Summary and Response to Public Comments

A draft of the *Methodology for the Quantification, Monitoring, Reporting, and Verification of Greenhouse Gas Emissions Reductions and Removals from Improved Forest Management on Non-Federal U.S. Forestlands* was developed by ACR with contributions from Anew Climate for potential approval by ACR.

All methodology modifications, whether developed internally or brought to ACR by external parties, undergo a process of public consultation prior to approval.

The methodology was posted for public comment from February 1, 2024 – March 1, 2024. Comments and responses are documented here. If applicable, additional public comments received after the formal close of the public comment period are also documented herein and were considered in the final version of the methodology.

#	ORGANIZATION / COMMENTER	COMMENT	AUTHOR RESPONSE
1	Alaska Department of Natural Resources	DNR believes that our robust forest practice requirements—which includes sustainable harvest on all state, private, and municipal lands and provides for water quality and habitat protections and road, bridge, and reforestation standards as well as monitoring and enforcement mechanisms—presents a sustainable forest management standard comparable to that of an SFI or FSC certification. (Side note, FSC's Forest Stewardship Standard certification only extends to the conterminous US, which excludes Alaska and Hawaii; SFI's Forest Management Standard certification does not exclude Alaska, however, SFI currently has no certified lands in Alaska and certification would likely be a minimum one-year—but potentially multi-year—endeavor.) The IFM v2.1 proposed revision to Option 2 of Section 1.3 requiring that projects "demonstrate compatibility with Montréal Process Criteria…subject to validation" could present a significant obstacle to DNR's ability to meet ACR's sustainable management requirement and could also be duplicative our already robust state sanctioned sustainable forestry program.	We recognize the barriers to certification for many landowners especially in certain geographies such as Alaska. The majority of ACR-approved certification bodies are only beginning to consider operating in Alaska. To that end, Option 2 (enrollment in a state or federally sanctioned forestry program and compatibility with Montréal Process Criteria) is a practical solution for the State of Alaska. Recent peer review of this language (for the ACR Methodology Active Conservation and Sustainable Management of U.S. Forestlands) recommended consistent application of the Montréal Process Criteria to ensure minimum considerations for ecological values and sustainability are appropriately considered. Since the Montréal Process is not intended to act as project-level performance standard, we do not require adherence to specific Indicators. Instead, demonstrations of compatibility with the Montréal Process focus on 6 key criteria. We believe this may strike the balance of establishing

		The seven Montréal Process criteria and 54 indicators together comprise a highly prescriptive framework "developed to characterize the essential components of sustainable forest management."i However, as noted in the Montréal Process Technical Advisory Committee's Technical Notes on Implementation of the Montréal Process Criteria and Indicators, "the [criteria and indicators] are not performance standards" and instead are meant to "provide useful information for forest policy makers." However, by making compatibility with the Montréal Process criteria a sustainable management requirement, this proposed change to ACR's IFM Methodology would in effect make the criteria a performance standard. Furthermore, making the new requirement subject to validation places determination of Montréal Process adherence in the hands of a third-party verifier rather than ACR itself. Altogether, this new requirement creates an additional layer of highly detailed data collection and reporting in the registration process and injects considerable uncertainty into what DNR sees as an already rigorous but workable sustainable management requirement under the current IFM Methodology v2.0.	a minimum threshold without introducing undue burden. This info can be found in the *IFM for Non-Federal U.S. Forestlands Montréal Process Compatibility* form. ACR is happy to engage with stakeholders about individual circumstances, such as the State of Alaska, to explore whether they demonstrate sufficient rigor to meet Option 2.

		DNR recommends deleting from the proposed change to Option 2 of Section 1.3 the requirement that project areas demonstrate compatibility with the Montréal Process criteria and that it be subject to validation.	
2	Alaska Department of Natural Resources	The 5-year lookback for observed Harvest Intensities on comparable properties is too short to effectively capture forest industry trends in Alaska. Timber markets in Alaska are generally cyclical and a 5-year timeframe wouldn't capture both the low years and the relative high years in timber operations. DNR recommends maintaining the current IFM v2.0 lookback provision based on "management records of the silvicultural prescriptions applied in similar forest conditions within the last 10 years."	We have updated the comparable properties lookback period to 5 consecutive years out of the last 10 years.
3	Alaska Department of Natural Resources	The process for calculating Harvest Intensity would unnecessarily keep harvest constraint high for project areas in Alaska and result in baselines representing a very low percentage of harvestable ground in each stratum, particularly in strata that are abundant. Because we are still developing our forest road networks and other timber access infrastructure, because we're often completing first entry on nearly all our timber sales, and because	We have provided an option for basing Harvest Intensity upon thresholds as set out in an approved Forest Management Plan. We have also clarified that "Only Forestland needs to be considered when determining whether a comparable property meets the geographic size specifications. In Alaska, only Forestland within 4 miles of a transportation

