU investment. **Communication**: Verra will proactively communicate PCU's purpose, and that these units cannot be used for offsetting Verra will engage with market participants using PCUs and provide suggestions to inform best practices for credible claims. Regulating PCU claims is beyond Verra's mandate as a standards body, and we cannot regulate claims made using any units.

16	Yes. However we have some specific concerns and suggestions which we hope will help to optimise the impact of this innovation. Among the most interesting features of the PCU proposal is the centrality of the 'first-come, first-served' principle. Section 2.10 rightly states that "it is important for potential PCU buyers to be able to know the order of available PCUs relative to already assigned PCUs for a given project". However the way in which potential PCU buyers should make that determination is unclear. Section 2.10 suggests that "buyers can refer to PCU serial numbers and other relevant information on the Verra Registry to support such assessments", however this would require the search criteria setting out the serial numbers (start and end numbers) in relation to the total permitted issuance for that vintage. The clearest way to provide this information would be to express the issuance numbers as a percentage of the total permitted - specifically a percentage range covering the start and end of the serial numbers. This percentage range should be included both in the PCU tab and in the search criteria. Additionally, we understand that Verra intends to leave it to project proponents and PCU purchasers to determine the commercial terms for buying / selling PCUs (i.e., how to price in the uncertainty, what tranches are bought, whether there is any uplift paid once the PCU becomes a VRRs etc.). We expect that the scale of early-stage financing that PCUs generate for proponents will in large part be driven by how the market approaches these terms. To ensure that the goal of driving early project investment is achieved, Verra could consult with organisations such as IETA to ensure it understands and has accounted for likely market dynamics. As to whether PCUs will help companies "facilitate credible communication of progress toward net-zero targets or other climate commitments", we would caution against making strong claims regarding the impact of these investments. Companies should take a conservative approach, avoiding including PCUs in carbon neutrality statements or net-zero claims, in large part because quantities of projected credits will in some instances exceed those of issued VRRs. Rather than quoting a specific projected number of PCUs, buyers	**Design**: The specifics of Registry functionality is under development but will make the critical PCU assignment data publicly accessible and easy to access. **Communication**: Verra will proactively communicate PCU's purpose, and that these units cannot be used for offsetting Verra will engage with market participants using PCUs and provide suggestions to inform best practices for credible claims. Regulating PCU claims is beyond Verra's mandate as a standards body, and we cannot regulate claims made using any units.

	could instead be encouraged to communicate their investments towards climate action projects. Early-stage projects carry less direct cost and PCUs may represent a financial incentive for developers to be more speculative in the registration of projects to access the early finance without a firm intention to proceed with the project, proposing projects that have the largest projected potential ERRs regardless of associated risk and uncertainty. This may result in some potential projects securing early finance through PCUs while never materialising. The greater risk and uncertainty may result in a form of inadvertent greenwashing. Credit buyers and investors will be allowed to demonstrate that their project investments are expected to generate a specific quantity of ERRs to meet projected commitments without a clear understanding of the project's chance of successfully producing ERRs. In this scenario buyers may accumulate large portfolios of PCUs with a low likelihood of producing ERRs, which may be considered a form of greenwashing by the market, one of the issues that PCUs. To combat these issues a framework for the communication of risk and uncertainty could be considered such as the United Nations Framework Classification (UNFC). This would allow the quantitative communication of project risk and uncertainty to the investor.	
17	Clear but the fact that PCUs only apply to validated / registered projects are less useful for raising upfront funding. Investors/buyers understand that ER numbers may change upon validation, so perhaps PCUs could be created already upon uploading a draft PDD On VERRA website / registry denominated as ePCU (estimated PCUs) which then automatically adjust to PCUs upon full validation / registration? Other important aspects are that buyers/investors want to have some sort of control over the project registry therefore VERRA could consider allowing view-only account holders outside of project proponents. In addition VERRA could consider enabling projects to opt between senior or pari-passu assignments. Senior would be first come first serve, pari passu	Verra sees PCU assignment following validation and registration as the earliest possible step in the project development cycle to enable credible early crediting. Note that anyone can access the Verra Registry's public interface without an account. Kindly note the difference between the PCU assignment process and the PCU-to-VCU conversion process. A proponent may request assignment of the full quantity of PCUs available for some or all vintages at once or make incremental requests

	would allow the project to allocate credits equally among different buyers. This is typically governed by underlying contractual agreements. Also it is important to allow different delivery dates for different batches of PCUs. It could be that the most senior buyer's delivery date is later than the 2nd in line.	over time for smaller quantities of PCUs. Following, the proponent can sell and trade PCU blocks according to their contract commitments. Upon verification, PCUs will convert to VCUs on the basis of seniority. Not all projects will perform to, or above, projections. It is important for potential buyers to assess under-delivery risk prior to purchase and the certainty of seniority governing PCU-to-VCU conversion is a central component of this assessment.
18	We agreed to define the period of non-NCS such as the type of project menoned above equal to the first project creding period; either 10 years, fixed or 7years for a project that chooses a 7-year, twice-renewable creding period, consistent with the baseline reassessment period for these projects.	Thank you for your input. No change needed.
19	Yes, it seems that way. Although it's not clear to me that holding PCUs per se demonstrates credible progress towards net-zero targets, given that they might fail to convert to VCUs if the underlying project underdelivers. As the consultation documents states, "PCUs...cannot be used to support offsetting claims."	**Communication**: Verra will proactively communicate PCU's purpose, and that these units cannot be used for offsetting Verra will engage with market participants using PCUs and provide suggestions to inform best practices for credible claims. Regulating PCU claims is beyond Verra's mandate as a standards body, and we cannot regulate claims made using any units.
20	1) Early Project Investment - Yes, if the combination of (cost of issuing PCUs) + (the lower price for PCUs than VCUs) is attractive for project developers = low cost of issuing PCUs. 2) Support PCU buyers in reducing contracting and delivery risk - We do not see how PCUs reduce contracting and delivery risk significantly. We think PCUs give buyers an immediate offering to contribute to net-zero targets, but it does not inherently reduce risks of project development. The risks of delivery (within the VERRA framework) stay the same, but it is better shared across the value	**Communication**: Verra will proactively communicate PCU's purpose, and that these units cannot be used for offsetting Verra will engage with market participants using PCUs and provide suggestions to inform best practices for credible claims.

	chain, which makes it more feasible to develop projects and in turn facilitates investment into more projects. The buyer (considering the opportunity to only buy earlier portion of projected ERRs) has more options to invest according to his risk appetite, but overall project development risks are not reduced	Regulating PCU claims is beyond Verra's mandate as a standards body, and we cannot regulate claims made using any units.

2. Do you have any concerns about the ease of use or environmental integrity of the proposed PCU design (Section 2)? If so, what are your concerns and what adjustments should be considered to further strengthen the proposed PCU design?

Comment #	Issue Raised	Verra Response
21	Guidance on how to estimate carbon using the ARR methodology with performance benchmarks and dynamic baseline will be important to make sure PCU issuance is relatively accurate and not grossly under/overestimated. Estimating future carbon with uncertain baseline is difficult and Verra should consider providing guidance to help developers engage with the methodology & PCU. We've heard from developers that it is going to be 'impossible' to develop and sell carbon projects with an unknown baseline upfront because there's the possibility that baseline carbon will exceed project carbon.	Indeed, using performance benchmarks and dynamic baselines can make estimating ERR volumes challenging with implications on PCU volume available for assignment. However, these underlying challenges are not specific to the PCU.
22	Regarding integrity, we like that PCUs are differentiated in comparison to other ex-ante carbon units and programs that lack, or are just now implementing, unit conversion infrastructure to ex-post. It seems that PCUs will be compatible with Verra's existing CDM methodologies for Afforestation/Reforestation and the new methodology for Afforestation, Reforestation and Revegetation (ARR) under development currently by Verra/Terra Carbon/Silvestrum. Is this understanding correct?	Yes, a proponent may request PCU assignment using any VCS-registered project including those using CDM ARR methodologies.
23	No comment.	No change needed.
24	Tracking trades in the secondary market to ensure the 'first-come, first served' rule is followed could be complex. How will conversion of PCUs to VCUs be	Where two different buyers own blocks of PCUs within the same vintage, yes -- lower serialized PCU

	handled in the case where two different buyers own the same vintage (split tranche)? Would lower serial numbers receive preferential conversion? If so, there may be artificial pricing influences for lower serial numbers within a single vintage year. As proposed, there is incrementally varying risk by sequential serial number – complexities for buyer and seller in tracking and valuing this risk. Projecting an emission reduction curve perfectly, by vintange year is difficult if not impossible to do. There are natural variations in year-to-year performance of any project - therefore higher serial numbers will not always be higher risk. Early year projections could also be off by an order of magnitude, but recover in the following year/s. ClimeCo strongly recommend revising the proposal to cancel any PCUs that are not successfully verified and rather allow a 'roll-over' mechanism to take effect.	blocks will convert first. Verra views this as an efficient market mechanism, rather than an artificial influence on prices. Later blocks of PCUs indeed face a greater general risk of non-delivery and complete information enables potential buyers to properly perceive and price risk. It is reasonable for the market to price later-term PCU blocks lower, given the generally higher risk of under-delivery. Verra considered a "roll-over" mechanism. However, for potential buyers to assess risk, both the certainty of seniority (first-come, first-served) governing PCU-to-VCU conversion and PCU expiry are critical. For example, a buyer considering a purchase of Vintage Year 2 units would lack certainty if all the buyers for Vintage Year 1 could roll over units into Year 2 in the case the project under-performs in Year 1. The knock-on effects of a roll-over mechanism would undermine the market while seniority and PCU expiry provide much-needed certainty.
25	The proposal foresees long PCU assignment periods, going several decades into the future. Given the rapidly changing climatic and political environment, we caution against such long assignment periods for PCUs to be installed without further scrutinty. We believe that the assignment period should be restricted to a shorter period but granting further expansions based on performance of projects. As an explanation: First, we see limited commitment from the buyers side to make forward purchases going beyond a 10 year time horizon and thus making for an unsustainable downward pressure on prices for PCUs with 10+ vintages in the future. Second, we don't believe that ex-ante validation provides for sufficient ground to evaluate projects more than 10 years in the future. 2022 alone outlined how political and environmental risks can massively change project performances even within one year. Furthermore, ex-ante assessment remain arbitrary and should thus be conservative by default. In all cases, they should be able to benefit and learn from verifications on (yet pending) methodologies to assess projects. Given the	To note, few project activity types are eligible for relatively long PCU assignment periods -- only removals activities. All other activity types are restricted to a maximum period equal to the baseline reassessment period. Additionally, while validation is a risk-based process, these assessments are far from arbitrary.

	urgent need to expand the tools/practices and technologies available to address the climate challenge, the current PCU desing is likely to be applied to novel approaches without any experience as regards their real world effectiveness and impact. Another safeguard against project underperformance would be a restriction of the quantity of ERR's that can be translated into PCUs, e.g. based on historical verification performance of in-class projects.	
26	No, I think that environmental integrity will be addressed in other components of the VCS standard and that normal third party due diligence is becoming sufficiently mature to act as a backstop to VVB validation	Thank you for your input. No change needed.
27	No comment.	No change needed.
28	No.	Thank you for your input. No change needed.
29	This will add complexity into the market, and thus potential for additional confusion for buyers, sellers, and market observers. If participants do not parse the nuances of the PCU construct, it could erode market integrity through the generation of unsupported claims.	Verra agrees that stakeholder education and engagement are needed to ensure claims align with best practices.
30	We are concerned that prioritising VCU conversion on a "first-come, first-served basis" will introduce complexity and uncertainty in deciding when, how much and in what size to request assignment of each block of PCUs within a vintage. Risk aversion will likely mean that later blocks will be harder to sell and probably be sold at a lower price. This, in turn, risks the overall underfunding of vintages. As a result, we expect project proponents to try to discover strategies in assignment choices to sell more PCUs at higher prices. Buyers, in turn, will be aware of this and further attempt to "game" the system. Furthermore, we expect many others to wait and see what works best, registering fewer PCUs and delaying the decision to register more. The subsequent effect of these concerns is likely to introduce uncertainty and perceived risk into the registration choice, lower the rate at which PCU are	Verra considered an alternative to first-come, first-served conversion, where all buyers equitably share the risk of underperformance. Through discussions with Verra working groups and other stakeholder forums, Verra determined pooling risk across buyers leads to greater uncertainty which could undermine the market. Earlier buyers of a given vintage should enjoy the comfort of knowing that their PCU blocks will convert into VCUs first.

	registered and reduce the amount of advanced funding. These issues would not exist if PCUs shared the under-delivery risk for each vintage. As an insurance company developing insurance for under-delivery of carbon removal units, we would propose considering insurance risk transfer as a mechanism to protect delivery instead of a "first-come, first-served" model.	
31	We do worry about the ease of use given the final points highlighted in answers to Question 1. We do not see challenges on environmental integrity, since a) PCU owners cannot “retire” and b) that environmental integrity is already covered by the core VCS procedures. Having said that, having some claim guidance around receiving PCU issuance (not the ownership through trading) would be helpful though (see our comment in question 6).	Thank you for your input. No change needed.
32	The Verra registry is not designed to document large numbers of transfers of VCUs. While this makes sense because VCUs are transferred a limited number of times, the proposed PCU design presents an opportunity for large numbers of transfers of individual PCUs. The registry should be enhanced to adequately track PCU transfers in a timely fashion.	The Verra Registry can facilitate the transfer of any given block of VCUs without limit to number of trades. Similarly, there will be no technical limits on the number PCU trades.
33	No comment.	No change needed.
34	No. We believe that the fact that PCUs are recognized should not affect the environmental integrity of the projects.	Thank you for your input. No change needed.
35	We think it should be a conservative mechanism to reduce the uncertainty between PCUs and VCUs, and not just relying on the liability clauses on a PCUs deed of representation. E.g., only a certain percentage (e.g., 50% or a percentage based on performance of previous projects of similar type should be allowed). Current approach, leaves all the burden to the project developer and the buyer, and does not seeks to guarantee the integrity of the market and the net zero claims by companies.	Verra considered restricting PCU assignment volumes to a fraction of total validated, estimated ERRs to mitigate against under-performance risk. However, such a restriction could influence the market to perceive risk based on indirect indicators of underperformance, and possibly over-correct when determining PCU prices. As a blunt instrument, this restriction could do more harm than good.

36	Yes. Early-stage prospective projects carry more technical and commercial risk. They are also subject to a larger degree of measurement uncertainty as they occur before monitoring and verification. Projected values associated with pre-verification projects may be considered speculative and subject to material adjustment following verification. This may lead to significant ERR downgrades post monitoring and verification which may undermine investor confidence in the market. For example, we have observed significant uncertainty around crediting for nature-based projects. We note that for many AFOLU projects there is a discrepancy between the number of projected credits (ex-ante) in Project Design Documents and the credits that are eventually issued. We have noted that for many ARR projects, projected emission reductions (e.g. ex-ante figures in PDDs) are greater than the quantity of verified and issued credits. For REDD+, the picture is mixed: we have observed that quantities of issued credits can be both greater or significantly fewer than projected. Furthermore, changes in environmental policy are unpredictable and pose an additional risk. Two recent examples of such changes which are likely to hinder projects' credit issuances are the moratorium on REDD+ projects in Papua New Guinea as well as the halt in issuances in Indonesia. We therefore recommend that (in addition to the buffer pool contribution) up to 20% of PCUs should not be sold, to mitigate underperformance risk. Two additional benefits of this conservative approach are that it would (i) ensure at least an element of 'results-based payment' for project developers, and (ii) ensure that they can realise the full value of future credit issuances through the primary markets, ensuring ongoing financial flows which may be needed in order to keep project activities running throughout the project's lifespan.	Similar response as to above comment. Buyers ought to conduct their own due diligence to identify under-delivery risks. Imposing restrictions on PCU assignment volumes could do more harm than good. Also, very likely, projects and buyers are not likely to transact close to the full volume of available PCUs for farther-term vintages.

37	The environmental integrity of PCUs will be linked to the integrity of the VCUs, so as long as the project is additional etc. there should be no concerns.	Thank you for your input. No change needed.
38	Our answer is at this time we have no concern, and we support the point 2.9 as we have observed a strong market demand to finance cluster project oriented to the demand side with a broader participation of all stakeholders of the civil society.	Thank you for your input. No change needed.
39	No concerns about ease of use or environmental integrity, as long as the projects follow established protocols and undergo the standard validation and verification processes.	Thank you for your input. No change needed.
40	The biggest open concern is non-delivery in the case of delay in project development/verification. While underperformance due to planting mistakes is covered in the current proposal, our experience as project developer shows a general delay in starting to plant and subsequently the verification. What if a PCU is sold in 2022 with a vintage of 2023, but our project is only starting to plant in 2024?	In this case, the 2023-vintage PCUs would expire if the project does not begin activities until 2024. Buyers should assess, and price, this risk appropriately.

3. The proposed maximum PCU assignment period for NCS sequestration (removal) projects, including afforestation/reforestation projects, is 40 years. Do you agree with this timeframe for NCS removal projects? If not, do you think a longer timeframe (e.g., 60 years) or a shorter timeframe (e.g., 20 years) would be more appropriate? Kindly provide your rationale.

Comment #	Issue Raised	Verra Response
41	I'll respond with respect to reforestation. 40 years is sufficient for more productive forest ecosystems but does exclude others. For example, whitebark pine and quaking aspen forests do not generate sufficient carbon until 80+	Thank you for your input. No change needed.

	years to pencil out as carbon projects with acceptable prices. Verra could consider having an option for proponents to propose a longer PCU issuance timeline with justification - not to fully close the door on those projects that need a longer time to generate sufficient PCUs, but to allow for space for those slow-to-grow projects. There aren't a lot of papers out there that specifically model out or estimate carbon growth from bare ground in forests. There is information on how much carbon is stored in forests with estimated ages which can illustrate how important it is to have at least 40 years of forest growth to use as basis for PCU estimation and issuance. https://esajournals.onlinelibrary.wiley.com/doi/pdf/10.1002/ecs2.2778 https://www.jstor.org/stable/2937170 https://cdnsciencepub.com/doi/abs/10.1139/x01-216 Based on our runs in FVS for mixed conifer forests in CA and even highly productive Douglas fir forests in Oregon, we need between 40 and 60 years to have enough carbon to both fund the project and withhold enough to protect against under-delivery.	
42	40 years seems fair for most afforestation/reforestation projects, especially in tropical forest landscapes with faster carbon sequestration rates. Some temperate forest landscapes may need longer than 40 years of sequestration to help optimize the performance of a project's financial and carbon models.	Thank you for your input. No change needed.
43	The maximum PCU assignment should be the shortest as possible, to reduce the risks of trading PCUs that would never be converted to VCUs. If the value of PCUs is lower than VCUs (because they have a higher risk of not being delivered), this could generate a risk of greenwashing: some companies may show that they are committed to offsetting for the next few years by having already signalled the purchase of credits, but in fact when the date arrives the actual purchase will not be made because the project does not perform.	Thank you for your input. No change needed.
44	Specific to reforestation projects, a longer assignment period might be justifiable if the project is on protected land (Government Secured or Perpetual Conservation Easement). However, due to increasing risk to buyers as projections increase into the future, the ability to sell the PCUs beyond 40	Thank you for your input. No change needed.