		our markets for wood products are limited, our harvest acres are a small fraction of the affected strata even in our more active areas. DNR recommends utilizing the annual allowable cut calculation, which is based on what can be harvested without diminishing the resource.	network need to be considered". This would reduce the ratio of area harvested vs. available, which can be justified based on operability conditions in much of Alaska.
4	Alaska Department of Natural Resources	Identifying two comparable properties that meet the distance and size specifications could prove difficult in Alaska, where harvest treatments are relatively small in number and often considerably distant from other treatment areas. DNR recommends projects in Alaska be allowed to be exempted from these specific comparable properties' specifications. Alternatively, for Alaska projects rather than the specific distance and size criteria outlined in the proposed IFM v2.1, the methodology could allow project proponents to identify comparable properties and require a justification for the selected properties.	We have incorporated an approved forest management plan option that may alleviate much of this concern. If using the Comparable Properties Analysis, we have also built in rules to systematically expand the comparable properties geographic range up to 500 aerial or road miles, to expand the comparable properties size threshold, and to stepwise conservatively expand the search to different ownership classes if needed.
5	Alaska Department of Natural Resources	Finally, DNR has concerns with the Operability and Access test and considerations laid out in Table 1: Baseline Dynamic Evaluation Framework of Section 2.2 of the proposed Tool for Dynamic Evaluation of Baselines of ACR Improved Forest Management Methodologies. The State of Alaska is still	Section 4.1.2.3 of the methodology states "...must be demonstrably operable...considering...existing and potential infrastructure...". This provision takes into account the potential for road expansion, which would still be required to be affirmed in the *Professional Forester Attestation*

		developing our forest road networks and other timber access infrastructure. The common practice in Alaska is to build new roads to new timber sales. This test and consideration appears to assume access is already present. DNR recommends revising the test and considerations for Operability and Access to account for less developed areas like Alaska where forest access is relatively limited and access improvements like new road construction are a common and expected practice necessary for timber sales to occur.	*Form* and *ACR IFM Tool for Dynamic Evaluation of Baselines*.
6	American Forest Foundation	Referring to the periodic baseline evaluation tool as a "dynamic evaluation of baselines" risks market confusion, as "dynamic baseline" has come to have a widely-understood meaning that is different than a periodic, ex-post project developer assessment of ex-ante assumptions. A true dynamic baseline is generated by an independent, third-party data source and incorporates not only dynamic data but dynamic assumptions and variables, rather than be subject to potential intentional or unintentional bias or omission by project developers. "Periodic evaluation" is more appropriate terminology, more accurately reflects the revision being made, and would avoid creating market confusion and	The ACR IFM v2.1 approach, as further refined in response to public comments, prescribes highly specific and standardized baseline setting and evaluation procedures. The *ACR IFM Tool for Comparable Properties Analysis* leverages standardized, independent third-party datasets to identify the most similar properties in the nearby landscape and sets baseline silviculture and harvest thresholds on their observed forest conditions and management. The *ACR IFM Methodologies Tool for Dynamic Evaluation of Baselines* requires clear and independent evaluation of the baseline (and recalculation as necessary) prior to each credit issuance.