	years is unclear. Adding the option to extend the assignment period, as per question 5, Section 2.3, could be valuable if the project has met prescribed 'success indicators'.	
45	The chosen period goes well beyond any credible ex-ante assessment of NCS, given the rapidly changing climate and a corresponding risk of underperformance / buffer contributions. Overestimations of VCUs and a de facto overissuance of PCUs based on such long timescales is likely to cause long lasting damages in the trust and functioning of carbon markets, whenever promised PCUs are to be cancelled. We thus favour shorter assignment periods and/or limited quantities of PCUs that can be assigned. We foresee such cautionary measures extremely important, as the current trends in VCM transactions have clearly shown that market participants (including buyers) are not aware of the underlying credits that they buy (E.g. seen with credits transferred to blockchains). NCS furthermore present relevant challenges in terms of ex-ante validations, as the rapidly changing climate and associated policies (e.g. on AUDD or APDD) are likely to fundamentally change the outlook on of a NCS project developed today.	Kindly note that 40 years is the proposed maximum PCU assignment period for NCS removal activities only. There are bad projects but those with highest risk of over-issuance are REDD projects, where PCU assignment is restricted to 6 years out.
46	Our company is interested in NCS AR and we agree with the 40 year timeframe as it will help to provide the level of upfront financing for AR projects that have substantial co benefits (environmental and social) but involve slower growing species	Thank you for your input. No change needed.
47	We suggest the proposed 40 year maximum timeframe should be longer for the following reasons: 1. The 40 year time horizon limits the amount of PCUs the project may be able to generate to cover the up-front project costs. Potential project proponents, therefore, may not consider the effort to be cost effective enough to be worth the undertaking. A shorter timeframe could also potentially incentivize the planting of fast-growing forests (i.e. carbon) as opposed to native or slower growing species that could provide more environmental co-benefits. 2. The determination of the length of the PCU Assignment period should be identified and supported in the respective Project plan which would allow each project proponent to define the PCU assignment period according to their	Thank you for your input. No change needed.

	financial projections of the up-front costs which vary by region. To increase transparancy and public confidence, a clearer explanation here about how the projects continue past the 40 year PCU assignment period would be helpful as in one instance, it appears that the project ends. In reality, the PCUs will just no longer be assigned, but the project will convert to issuing VCUs up to the defined project end date. A 100-year timeline assures "permanence" while a 40-year time horizon is set far below what would normally be considered an ecologically prudent harvest cycle.	
48	Yes	Thank you for your input. No change needed.
49	We feel that 40 years introduces too much risk and uncertainty, and that the period should be shorter. However, we do support the ability to add more PCU periods in the future as the project continues through verifications.	Thank you for your input. No change needed.
50	We agree that a maximum period of 40 years is suitable for NCS, especially afforestation projects. The highest rate of sequestration and most of the total sequestration occur in this time period. We believe this also aligns with the costs of operating such schemes and encourages total funding up to the establishment of a mature forest. We would add that this would require review later if alternative NCS methods with very different sequestration profiles become popular.	Thank you for your input. No change needed.
51	From the perspective of A/R projects, we find a max assignment period of 40 years to be appropriate. Having done work in mostly mediterranean climates, the forest growth can often still have material growth at the 4th decade. Setting the period at 40 years and not shorter may send a positive signal for investors to consider not only the most carbon-rich or fast-growing biomes of the globe. Longer timeframes beyond 40 years probably have diminishing returns in general. For one, (projected) credits that far out would probably not matter much to most investment cases any more. There's also the potential issue of	Thank you for your input. No change needed.

	"generational equity" concerning locking in / assigning away benefits that far out.	
52	I would support a proposed maximum PCU assignment period equal to the duration of the VVB-validated project plan. While capping the maximum period at the duration of the project plan is intuitive, setting a maximum anywhere below this time period is arbitrary and not evidence-based. For NCS removal projects, it is important to maximize opportunities for early project investment, and setting the PCU assignment period to the duration of the project plan would represent an intentional effort to maximize opportunities for early project investment.	Indeed -- Verra intends to maximize opportunity for early project investment but within reasonable bounds, considering trade-offs such as risk associated with farther-term vintages.
53	The maximum PCU assignement should be the shortest as possible, to reduce the risks of trading PCUs that would never be converted to VCUs. If the value of PCUs is lower than VCUs (because they have a higher risk of not being delivered), this could generate a risk of greenwashing: some companies may show that they are committed to offsetting for the next few years by having already signaled the purchase of credits, but in fact when the date arrives the actual purchase will not be made because the project does not perform.	A response was provided to a similar comment to this question.
54	In order to encourage projects worldwide, we think a longer timeframe of 50 years would be more aapropiate, since in places such as the Mediterranean, tree species grow more slowly than in the tropics.	Thank you for your input. No change needed.
55	1. Overaching feedback: Shorter time frame is appropriate. It should not never be more than the crediting period allowed (e.g. 20 years, 7 years/10 years. etc). Also at every RCP, baseline is reassessed and newer version of the methodology need to be applied, leading to possible change in ERR calculations 2. NCS removals: A shorter time frame would be more appropriate. In the case of ARR projects, usually the ex-ante calculations are done based on reviewed literature and not always based on actual measurements of the geographic location of the project. Actual growth usually differs from literature growth and this may lead to a shortfall in some cases that not necessarily are related to	1. Yes -- this is already in the proposal. 2. The long-term average year cap is an interesting proposal to limit risk of under-delivery. 3. Note that 40 years is for NCS removals. The models for this kind of activity are less volatile compared to SOC.

	underperformance. We think it should include specifically the long-term average year as a cap year for the PCUs. Additionaly, it was not clear if future plantations can be included in the PDD. in this case, which is customary, there will be more uncertainty in the actual performance or the certainty on the plantation schedule proposed by the PO. Similar to SOC projects, there could be estimations based on current models/peer reviewed literature, that need to be updated regularly for purpose of accuracy and reducing uncertainty. Thus predicting ERRs for 40 years would not be appropriate (also check rationale in previous point about methodology).	
56	While we are open to alternative views on this topic, we see risk in allowing for such long maximum PCU assignment periods. Given the complexity of the VCMs, the specificities of the underlying projects, and the long timeframes associated with these activities, there is a non-zero likelihood that some PCUs will not be converted into VRRs. The greater the volumes of PCUs sold, the greater the likely number of PCUs cancelled without converting to VRRs. Every cancelled PCU represents wasted climate finance, which achieved no environmental benefit, and displaces climate finance going to VRRs, which do represent environmental benefit. While we see the benefits of enabling the market to understand and manage the uncertainties in the market, there is a converse risk that the market, in aggregate, will not instantly strike the optimal balance. For this reason, and in light of ever evolving emission reduction/removal methodologies, we would suggest that the proposed maximum PCU assignment period be limited in the first instance to a shorter period, e.g. 20 years, and that this should be reviewed - with a view to being gradually extended - every five years. In this way Verra and the wider market will be able to assess the impact of this innovation and gradually increase its temporal reach, if the evidence shows this to be beneficial to the overall environmental impact of the market.	A 20-year maximum PCU assignment period, with the option to extend in 5-year increments, is an interesting proposal to limit risk of under-delivery.
57	The assignment should be for either the first crediting period or the full crediting period for all the different types of projects.	The benefit of specifying a different maximum PCU assignment period based on activity type is that risk of under-delivery can be capped based on science and scale of impact. ARR estimates are relatively

		stable, well-understood, and less prone to volatility compared to those of REDD projects, for instance.
58	No comment	No change needed.
59	I think 40 years is an appropriate timeframe for NCS removal projects. However, I agree with the respondents cited at the top of page 12 of the consultation document who cautioned that shorter time frames could perversely incentivize the planting of fast-growing non-native species, so I think that a 60 year timeframe for A/R projects could be appropriate.	Thank you for your input. No change needed.
60	As project developer of mangrove reforestation projects (AR-AM0014) the project periods are between 15-25 years. Therefore the maximum of 40 years seems too long, but our experience is limited to mangrove reforestation.	Thank you for your input. No change needed.

4. This proposal includes a maximum PCU assignment period for non-NCS (e.g., technological) sequestration (removal) projects of 40 years, considering the significant upfront investment needed for these projects (e.g., Direct Air Carbon Capture & Storage) to be deployed. However, unlike NCS sequestration projects, these technological projects can immediately generate emission removals once operational. Do you agree with this timeframe for technological removal projects? If not, do you think a longer timeframe (e.g., 60 years) or a shorter timeframe (e.g., 20 years) would be more appropriate? Kindly provide your rationale.

Comment #	Issue Raised	Verra Response

61	No comment.	No change needed.
62	No comment.	No change needed.
63	No comment.	No change needed.
64	The assignment period for non-NCS should align with the expected project/technology life. The buyer of the PCUs should be the one to determine if they are comfortable with the risk of purchasing PCUs further into the future.	To align this period with the project/technology life would not be prudent for large-issuing projects that face significant risk of volatility.
65	The chosen period goes well beyond any credible ex-ante assessment of non-NCS, given the rapidly chaning climate policies and a corresponding risk of underperformance / buffer contributions / additionality discussions. Overestimations of VCUs and a de facto overissuance of PCUs based on such long timescales is likely to cause long lasting damages in the trust and functioning of voluntary carbon markets, whenever promissed PCUs are cancelled. We thus favour shorter assignment periods and/or limited quantities of PCUs that can be assigned. We foresee such cautionary measures extremely important, as the current trends in VCM transactions have clearly shown that market participants (including buyers) are not aware of the underlying credits that they buy (E.g. seen with credits transferred to blockchains). Non-NCS projects furthermore present relevant challenges in terms of ex-ante validations, as the rapidly changing climate policies as well as newly discovered ERR projects are likely to fundamentaly change the outlook of a non-NCS project developed today. As many of these projects are yet emerging, we encourage Verra to gather further learnings from conventional validations and verifications based on (pending) standards. In addition to the points mentioned here and above, it remains questionable how the VCM in generall will be converging with a compliance market in order to fully realize the Paris agreement. With a periodic NDC ratcheting up mechansim, important PCU characteristics such as corresponding adjustments and or additionality will change more frequently than the currently foreseen assignment period.	The risks outlined here should be identified and considered by buyers in the specific conditions where relevant. Many projects do not face the same kinds of risks.