		distrust. In no other use in the market of "dynamic baselines" are those baseline datasets and assumptions allowed to be defined and updated by project proponents themselves (for example—VM0045 (FIA baseline)1; VM0047 (remote sensing-based stocking index baseline such as NDVI or other variables not developed by the project developer)2; Pachama's approach to dynamic baselines3; BeZero's independent dynamic baseline dataset4; Renoster's baseline approach5). Safeguarding baseline datasets from this conflict of interest and potential bias is critical to bringing confidence to all methodologies and the US IFM voluntary carbon market. Instead, either standardize baseline data and model assumptions with an independent third-party, assumption- and data-dynamic data source (which would then truly be "dynamic" in the market's eyes), or rename the tool to the more appropriate "periodic evaluation" terminology.	The approach is conservative in choice of datasets and assumptions and is adaptive in terms of continual reassessment of underlying datasets and baseline assumptions and incorporating changes to legal, physical, market, management, and financial conditions prior to every credit issuance. This ensures the baseline scenario is precise and conservative over time. Notably, our baselining approach for projects using the *ACR IFM Tool for Comparable Properties Analysis* is derived from data reflective of properties similar to the offset property in relation to past management, ecosystem and forest type, merchantability, landowner type, and other attributes, and adjusts to market conditions over time consistent with the broad interpretation of a "dynamic" approach as set out by Haya et al. (2023). More information related to the approach may be found within the methodology itself, as well as the *ACR IFM Methodologies Tool for Dynamic Evaluation of Baselines*, the *ACR IFM Methodologies Tool for Comparable Properties*

			Analysis, and other related methodology documentation.
7	American Forest Foundation	Assessment of which variables matter to the carbon outcomes is still performed ex-ante. Unforeseen variables that affect carbon outcomes—i.e., a pandemic, a recession, cultural shifts, etc.—are not incorporated in the ex-post period assessments. Room should be added to the ACR tool for Dynamic Evaluation of Baselines (which we suggest renaming to "Periodic Evaluation of Baselines") for consideration of potential unforeseen variables that influenced carbon outcomes on enrolled lands ex-post, and if the assumptions used in modeling adequately reflect those. If not, they should be incorporated.	*The ACR IFM Methodologies Tool for Dynamic Evaluation of Baselines* creates a specific set of criteria and associated tests upon which baseline conditions are assessed prior to each credit issuance (i.e., an ex-post assessment). In regard to unforeseen future conditions, such as pandemic, recession, etc., categories such as financial feasibility and regional timber market capacity inherently take such conditions into consideration (e.g., closure of mills, decreased timber market capacity, financially viable hauling distances, stumpage prices, regional timber market pricing). Calculation of Harvest Intensity using comparable properties also takes such matters into consideration as it is reflective of management occurring on the ground by comparable landowners facing similar management decisions as the Project Proponent.
8	American Forest Foundation	Updated assumptions should be able to be applied to early verifications, even if assumptions changes are not known until future re-assessments. Because a large portion of credits are issued in early	The Periodic Modeling Assessment re-evaluates baseline stock estimates since validation or since the last Periodic Modeling Assessment, whichever is more recent. This, as well as the Observed

		verifications where common practice harvest is assumed to be occurring, and up-to-date information about actual harvesting levels may not be available until post-verification (for example, if dependent on FIA re-measurement cycles or similar non-annual datasets), a mechanism is needed for ex-post baseline updates to be applied to previous verifications. One option to address this could be through reversal compensation mechanisms.	Conditions Assessment, continually assesses and adjusts the baseline prior to each credit issuance. The approach corrects for any potential changes in circumstances ex-post and adjusts the baseline prior to issuing credits for that reporting period. The ACR program has extensively detailed reversal compensation mechanisms in our Buffer Pool Terms and Conditions. The relevance to reversal compensation is not applicable in this instance though, as the verified baseline reassessment ensures ACR only issues credit quantities reflecting the most up-to-date information at the time of verification.
9	American Forest Foundation	Additionality should be re-assessed at each verification. Not only should the baseline be re-assessed, but if new information becomes known that affects additionality, it is unclear how it can be justified that additionality remains intact through a crediting period. (Section 2.4)	Determination of additionality occurs at validation for each Crediting Period. Per the *ACR Standard*, regulatory changes that effectively mandate a project activity are re-evaluated during the Crediting Period for all ACR projects. In addition, the *ACR IFM Methodologies Tool for Dynamic Evaluation of Baselines* assesses and updates the baseline scenario from validation as necessary, such that if a baseline becomes non-additional at any point throughout the Crediting Period it would no longer be credited. The noted tool encompasses all components of our 3-prong

			additionality test: Regulatory surplus, common practice, and implementation barriers (financial feasibility, operability and access, regional timber market capacity).
10	American Forest Foundation	Ex-post stratification should be clarified that it must be done without bias and in a statistically sound manner. This is important to clarify as it could otherwise lead to biased re-stratification that results in over-crediting. (Section 3)	The methodology states that "The stratification SOP document must contain sufficient information such that the stratification can be examined and duplicated as necessary to provide reasonable assurance of the validity of associated techniques and the absence of bias". Stratification is a function of inventory design and is purposely optional. A well-designed stratification can increase statistical confidence while a poorly designed stratification may decrease it. This would not introduce bias, but rather uncertainty, which would be reflected in the uncertainty deduction.
11	American Forest Foundation	It should be clarified that not only should the selected baseline assumptions be reasonable, feasible, and plausible, they should be required to be the most plausible of the potential range of assumptions. Not clearly requiring that the most plausible assumptions be selected leaves room for selection of a baseline that is reasonable, feasible, and plausible, but less plausible than another set of assumptions, which could reasonably result in	Requiring choice of the "most plausible" baseline scenario is inherently subjective and there is no definitive source to consult in this regard. Rather than introduce this subjectivity into our baseline setting framework, we provide concrete steps, constraints, and tests to guide baseline development and evaluation. The Comparable Properties Analysis includes Similarity Matching and Outlier Detection tests that narrow eligible

		over-crediting and market confusion as baselines become subjective to project developer interests. (Section 4.1) This can still maintain that it does not need to be the most conservative set of assumptions. However, it should be the most plausible.	parcels to only the most similar for potential selection. Description and justification of the baseline scenario, including constraints, datasets, and methods and results, are all subject to validation and ACR review. We have added "justification of the baseline scenario and associated assumptions" to the section 7.3 (Validation) scope for further clarity. The *ACR IFM Methodologies Tool for Dynamic Evaluation of Baselines* re-confirms and recalculates (as needed) the baseline at each verification.
12	American Forest Foundation	Previous ownership type, even for ownership transitions within the past 5 years, should not be assumed to reasonably apply to future management choices without further justification. It is unclear how the previous ownership is likely to affect future management choices. (Section 4.1.1)	Recent acquisition of a property for the purpose of a carbon project is a purposeful change in management regime. When land is acquired with the intent of developing the carbon project, the baseline scenario of the previous owner is appropriately justified. Attribution of intent is limited to a relatively short 5-year timeframe during which all the logistical steps of acquiring, enrolling, and performing intensive steps towards project development must be taken.
13	American Forest Foundation	It is unclear how pre-existing legal constraints are justified to exclude from modeling. This should be	We require all legal constraints to be modeled in the baseline with only a few limited/specific exceptions that explicitly reinforce the project

		clarified or removed. This makes it possible for non-additional crediting. (Section 4.1.2.1)	activity: enacting conservation easements, deed restrictions, contracts limiting future management, and/or enrolling in voluntary sanctioned forestry programs. These types of legal constraints are self-imposed (i.e., voluntarily undertaken), as opposed to imposed by changes in regulations or other legal environments. These self-imposed legal constraints must be in put into effect within 1 year of the project Start Date to be excluded from baseline modeling. This timeframe, combined with the requirement for explicit reinforcement of the project action, ensures the decision to implement the self-imposed legal constraint is made jointly with the decision to implement the GHG project. Taken together, these self-imposed legal constraints bolster the additionality and permanence of a GHG project.
14	American Forest Foundation	“Demonstrably operable” should be more specifically defined. Different projects could define this differently, resulting in differing credit outcomes and distrust in the market. For example, slope and elevation could be added as relevant to align with local norms for operability. History of harvesting should be substantiated by evidence	"Demonstrably operable" refers to the requirement that Project Proponents factually demonstrate the operability of silvicultural prescriptions to the VVB. The methodology states "...timber must be physically accessible considering the terrain of the unit. We have added "...(e.g., slope, elevation)" as examples of factors that may affect operability. Confirmation