66	We are focussed NCS projects but it seems evident that since CCS usually would involve costly infrastructure, a 40 year presale of a certain % of convertible certificates will help to cover those upfront costs	Thank you for your input. No change needed.
67	No comment.	No change needed.
68	Yes	Thank you for your input. No change needed.
69	We feel that 40 years introduces too much risk and uncertainty, and that the period should be shorter. However, we do support the ability to add more PCU periods in the future as the project continues through verifications.	A response was provided to a similar comment in this summary.
70	We agree with the proposed 40-year timeframe, given the requirement for significant upfront investment. However, we would add that the sequestration rate profile for non-NCS is likely to be very different from NCS and more constant and predictable. In addition, typical risk aversion will likely mean that further out vintage PCUs will command a lower price, given uncertainties around long term reliability and efficiency of technological methods. Further, such methods are more flexible regarding how they scale and extend existing projects. Taken together, we suggest that the timeframe choice is less certain for non-NCS.	Thank you for your input. No change needed.
71	We don't feel qualified to definitively address this question.	No change needed.
72	No comment.	No change needed.
73	No comment.	No change needed.
74	No comment.	No change needed.
75	Technical removals: 40 years is not appropriate for technical removals. Technical removal would primarily fall into two groups - CCS (geological sequestration projects) and CCUS (e.g., VM0043). For CCS projects, crediting period is not defined yet by the VCS. further, even in those cases, it would not	Keeping tech-based removals at a maximum of the crediting period is an interesting proposal. This would align DAC with the expected 7-year, four

	be 40 years without any interval for RCP or baseline reassessment or switch to newer methodology. For CCUS, they do not have 40 year of crediting period. projects such as those through vm0043 are classfied as Non-AFOLU (refer to sectoral scope of the methodology). Such projects would either have 21 years of CP (7x3) or 10 years fixed.The period for them should not be more than the CP allowed	times renewable, crediting period planned for the activity type.
76	See response to question 3, which applies equally to question 4.	A 20-year maximum PCU assignment period, with the option to extend in 5-year increments, is an interesting proposal to limit risk of under-delivery.
77	No comment.	No change needed.
78	No comment.	No change needed.
79	I think 40 years is an appropriate timeframe for non-NCS removal projects	Thank you for your input. No change needed.
80	No opinion on the development of non-NCS due to limited expertise	Thank you for your input. No change needed.

5. The PCU assignment period is described as a static timeframe with a fixed start date and end date. Should project proponents have the option to extend a project's PCU assignment period, contingent on re-validation of relevant project documents? For example, five years past the project's start the proponent may be able to extend the PCU assignment period by five years into the future after re-validation of key parameters, including the project's ERR projections.

Comment #	Issue Raised	Verra Response
81	I think this could be useful in instances when projects need to raise additional funds upfront to cover early year expenses - for example, at year 10 the project is short $100K to cover MRV costs so they can project out an additional 10 years into the future to generate PCUs to sell to cover the MRV -- I think the	Logically, a proponent would be able to extend their PCU assignment period up to the maximum time allowed based on activity type.

	question is, how far out should a project be able to extend? A maximum of 10 years? Curious for rationale behind the maximum extension period.	
82	Yes, the ability to extend a project's PCU assignment period would be needed flexibility for many project proponents as they navigate implementation challenges and opportunities.	Thank you for your input. No change needed.
83	As answered in question 3, the PCU assigment period should be the most restrictive as possible, to reduce the risk of selling "unsure" PCUs (i.e. that would never be converted to VCUs).	Thank you for your input. No change needed.
84	This option may be valuable. In relation to Question 7, Section 3.5, ClimeCo is in support of an additional validation after a project-specific and relevant waiting period where it can be determined that the risk of non-performance significantly decreases.	Thank you for your input. No change needed.
85	Such a "performance-adjusted" assignment period (e.g. looking max 5 years into the future) is very much preferred.	Thank you for your input. No change needed.
86	Yes for AR grouped projects with buildout establishment happening over multiple years it would be good to be able to extend out so years 2 to 10 (in the example where establishment would extend over a 10 year timeframe) could have PCUs issued for the full 40 years post establishment. If baseline or project scenario change the project would need to be revalidated and PCUs per hectare planted could be adusted going forward It would be good to allow for such adjustments to volumes of credits previously issued Ideally more and more R&D that better document actual versus projected growth for key species will come on line and having the flexibility to adjust issuance levels of vintages already sitting on the VERRA registry would help create more confidence in the overall system	Thank you for your input. No change needed.
87	Yes. However, why not just include this extension in the original timeframe (i.e. allow for up to 60 years) and issue PCUs upfront and more conservatively? Project proponents need as much upfront payment as possible for NCS removal	

	projects because that is when the bulk of the costs occur for project development. Additionally, five years may be too small of a proposed extension; for NCS projects, waiting 40 years for that extension may not be feasible.	
88	Yes	Thank you for your input. No change needed.
89	Yes	Thank you for your input. No change needed.
90	We believe that project proponents should have the option to extend a project's PCU assignment period. Given sufficient re-validation, additional documentation, and oversight, project proponents have more flexibility in dealing with uncertainty. This would be especially important for non-NCS where longer-term scalability and reliability are less well-proven.	Thank you for your input. No change needed.
91	We are not against the extension feature but are unlikely to make use of it - assuming that the max assignment horizon for A/R is indeed 40 years.	Thank you for your input. No change needed.
92	Yes, project proponents should have the option to extend the PCU assignment period. It is important to maximize opportunities for early investment for these projects, and enabling extension of the PCU assignment period after re-validation of key parameters would represent an intentional effort to maximize early funding opportunities.	Thank you for your input. No change needed.
93	As answered in question 3, the PCU assigment period should be the most restrictive as possible, to reduce the risk of selling "unsure" PCUs (i.e. that would never be converted to VCUs).	Thank you for your input. No change needed.
94	Yes, we agree with the option of extending the period, although we believe that in order not to have so much variation, we could opt for an extension of the period in terms of percentage (depending on whether it is 20 years or 50 years ....) eg: 20%.	Thank you for your input. No change needed.

95	Yes, project proponent should have a flexibility to extend the assignment period, depending on case to case basis. Factors must be set in place to determine whether a project is eligible for extension.	Thank you for your input. No change needed.
96	We would be open to supporting this proposal should the early evidence of the impact of the introduction of PCUs suggest this would further the overall impact of the market. We would not endorse starting with this position, because it introduces additional complexity without clear and obvious benefit.	The anticipated benefit of launching the PCU with the option to extend PCU assignment periods is to give proponents the certainty that even if a project's initial period is limited to 6 years (for REDD) or 40 years (for ARR), the PCU assignment period can be extended. This knowledge may impact business decisions now.
97	This could be more flexible, with no end date. Projects should be able to assign the PCUs when they want to allow flexibility in their sales and marketing strategy. What should be fixed is the period (vintages) for which PCUs can be assigned (could be only first validated crediting period or also allowing up to full crediting period especially for ARR projects this will be important.	The rationale for restricting initial PCU assignment periods is to limit the under-delivery risk. Dynamic PCU assignment periods is a middle path.
98	Yes	Thank you for your input. No change needed.
99	No opinion. It seems to add unnecessary complexity to the arrangement, but if the proponents see value in extending the assignment period and the project is re-validated (including baseline reassessment), then I don't see any reason to oppose this option.	Thank you for your input. No change needed.
100	Yes, this seems like a flexibility option for project developers to generate funds if necessary 5 years after project development	Thank you for your input. No change needed.

6. Are the updates for PCU implementation (Section 3) clear? Do you have suggestions to clarify or better define how PCUs will be implemented within the VCS Program?

Comment #	Issue Raised	Verra Response
101	As PCUs pertain to ARR it will be helpful for Verra to provide guidance on how to best predict future performance benchmarks. If we're to project out 40 years of project carbon, that is 8 performance benchmark adjustments. There are a myriad of ways to go about estimating what the background carbon accumulation will be on non-project lands but I think a Verra-approved or Verra-guided approach will lend itself to more rigor and standardization across users. Whether or not Verra provides the methodology for projecting out future benchmarks, some 'best practices' would be greatly appreciated so that developers are not totally on their own when making dynamic baseline assumptions 40 years into the future. My guess is that some Verra-endorsed best practices or guidance will lend rigor to the adoption of PCUs for ARR and help scale it more rapidly.	Indeed, using performance benchmarks and dynamic baselines can make estimating ERR volumes challenging with implications on PCU volume available for assignment. However, these underlying challenges are not specific to the PCU.
102	Yes, this is clear. The automatic conversion of PCUs to VCUs will be helpful for the VCM.	Thank you for your input. No change needed.
103	The document provided has clear explanation on the implementation of PCU scheme. Some clarifications are mentioned in "General Comments" of this document.	Thank you for your input. No change needed.
104	Clarity around changes in the PDD to disclose risk - will this be qualitative or require quantitative analysis?	Thank you for your input. No change needed.
105	It is clear to the informed VCM participant/stakeholder. Given the current trend on carbon markets, we remain unsure if it can be expected, that all stakeholders, of which there are many uninformed, correctly understand PCUs.	Thank you for your input. No change needed.
106	Yes but it would be good to have confirmed how for a NCS AR project the audit / first verification will trigger issuance assuming that PCUs cannot be issued	As with VCU issuance, the proponent can decide when to request PCU assignment. Many factors will