		that conditions still exist to align with current norms for operability. (Section 4.1.2.2)	of demonstrably operable terrain is now further required in the newly developed *Professional Forester Attestation Form*.
15	American Forest Foundation	Additional justification should be given for the requirement that all available growing space must be utilized. It is unclear that this assumption would hold true for all properties and for the full modeling period, and it is non-conservative to assume. (Section 4.1.2.5).	The requirement that baseline silviculture utilize all available growing space is included for conservatism. This is the baseline scenario, so prescriptions promoting fully stocked stands would increase baseline carbon against which the project is credited (hence, conservative).
16	American Forest Foundation	Substantiating baseline silvicultural prescriptions on sources that are not standardized leaves significant room for manipulation by project developers. Instead, silvicultural baselines should be quantitatively defined and standardized (for example, based on a standard analysis of FIA data). (Section 4.1.2.5)	Sources of substantiation for silvicultural prescriptions are standardized and clearly defined. Publications from State/Federal entities, attestations from Professional Foresters, and peer-reviewed publications are all highly credible sources for substantiating silviculture.
17	American Forest Foundation	More standardization of identifying comparable properties should be incorporated, and more matches should be required. It is unclear why 2 properties (and not more) must be selected as comparable properties. Harvesting is considered a stochastic event, and therefore a larger volume of comparisons are required to understand the likelihood of the event occurring. It is also likely that this could be subject to project developer bias, where they might have unshared knowledge about	We have standardized the Comparable Properties Identification section based on this and similar comments, such that eligible comparable properties are now chosen based on a "Similarity Index", considering all parcel data within a 150-mile perimeter of the project area. The newly revised Comparable Properties Analysis within the Harvest Intensity framework identifies observed harvests occurring on similar

		regarding upcoming harvest behavior for the properties selected. Safeguards and standardization are critical to include to prevent this. For example, additional criteria for selecting comparable properties could be required, such as the matching covariates found in Appendix A of VM0045. Additionally, more than 2 comparable properties should be required. (Section 4.1.2.5.1) - Ownership should be the same between project and comparable properties more specifically, by private / public at minimum. - More justification should be provided as to why a property 200% the size of a project area is deemed comparable. This could mean comparing a 15-acre property to a 30-acre property, one of which is much more likely to harvested than the other, for example. This should be reduced to 150%. - It is critical that "ecological condition" be better defined, as this also leaves significant room for project developer subjectivity and potential for over-crediting. The standardized matching criteria suggested above could mitigate this. - It should be clarified whether the comparable properties selected can change from verification to verification. They should not be allowed to change once identified. Because baseline modeling is done over 100-year timespans, allowing comparable	properties (as identified with a similarity index of relevant parameters, statistical selection procedure, and outlier exclusion). Developing a standardized list of the most comparable properties on the landscape and allowing the Project Proponent to select one from a narrowed list of most similar properties increases rigor and reduces subjectivity. The comparable properties analysis requires selection of comparable properties within the same ownership class. It also establishes procedures in the case that too few eligible comparable properties are identified. Only in the case of when the minimum number of comparable properties cannot be identified, even after expanding up to a 500-mile buffer around the project area, can properties of different ownership classes be selected. Requiring comparable properties to be up to 200% the size of the project area was a decision made based on our experience administering forest carbon projects and our portfolio characteristics. The current average project size under this methodology is in the tens-of-thousands of acres, and as such, obtaining a

		properties to shift during the crediting period would create room for the properties most advantageous to crediting to be selected at any given verification, introducing an opportunity for over crediting. - The comparable properties selected should be required to be the most comparable based on a goodness of fit test, such as that incorporated in VM0045's Appendix A. This mitigates project developer bias in selecting comparable properties.	minimum harvestable threshold is not such an issue as it would be in the example 30-acre property both in terms of harvest occurrence and likelihood. We also set a minimum comparable property size threshold of 25% of the project area, or 1,000 acres (whichever is greater), for eligible property comparisons. We have removed the reference to "ecological condition" to decrease subjectivity and improve verifiability. Instead, we now require that the project area must fall within the same Level II Ecological Condition (see also footnote 4). Ecological Conditions are spatially defined and provide an additional safeguard in comparing similar forest types in the Comparable Property Identification process. Regarding using the same comparable properties over time, the purpose of the Comparable Properties Analysis is to develop a maximum Harvest Intensity threshold based on observed harvests occurring on similar properties over the reporting period. It would be contrary to this objective to require the same comparable property(s) over the full Crediting Period. The point is to assess and substantiate Harvest