	before planting actually happens . How long after planting should one wait before carrying out a VVB audit verification?	influence the decision for a given projection, including business consideration and project performance to name a few.
107	Include definitions for ex-ante and ex-post credits and define more clearly why PCUs are not ex-ante.	PCUs are not ex-ante credits because they cannot be used to support offsetting claims.
108	No, it is not clear when PCU functionality in the Verra Registry infrastructure will go live. Will this happen at the same time that the VCS Program rule changes are published (Sept 2022) or at a later date? Recommend adding that information to Table 1.	Yes, the PCU is expected to launch in Q3 of 2022.
109	No comment	No change needed.
110	Overall, yes, we consider them clear. However, we request that Verra consider how easy it will be to identify, track and assess the risks of individual assignment blocks within vintages. Due to the associated extra workload and costs for all parties involved with record-keeping, intermediaries, marketplace and risk monitoring companies etc., will incur a significant cost burden due to the decision to implement VCU conversion prioritised in order of assignment block. Clarity, standardisation and guidelines on the assignment choices, such as the number, timing, and sizing of the PCUs block, would help reduce uncertainty, lower costs, speed up adoption, and increase the rate of PCU assignment and advanced funding received.	A response was provided to a similar comment elsewhere in this summary.
111	The descriptions are clear in Section 3. However, as discussed in answers to Q1), we don't necessarily see the current conversion mechanisms (section 3.4, item 6 and 7) to be the most desirable feature. Additionally, it'd be interesting if Verra can provide guidance on the possible claims for the initial investors/buyers who receive the PCU issuance - as it is their investments and leadership that make the projects possible. Having some guidance (and guardrails) on how such milestones could be communicated/celebrated would be helpful.	**Communication**: Verra will proactively communicate PCU's purpose, and that these units cannot be used for offsetting Verra will engage with market participants using PCUs and provide suggestions to inform best practices for credible claims. Regulating PCU claims is beyond Verra's mandate as a standards body, and we cannot regulate claims made using any units.

112	More clarity is needed around the contributions to the pooled buffer account. The current proposal seems to indicate the PCUs will contribute to the buffer (page 11, #4), and will contribute to the buffer again when converted into VCUs (page 11, #6a), apparently a double contribution to the pooled buffer account. It may be that PCUs in the buffer are converted to VCUs, but the wording in these sections is confusing. The inclusion of PCU levy fees on top of VCU levy fees should be monitoried closely for its impact on the availability of PCUs. It is likely that PCUs will be priced lower than VCUs because of assumed delivery risk. Combining these lower prices with higher levy fees (PCU + VCU) may limit the appeal of PCUs to drive early investment.	The volume of ERRs available for assignment as PCUs is determined based on BE - ER - contribution to the pooled buffer account. Just as issued VCUs are never directed to the pooled buffer account, assigned PCUs will never be direct there either. PCU assignment levies are needed to cover development and management. It is not clear that PCUs will achieve lower prices than VCUs for the same vintage year. At least some buyers are willing to pay a premium to lock-in a supply of credits.
113	The document provided has clear explanation on the implementation of PCU scheme. Some clarifications are mentioned in "General Comments" of this document.	Thank you for your input. No change needed.
114	Yes. We dont have any suggestion to clarify the process.	Thank you for your input. No change needed.
115	Updates to the PCU implementation are clear. Minor changes are required in PCU definition, if automatic conversoin is preferred a mechanism should be developed to notify the operational department about the conversion. The difference between assigned PCUs and issued VCUs should be communicated transparently. Although in the introduction was stated to do not make the processes more complex. Table 2, show that definetly the process will be come extremely complex, and this will have implication in all other registration processes with Verra and the delayed response times.	Yes, we appreciate the suggestion to notify PCU holders that the PCUs may soon convert to VCUs. Perhaps these notification can be automatically sent upon the project's request for verification approval.
116	The proposed updates appear logical.	Thank you for your input. No change needed.
117	Yes clear	Thank you for your input. No change needed.

118	It seems clear	Thank you for your input. No change needed.
119	No suggestions; the updates seem clear	Thank you for your input. No change needed.
120	They are clear and laid out well in the Proposal for Public Consultation	Thank you for your input. No change needed.

7. Consider that PCUs will enable project proponents to assign and transfer carbon units earlier in the project development cycle than otherwise possible. To ensure PCUs are underlied by robust projections, should project proponents or VVBs provide any additional information not already prompted in the VCS project description and validation report templates (Section 3.5)?

Comment #	Issue Raised	Verra Response
121	Similar to the answer above [Q6] - project proponents should definitely be prompted to provide justification for future performance benchmark assumptions and sound reasonings/data for those assumptions if they are to be third-party validated.	This issue is not directly relevant to the PCU. However, the conservative approach to quantifying ERR using dynamic baselines, Verra does not expect VVBs to validate underlying assumptions about baseline scenarios and emissions. Baseline scenario and emissions will be evaluated upon reassessment.
122	No comment	No change needed.
123	We believe that all information needed for PCUs offer to the market is covered in the PD. The final validation report itself attests that the project meets all VCS (and CCB, when applicable) requirements. In this context, further information for purchase of PCUs could be provided by project proponents to buyers on demand.	Thank you for your input. No change needed.
124	No, but there may need to be consideration for a waiting period before PCUs can be issued. For example, a 1-year waiting period and confirmation of sapling survival after planting for a reforestation project. Other project-specific and relevant 'success indicators' may need to be developed and be met before PCU issuance to prevent large volumes of defunct PCU credits. ClimeCo recommends Verra complete a study of current registered projects that have a validated PDD but have not actaully created any credits (as projected to do so) to determine the potential risk of large numbers of invalid PCUs.	Verra believes a waiting period would not offer significant value in mitigation risk of under-delivery. Consider the ARR example provided. The volume of ERRs is very low for early-year vintages and for later-year vintages, the project can recover over time. Rather than mandating a waiting period, buyers should consider waiting a year or so before buying early-year PCU vintages where the project activity is subject to volatile performance.

125	Given that PCUs are designed to become available without necessarily having a clear contractual counterpart, a due dilligence from a future buyer is pending. It remains questionable if VVBs (and to some extent Project proponents themselves) have the necessary scrutanty to come up with credible and robust projections to replace such a due dilligence from future buyers, given a conflict of interest between the parties.	Indeed -- even given third-party validation, there remains a risk that a project's verified ERR volumes might not meet projected volumes. As with VCU purchases, prudent PCU buyers are expected to conduct their own due diligence prior to purchase.
126	for sure PCUs will place added urgency and importance on project developer quantification accuracy and ability of VVBs to ensure that projections are accurate and conservative and well buffered All pertinent supporting information to any ERR assertion should be provided	Thank you for your input. No change needed.
127	No comment	No change needed.
128	Yes, project proponents should have the option to identify the investor/PCU buyer in the Project Description and state the volume/% of PCUs assigned to the buyer by vintage.	This proposal to identify PCU buyers and link buyers to PCU blocks is welcomed. However, the project description is static while buyers and purchases are dynamic. Verra will enable proponents to disclose PCU buyers upon request for PCU assignment. Disclosure will be optional. This information will appear on the Verra Registry.
129	It is entirely common for project developers to mis-estimate the future performance of offset projects, and generally in an anti-conservative manner. This error is likely to be greater for grouped projects, where the project developer must make projections of not only the performance of individual project instances, but also the rate of introduction of new project instances over time. In addition, it is completely within the realm of possibility that a project developer will fail as an entity prior to the conclusion of the PCU assignment period. This could be outright closure of the business or reprioritization due to merger or acquisition. Lastly, the issuance of PCUs should require that the validation confirm some mechanism in place for share of proceeds from PCU revenues in the case of projects which have participants upstream of the project developer (e.g., agricultural land management; agroforestry; etc.).	Yes, these are some ways in which a project's verified ERR volume can diverge from the projected volume. As with VCU purchases, prudent PCU buyers are expected to conduct their own due diligence prior to purchase. Regarding profit sharing, this is a commercial matter and PCU sellers and buyers can agree to terms among themselves. Validation of the project's conformance to VCS rules and requirements is not relevant to commercial terms.

130	We would suggest Verra consider extending the information registered to include remote sensing data provided by third parties. By defining a single source of truth at critical points in project timelines and providing a method for project proponents to control the scope and access to this data, Verra could facilitate data sharing between concerned parties. This would lower costs for project proponents and third parties that provide services such as risk management while raising the integrity and transparency of the risk assessment for all parties.	Verra is developing a Long-Term Monitoring System for Reversals (linked below). https://verra.org/webinar-on-long-term-monitoring-system-for-reversals/
131	Ideally yes. Indeed the forecast quality / accuracy would dictate the accuracy of the PCU assignments vs. VCU realization in time. (Especially for A/R projects), the ex-ante estimate guidance in the relevant VCS / CDM models are fairly flexible and adaptive to the availability of representative data and studies. In our pursuit for site-specific forecast accuracy, we found that certain regions do lack regional- or site-representative data or study and would have to rely on national averages or even IPCC Tier 1 figures, making their ex-ante forecasts inherently more uncertain. To that end, the best Verra can do is to help foster transparency on the projections, especially regarding e.g. the data input, modeling / projection approach, forecasting uncertainty, etc. While no forecasts are perfect, this requirement would at least provide a good basis for assessment and discussion. Such required (extra) disclosure would need to be tailored according to the type of projects. Finally, please avoid trying to set additional requirements on forecasting approach / parameters, etc. The maturity and data availability of different climate solutions vary wildly and this risk alienating projects for reasons outside the projects' control (e.g. lack of comparable peer-reviewed study/data).	This proposal to require proponents to identify, quantify, and disclose uncertainty of ERR projections is an interesting proposal.
132	The proposed additional information in the VCS Project Description template and Non-Permanence Risk Report template should be sufficient to ensure that	Thank you for your input. No change needed.

	PCUs are underlied by robust projections. Desk research could be conducted to compare validated estimated ERRs to VCUs in historical projects, and where there is significant discrepancy between these two numbers, to assess what additional information in the project description and validation report templates may have aided in estimating ERRs more accurately.	
133	We believe that all information needed for PCUs offer to the market is covered in the PD. The final validation report itself attests that the project meets all VCS (and CCB, when applicable) requirements. In this context, further information for purchase of PCUs could be provided by project proponents to buyers on demand.	Thank you for your input. No change needed.
134	We believe that in order to achieve more robust future projections, estimates of potential productivity more characteristic of the specific geography of each project could be requested.	Many proponents find it challenging to source high-quality ARR data relevant to a specific geography. Existing requirements in the VCS Standard and methodologies already address this concern.
135	Maybe a better way is to limit possible assignment of PCUs upto a certain limit of validated ERRs. E.g., 50% of the ex ante estimation. This would allow less risk with the buyers and also ensure the market is not indulging in malpractices.	This comment is not about a need for additional information in project descriptions. The proposal to limit ERR volumes available for PCU assignment was addressed elsewhere.
136	We do not think any further information should be provided in the VCS project description and validation report templates.	Thank you for your input. No change needed.
137	Template should be harmonized not allowing different form of reporting as currently there is a high degree of variability among PDDs.	This comment is not about a need for additional information in project descriptions.
138	One comment on the PD Template with the intention to add some details on Section 1.10, it seems unrealistic for a non-NCS group project, which runs over 10 years, and which add up to 10 000 to 30 000 project activities instances (PAI). We recommend using the estimation made by group of generic PAI regrouped by sectoraial scope.	This comment is not about a need for additional information in project descriptions.

139	No opinion	Thank you for your input. No change needed.
140	Given our experience in Mangrove Reforestation (AR-AM0014), we propose a more stringent calculation of Soil Carbon with clear methodologies for calculation (e.g. coring, depth of measurement, wet/dry weight measurements, organic matter calculation etc.) as this is one of the major sequestration potentials and we have seen projects with rather loose/inprecise calculations of Soil Carbon.	This comment is about methodology requirements and not about a need for additional information in project descriptions to support PCU projections.

8. General comments

Comment #	Issue Raised	Verra Response
141	The PCU is an excellent and much needed mechanism on the Verra registry to enable and encourage investment in reforestation projects. We commend Verra on producing such a high quality and rigorous tool that will catalyze millions of dollars of investment into nature based climate solutions gobally. We are excited to integrate PCUs into our reforestation carbon program at American Forests and believe it is a missing piece in the carbon market.	Thank you for your input. No change needed.
142	I think there is definitely room for Verra to provide guidance on how to use and communicate about the PCU. Corporations will need this guidance, from Verra, and in concert with other reporting bodies to ensure it is used in the appropriate and correct ways.	**Communication**: Verra will proactively communicate PCU's purpose, and that these units cannot be used for offsetting Verra will engage with market participants using PCUs and provide suggestions to inform best practices for credible claims. Regulating PCU claims is beyond Verra's mandate as a standards body, and we cannot regulate claims made using any units.
143	I also think there is an opportunity for Verra to provide guidance on 'best practices' for how to estimate PCUs that a project may deliver when the project	Indeed, using performance benchmarks and dynamic baselines can make estimating ERR

	uses dynamic baselines. One cannot be sure what the future performance benchmarks will be, but some 'best practices' would help project developers navigate this space, use the PCU more readily, and potentially mitigate situations where the PCU is used in situations where the VCUs are not sufficiently delivered and the PCU concept is overall weakened.	volumes challenging with implications on PCU volume available for assignment. However, these underlying challenges are not specific to the PCU.
144	"2.1 Timing of Crediting PCUs are not ex-ante credits. Rather, PCUs represent the ERRs that a given project is expected to generate in the future. As such, PCUs cannot be retired and cannot be used to support offsetting claims.": If PCUs cannot “be used to support offsetting claims”, why would somebody purchase it?	Verra firmly maintains that PCUs cannot be used to support offsetting claims. PCUs are not ex-ante carbon credits.
145	“8. Given that PCUs can be traded, and given the automatic conversion of PCUs into VCUs, the endbuyer of the PCUs will receive the issued VCUs in their account .” Sellers can have the additional commercial value of VCUs in this occasion, or the buyer takes the advantage of having bought PCUs as a “higher risk investment” and its valorization makes part of this investment?	For a given project and vintage period, the priciing of PCUs may differ compared to that of VCUs based on a number of factors. This is a commercial matter for market participants to decide based on assess cost, benefit, and risk.
146	Consideration for how or if the buffer pool could potentially provide some protection for buyers of forestry or NCS based PCUs. Currently, the buffer pool would only kick-in after the PCU has converted to a VCU, leaving the PCU buyer 100% exposed to natural reversals and other large scale events.	The AFOLU pooled buffer account serves a distinct purpose, unrelated to PCUs and the risk of under-delivery. Additionally, the expiry of PCUs is important to signal to buyer where projects fail.
147	Please explain why PCUs are not ex-ante credits. PCUs are a mechanism to essentially forward-issue credits with future vintage years, and there's a mechanism to convert them to VCUs at a given time.	Verra firmly maintains that PCUs cannot be used to support offsetting claims. PCUs are not ex-ante carbon credits. This is addressed in the consultation document.
148	This comment somewhat contradicts one of the "buyer/investor" value propositions listed in the Introduction section: "Finally, leading corporates have mentioned how holding PCUs could allow them to demonstrate that their project investments are expected to generate a specific quantity of ERRs of an appropriate vintage to put them on track to meeting their net-zero targets or other climate commitments."	**Communication**: Verra will proactively communicate PCU’s purpose, and that these units cannot be used for offsetting Verra will will engage with market participants using PCUs and provide suggestions to inform best practices for credible claims.

		Regulating PCU claims is beyond Verra's mandate as a standards body, and we cannot regulate claims made using any units.
149	To confirm, 1 PCU "block" is 1 calendar year? Does PCU-to-VCU conversion happen annually?	The Registration and Issuance Process, v4.1 Section 4.1.2 states that proponents can use vintages periods, and those proponents can determine the length of these periods. This same optionality will apply to PCU vintage periods.
150	This is an interested concept, but we feel the model could be high risk for the project proponent as it opens up the potential for variability in pricing based on serial number. It is implied that earlier serial numbers could hypothetically bring higher value because they have a higher likelihood of successfully converting to VCUs. This could disencentivize project proponents to use this methodology as It could be more difficult for project proponents to sell all of their PCUs (especially later vintages), and more complicated for both project proponent and buyers because of the "first-come-first-serve" model. Since there is no buffer pool for PCUs, there is higher risk of conversion for later serials. What happens to buyers who purchased higher-serialized PCUs that get canceled?	A response was provided to a similar comment elsewhere
151	This will be a really useful feature for the project proponent. How exactly does this reduce workload and costs? Are these purely administrative costs? How does this impact verification (if at all)?	Upon Verra's approval of verification for a given monitoring/verification period, for all vintage periods therein, PCUs will be cancelled and VCUs equal to the verified volume will be deposited into the account of the end-buyers. Where a project underperforms, PCUs will be converted by seniority.
152	Does the PCU holder have to pay the VCU issuance levy before the PCU is converted?	In response to the question: no -- PCUs will be serialized upon receipt of the account holder's payment of the PCU assignment invoice. The respondent's proposal already aligns with the process designed for PCU-to-VCU conversion and VCU issuance.

153	What entities besides the project proponent can request PCU assignment? Other entities listed on the PCU Assignment Deed of Representation?	Only the proponent and authorized representatives can request assignment of PCUs.
154	What happens to the PCU issuance levy if the project underperforms and the PCUs for a given vintage cannot be converted to VCUs?	PCU levy revenue is to maintain Verra's PCU development and Registry functionality. These services require financial support even where projects underperform. As such, the proposed discount is not practical.
155	How will price be set of these EFCU's (i.e. discount)? Are they intending more of an open/liquid market, or more bilateral agreements that go through Verra for 'clearing'?	As with VCU pricing, PCU pricing is strictly a commercial matter between buyers and sellers. And as with PCU transfers, parties can buy and sell PCUs without Verra's involvement.
156	Overall, these PCU's feel like a derivative and the spread to the underlying mature price could represent 'delivery risk' of the project to an extent. That said, not sure CFTC's scope here.	Verra is of the view that its activities in relation to PCUs are not subject to regulatory requirements. Verra is continuing to engage with the CFTC with the view that regulatory questions will be positively resolved.
157	Re allocation and potential underperformance: Will there be a cap on % of projected project credits that are issued via EFCU's? (i.e. project A is expected to generate 100 credits, and the max EFCU's issued is 75, etc.). In the case of underperformance of the project (either full, or relative to any cap), the allocation bucketing will be important from a risk perspective. It could almost act as a tranched warrant structure if done a bit differently (i.e. EFCU's with rights to the first 50% of issuance trade at a premium/lower rate vs the EFCU's with rights to the last 5%).	A response was provided to a similar comment elsewhere
158	Is the 4c/t a flat fee for exercising? Would there be a volume adjustment function? Our initial thought was that it might be better to have a %age based or tiered fee based on price and volume of the project as the flat fee will have	The consultation document shows that the PCU assignment levy will be tiered, based on volume, and discounted for small-scale projects.

	a bigger impact on lower cost projects – and potentially skew the EFCU market to higher cost projects.	
159	Early project financing could be done via a contracting structure without registry intervention. This bears two implications: 1) Project developer needs access to carbon buyers/markets (which is in itself a competitive advantage). 2) There is an additional performance/default risk linked to the project developer themselves.	Thank you for your input. No change needed.
160	In the introduction, the phrase "Verra-backed instruments that may backstop contractual agreements, thereby reducing contracting and delivery risks" refers to PCUs. While this sounds positive, it is not clear what exact liabilities Verra takes in a transaction.	To clarify, PCU transactions are strictly among market participants and Verra does not participant in market activity. By stating "Verra-backed instruments," Verra's intention was to indicate that PCUs represent expected future carbon reductions/removals, as validated by an approved VVB against the VCS Standard and a relevant GHG accounting methodology. Buyers may find more value, and certainty, in PCUs compared to a seller's ERRs from a project that has not been validated and registered under a GHG program.
161	From section 2.6, we understand that the project proponent controls the priority by choosing the order of requesting assignments by deciding when to register and how much each tranche/block of PCU within each vintage.	A response was provided to a similar comment elsewhere. Additionally, this is a commercial matter -- up to proponents.
162	We suggest that VCU conversion on a "first-come, first-served basis" may also mean that proponents could have an incentive to ensure riskier vintages are requested and assigned in a single tranche to raise the amount of PCUs sold and avoid underfunding. Others that prefer that all buyers share delivery risk would also choose to assign each vintage in an entire tranche.	A response was provided to a similar comment elsewhere
163	There is a requirement for projects to "make transparent the risks of underperformance of the project" and to complete the non-permanence risk report following the guidelines and output from the non-permanece risk tool. At the same time, the risk tool guides projects on the scope, type, and qualitative	Verra agrees that potential buyers much be able to assess under-delivery risk prior to making PCU purchase decisions. The Verra Registry will display publicly the volumes and vintages periods of PCU

	and quantitative estimates of risk. However, projects are likely to be used to complete these reports at the vintage level. Risk aversion will mean buyers look closely at this, and any sense of "Pro-forma" responses will probably result in all tranches being considered riskier.	blocks that cannot convert to VCUs due to under-delivery. Of course, this information will not be available until after a project's first verification. Given this, Verra does not see a need to require additional information for risk disclosure.
164	Insurance companies have a long track record of pooling risk efficiently. They can pool and diversify risk across projects, removal methods, geo-political regions and accreditation schemes. Thus, offering buyers and sellers the highest risk mitigation in the most cost-effective way. Using insurance has the additional benefit of making monitoring and risk mitigation a central concern for insurance companies. Historically, insurance companies in other sectors have made significant investments in risk research, monitoring, and supporting independent standards development. Kita (https://www.kita.earth/) is an example new insurance company for the voluntary carbon markets.	As with VCU transactions, market participants can opt to use insurance as a part of PCU transactions. Again, these market activities are beyond the scope of Verra's work as a standards body.
165	100% assignment is inherently not an issue but the accuracy of the forecast is tied to the assignments' accuracy. As not all forecasts are equal / perfect, having (additional) transparency on the forecasting features like the approach, data and/or assumption would be very critical to buyers as well as to improve the forecast accuracy overtime.	Indeed -- all manner of approaches, methods, data, and tools for estimating ERR must be disclosed in a project's PD. These requirements are already in place.
166	We support the idea of vintage-link but struggle with the calendar year as the hard unit, particularly for A/R projects. We foresee significant challenges for projects that cannot monitor/verify annually. Say a project monitors (strictly in the carbon pool sense) and verifies every 5 years. Even with best intention and remote sensing, it'd be nearly impossible to precisely determine how many removals are achieved in each year. Additionally, even for projects that monitor carbon pools annually, it likely won't track the January-to-December cycle and would be a nightmare to try to determine the exact split between 2 calendar years.	Vintage periods need not follow calendar years. The Registration and Issuance Process, v4.1 Section 4.1.2 states that proponents can use vintages periods, and those proponents can determine the length of these periods. This same optionality will apply to PCU vintage periods.
167	III. Conversion & under- / overperformance (section 2.6 + section 3.4) & expiry (section 2.7). We see a major added value of PCUs to be reducing the	Linkage to specific vintages is a critical design feature for PCUs. Potential buyers must have
168	counterparty risks of the project-enabling buyers or investors as this enables	confidence that their purchased PCUs will not

169	them to receive issuance directly. However, the current design choice risks shifting a substantial amount of VCU issuances back to project proponents in the A/R context. For A/R projects, it is plausible that the growth curve gets delayed by 1-2 years from the original forecast (say due to heat or lack of rain). If the capture curve is a bell-curve (like many we've observed), the consequence of that would mean the projects would structurally under-perform in the initial years and over-perform in the subsequent years. As a result, the PCU owners could structurally under-receive VCUs while the project proponents could get VCUs that are not meant to be received by them. Of course most project proponents in good faith could contractually remedy this, but this current feature could deter investors rather than incentivize them.	change vintage dates. Verra agrees that ARR and other activity types can experience significant changes in the early years of the project. As such, proponents might consider requesting conservative levels of PCU assignments in the early years to mitigate the risk of under-delivery.
170	"2.1 Timing of Crediting PCUs are not ex-ante credits. Rather, PCUs represent the ERRs that a given project is expected to generate in the future. As such, PCUs cannot be retired and cannot be used to support offsetting claims.": If PCUs cannot "be used to support offsetting claims", why would somebody purchase it?	A response was provided to a similar comment elsewhere
171	"8. Given that PCUs can be traded, and given the automatic conversion of PCUs into VCUs, the endbuyer of the PCUs will receive the issued VCUs in their account ." Sellers can have the additional commercial value of VCUs in this occasion, or the buyer takes the advantage of having bought PCUs as a "higher risk investment" and its valorization makes part of this investment?	A response was provided to a similar comment elsewhere
172	Will baseline reassessment costs be shared among all project proponents in the same jurisdiction?	This is not relevant to the PCU. No change needed.
173	With the updates, will the agents and drivers of deforestation no longer be considered, since the rate will generally be defined by the proximity to deforested areas, so how will the pressure of deforestation, by external factors, be considered before it actually happens?	This is not relevant to the PCU. No change needed.

174	How can a prior feasibility analysis be carried out for the future projects that do not have a risk mapping already defined?	This is not relevant to the PCU. No change needed.
175	How will the methodologies be unified or updated according to modules? Will its particularities be preserved?	This is not relevant to the PCU. No change needed.
176	We support the definition of PCU, but it requires further refinement. The defintion can be simplified with sufficient clarity on what PCU is and may include relevant details for making decisions.	A response was provided to a similar comment elsewhere
177	VCS should evaluate the possibility of adjusting PCU fee with the issuance fee. If adjusting for all projects is not possible, fee for projects in certain geography (e.g., LDC/SIDS/LLDCs or countries with active conflicts) and scale (e.g., small scale - as defined by CDM) should be evaluated	A response was provided to a similar comment elsewhere
178	Notification on registry and project page should also be added	A response was provided to a similar comment elsewhere
179	The main risk for this PCU for NCS projects is underperformance. Allowing assigning 100% of the ex-ante calculations is a risk if the project underperforms for any reason.	A response was provided to a similar comment elsewhere
180	1. If the project withdraws from the VCS Program or does not issue any VCUs, existing program rules would render the project inactive and all associated PCUs would be cancelled. 2. Often, when VCUs retired, after being traded, they are done for a party that may not exist in the registry system. The account holder retires, on behalf of the another entity	A response was provided to a similar comment elsewhere
181	Although in the introduction was stated to do not make the processes more complex. Table 2, show that definetly the process will be come extremely complex, and this will have implication in all other registration processes with Verra and the delayed response times.	A response was provided to a similar comment elsewhere

182	Overall, we believe that these proposals will enable the market to invest in projects at an early stage whilst also having the opportunity to understand and manage the associated risks.	A response was provided to a similar comment elsewhere
183	However, there are also uncertainties that must be considered. We suggest some mitigations and existing frameworks which may support this.	A response was provided to a similar comment elsewhere
184	We also see potential risks to the concept of PCUs being taken too far, too soon. As such we propose two modifications to the proposal at risk mitigations: a reduction in the total permitted PCU issuance (e.g. to 80% of projected ERRs), and a reduction in the PCU assignment period (e.g. to an initial maximum of 20 years).	A response was provided to a similar comment elsewhere
185	I'll be interested to read the regulatory assessment when it is complete. It seems to me that, when traded on a secondary market, PCUs function a lot like derivatives (since their value is derived from the performance of an underlying entity, in this case, the carbon project). In addition to commenting on the possibility of regulation by the CFTC or the SEC, I'd like to see Verra provide some analysis of systemic risks associated with PCUs serving as a financial asset. Is there any concern that speculation in PCUs could drive a bubble or lead to price distortions, or have other negative outcomes that could affect the broader carbon market or the integrity of carbon projects?	Verra is of the view that its activities in relation to PCUs are not subject to regulatory requirements. Verra is continuing to engage with the CFTC with the view that regulatory questions will be positively resolved.
186	For us as project developer of mangrove reforestation projects, we see a strong interest in high-quality blue carbon removal credits by private and retail investors. One way to build a bridge between capital of individuals and project developers is opening up the possibility of tokenizing PCU's via a 2 way bridge (no retirement until burning of token). We strongly encourage you to keep this option as we see it as an very effective tool of channeling capital to restore more mangroves on this planet. We are aware of the current annoucments and efforts of "immobilizing credits". Regardless of how it is called, as long as the integrity of the carbon removal is kept intact (in form of a 2 way bridge or similar), we want VERRA to consider promoting such options.	PCUs cannot be tokenized and, in fact, Verra now prohibits the tokenization of VCUs.

187	Timing of Crediting. IETA and ICROA strongly support that PCUs are not ex-ante credits and cannot be used for offsetting or for any claim. Under ICROA's code of best practices, ex-ante credits are not accepted as offsets.	Thank you for your input. No change needed.
188	PCU Assignment Process. IETA generally supports the assignment process as outlined in the consultation document and the alignment with the process for other projects under the VCS program. IETA suggests that in order to offer more flexibility to project proponents with PCU assignments, VERRA could enable projects to opt between senior or pari-passu assignments. Senior would be first come first serve, pari-passu would allow the project to allocate credits equally among different buyers. This is typically governed by underlying contractual agreements.	Kindly note the difference between the PCU assignment process and the PCU-to-VCU conversion process. A proponent may request assignment of the full quantity of PCUs available for some or all vintages at once or make incremental requests over time for smaller quantities of PCUs. Following, the proponent can sell and trade PCU blocks according to their contract commitments. Upon verification, PCUs will convert to VCUs based on seniority. Not all projects will perform to, or above, projections. It is important for potential buyers to assess under-delivery risk prior to purchase and the certainty of seniority governing PCU-to-VCU conversion is a central component of this assessment.
189	PCU Assignment Period. For climate and project integrity, we support assigning PCUs only after validation. PCUs should not be assigned before validation, as there would be no way to ensure integrity of ERR projections, which would undermine confidence in the carbon market. Furthermore, the estimates for volume could have limited accuracy in many cases and the validation process is an important step to ensure the methodology has been applied correctly, and more broadly that the project is eligible for the VCS program. Allocation of PCUs prior to validation could lead to projects selling credits issued by Verra and flooding the market, despite potentially being in violation of Verra/VCS requirements.	Verra agrees that proponents must be able to request PCU assignment only after validation and registration. The consultation document set out this process.
190	PCU Assignment Quantity. IETA has mixed views on the PCU assignment quantity. While we don't necessarily support an arbitrary haircut on the percent of ERRs that can be assigned as PCUs, we do have concerns that with the current PDD estimates that assigning 100% of the validated estimated ERRs could result in complications if the project ultimately under delivers. A potential	Indeed, under-delivery is a substantial risk. Verra agrees that attempting to mitigate under-delivery risk by way of discounting PCU assignment quantity is arbitrary.

	solution to this may be to reinforce the conservativeness and consistency of PDD estimates. Buyers should be aware of the risks of non-conversion and apply appropriate due diligence. If it doesn't already exist, there could be a mechanism for projects to update the estimated ERRs at a later date without undergoing a full revalidation. This could be particularly useful to unlock more PCUs for instance at the time of first verification and would provide greater transparency as to how the PDD estimates are tracking against reality and updating over time. IETA generally supports the different assignment periods based on crediting periods, which helps to reflect considerations for different project types.	
191	Linkage to Specific Vintages. IETA generally supports the linkage to specific vintages for PCUs. The linkage to vintages provides confidence for buyers that the PCUs will be converted to VCUs. However, we also recognize that annual specificity may not be appropriate for all project types (i.e. in the early years of afforestation, reforestation and re-vegetation projects where verification will not be annual). We urge Verra to consider cases in which an alternate approach to vintage linkage may be appropriate.	To clarify, proponents can choose the duration of vintages for PCUs as they can for VCUs.
192	VCU Delivery in Case of Underperformance. IETA supports the VCU conversion on a first-come, first served basis, based on the order of PCU assignment. Furthermore, we recommend that the conversion of PCUs should be prioritised over any other issuance of VCUs if PCUs are to be considered as a credible way to secure finance or long-term offtake agreements. IETA also supports the proposal that in the event of underperformance, any PCUs for a given vintage that cannot be converted into PCUs will be canceled permanently.	Thank you for your input. No change needed.
193	PCU Expiry. IETA recommends that Verra consider the reporting deadlines for individual projects and set a PCU expiration related to the reporting deadline for a particular vintage.	Thank you for your input. No change needed.
194	Automatic Conversion of PCUs into VCUs. IETA supports a new feature in the Verra Registry to make the issuance of both PCUs and VCUs more seamless and transparent, however, we encourage Verra to limit the costs to minimise any increased transaction costs associated with these updates. This "automatic" conversion of PCUs when VCUs are issued is key to achieving the	Verra appreciates this suggestion. We will consider either a notification of PCU-to-VCU conversion, or a mechanism whereby the PCU holder must accept

	credit protection sought from PCUs. However, when it comes to transfers, automatic transfers are not ideal (based on previous experience with PIUs). IETA suggests that it may be preferable if the buyer can "accept" the credits the same way as in a standard transfer, so that operational departments know that the transfer has occurred, and credits are not just appearing in the registry.	the incoming VCU that replaces the corresponding PCU.
195	Trading of PCUs. The trading of PCUs has its merits and risks; see these outlined below for Verra's consideration. IETA believes that this unit should not necessarily be an exchange-traded product, but recognises that the secondary trading of PCUs would likely enhance their utility to the market overall. We suggest any trading should very clearly link the PCU to the relevant project/vintage, making clear it is a placeholder for a future VCU and remains intrinsically linked to the project's performance rather than a financial product on a general VCU. There is the potential that allowing for the trading of PCUs could cause significant confusion in the market, particularly if the above approach is not taken. In light of the explosion of new players in the market over the past year, IETA reinforces the importance of ensuring sufficient clarity on what a PCU is. Ultimately, we suggest that this unit serves as collateral for delivering a VCU and not a new financial product so that should remain in mind as decisions around trading are made. More detail on the requirements and design of this unit will help provide clarity on any further merits and risks of trading. We look forward to further engagement with Verra as these details are explored. Serialising PCUs, like VCUs, with linkage to a project should allow for them to be traded, there should also be a way to allocate and reserve these units. IETA is pleased to know that Verra sought legal counsel to assess the potential regulatory risks. As we stated in our comments on the EFCU, before trading of this type of unit is allowed, the correct mechanism needs to be determined. The legal characterization of a PCU (as a security, swap, or forward contract) would impact the decision or ability to "purchase" a PCU. As stated above in our response in the regulatory consideration section, we urge Verra to take steps in designing the PCU to ensure they are not financial products and are clearly linked to the specific project/vintage of the VCU if/when issued. As Verra well knows, if PCUs are deemed to be financial instruments, it could limit the number of market participants able to transact them. Furthermore, the	A response was provided to a similar comment elsewhere

	concept of "purchasing" a PCU may confuse the role and value of the unit – it must be clear that these units cannot be used to make any claims around offsetting or neutrality. PCUs on the Verra Registry. IETA generally supports the proposed representation of PCUs on the Verra registry. We support the consistencies with the information available in the VCU tab. However, because of these similarities, we suggest Verra considers including some special notation on the PCU tab to indicate their difference from VCUs. IETA strongly agrees that the concept of PCUs could play a valuable role in the early life of a carbon offset project, as well as for buyers.	
196	PCUs on the Verra Registry. IETA generally supports the proposed representation of PCUs on the Verra registry. We support the consistencies with the information available in the VCU tab. However, because of these similarities, we suggest Verra considers including some special notation on the PCU tab to indicate their difference from VCUs. IETA strongly agrees that the concept of PCUs could play a valuable role in the early life of a carbon offset project, as well as for buyers.	Thank you for your input. No change needed.
197	Definition and Specification of PCU. IETA generally supports the definition of PCU as proposed by Verra, but suggests the following changes below, to reinforce the idea that the PCU is tied to future issuance of a VCU from a specific project rather than the general right to a VCU. Revised IETA definition: A unit assigned by and held in the Verra Registry representing the right of an account holder in whose account the unit is recorded to receive one a corresponding Verified Carbon Unit (VCU) in accordance with the VCS Program rules. Recordation of a PCU in the account of the holder at the Verra Registry is prima facie evidence of that holder's entitlement to that PCU. IETA supports the serialisation of PCUs and supports the consistency with the VCU serial numbers.	Verra appreciates this suggestion and will consider the minor revision to the definition.
198	Description of PCU within the VCS Program Documents. IETA generally supports the proposed description of PCU in the VCS program documents.	Thank you for your input. No change needed.

199	PCU Assignment Process. IETA's views on the PCU assignment process and quantity are in the above sections, PCU Assignment Period and PCU Assignment Quantity. We support the restrictions outlined for AFOLU projects related to buffer pools. As stated above, when it comes to linkage to vintages, we have mixed views. Please see the section above on Linkage to Specific Vintage Restrictions.	Thank you for your input. No change needed.
200	PCU Conversion Process. Once again, IETA has some concerns with automatic transfer of PCUs into VCUs (based on previous experience with PIUs). IETA suggests that it may be a preferable process if the buyer can "accept" the credits the same way as in a standard transfer so that operational departments know that the transfer has occurred, and credits are not just appearing in the registry. IETA supports the remaining proposed elements of the PCU conversion process.	A response was provided to a similar comment elsewhere
201	VCS Program Templates. IETA supports the proposed updates to the VCS program updates to ensure sufficient information is submitted.	Thank you for your input. No change needed.
202	PCU Assignment Representation. IETA generally supports the proposed requirements for PCU Assignment Representation and suggests the following additions. There should be confirmation in the Assignment Representation or other terms and conditions of the PCU that the project proponent remains solely responsible for the operation of the project according to the rules, and PCU ownership alone does not imply any liability for operating the project or arranging verification. Furthermore, it should address the status of the PCU in the event the project proponent goes insolvent. One suggestion would be that the PCUs are placed on hold but remain in the holders' accounts for a suitable period to potentially enable a replacement project proponent to be appointed. This will provide a helpful demonstration of a claim over the future VCUs should a new project proponent be able to continue operation of the project.	Verra appreciates these suggestions and will consider these additions to the PCU assignment representation.