			Intensities based on observed forest conditions on properties with similar characteristics. A comparable property in the current reporting period that harvests all or a large portion of their property will likely no longer contain sufficient merchantable timber in the subsequent reporting period such that a comparison of their subsequent management is no longer relevant or appropriate. The Eligible Comparable Properties Identification steps guide this process to ensure the most comparable properties are chosen over time. We appreciate the comment regarding standardizing the comparable properties selection process. We have added statistical tests for the "Similarity Index" selection process as well as outlier detection, as noted above.
18	American Forest Foundation	Harvest intensities should be substantiated for each stratum, not just each forest cover type, as harvest intensities can differ across the same forest cover type within a project area. Assuming the same harvest intensity across all acres of a forest cover type can lead to over-crediting. Other factors that drive harvest intensity such as stand age and stocking should be incorporated as determinants of stratum. Additionally, the use of NLCD to	As stated in the *ACR IFM Tool for Comparable Properties Analysis*, forest cover stratification "...is distinct from stratification for the purpose of carbon stock estimation, although the same stratification may be used for both purposes as applicable". Use of National Land Cover Database is verifiable and standardized within the Comparable Properties Analysis approach. Stratifying by NLCD classifications is a minimum

		determine forest cover strata is an inappropriate use of that coarse dataset, and alternative, standardized data sources should be required. (Section 4.1.2.5.1)	stratification criteria and "more refined stratifications (e.g., by species or FIA forest type) are permitted...with verifiable evidence supporting the improved accuracy...". The Similarity Matching process ranks and selects the most similar properties within each stratum, across 7 ecological criteria, to significantly refine the selection of comparable properties. Stand age and stocking are represented in the Harvest Intensity calculation through the proxy "canopy height".
19	American Forest Foundation	Forest cover loss should be more specifically defined. The carbon outcomes from different types of harvests and disturbances can be significant, and therefore require standardized approaches defined within this methodology to prevent generalization assumptions from resulting in preventable over-crediting. (Section 4.1.2.5.1)	We have replaced "forest cover loss" with "deforestation or forest carbon stock loss" based on this suggestion.
20	American Forest Foundation	“The baseline scenario must generate a higher NPV from timber revenue than the with-project scenario, without consideration for carbon credit revenue.” This sentence could lead to confusion about baseline selection. If the most plausible baseline does not generate higher NPV than the with-project scenario, then it is not the baseline that should be revisited, but the project, to ensure	We agree that this sentence was unnecessary and have deleted it.

		that it is creating an additional carbon benefit. This could be clarified so it is not read as an encouragement to adjust baseline assumptions to something that would generate a higher NPV. (Section 4.1.3)	
21	American Forest Foundation	Models should be made available to verification bodies for assessment. Summaries and metadata are insufficient for validation and verification of a model that is critical to the crediting outcomes. (Section 4.2)	Growth model coding and output, which we assume you are referring to, have been and are always available for VB review during verification. "Assessment of growth model outputs and projections" is listed as within the scope of VB review in section 7.4 and is subject to assessment of materiality.
22	American Forest Foundation	It is unclear why the average baseline stocking becomes the baseline. This creates a temporal mismatch between when credits may be issued to a project, and what the baseline model predicts is occurring in the baseline. Ex-post crediting for a given monitoring period should be based on the carbon outcomes of the baseline and the project for that monitoring period, rather than an average value. Monitoring periods where the baseline is higher than the project are omitted in the current approach, creating the potential for over-crediting or omission of reversals. (Section 4.3)	The baseline averaging approach was developed to reliably credit projects based on their holistic impact and minimize the impact of stochastic modeled events upon crediting. Averaging the baseline is also conservative in that credits are only issued for emission reductions to the level of the averaged baseline as opposed to the full baseline decline.
23	American Forest Foundation	Model uncertainty should be incorporated into the uncertainty calculation based on the entire model uncertainty, not just the input inventory data.	As it relates to IFM projects, uncertainty contains many components, including input inventory uncertainty, uncertainty of the assumptions

		Other model sources of uncertainty are non-conservatively omitted in the current approach. (Section 4.5)	calibrating the model (constraints, etc.), and uncertainty of growth model outputs. This methodology, and particularly the *ACR IFM Methodologies Tool for Dynamic Evaluation of Baselines*, address assumption uncertainty by evaluating and refining assumptions over time. Regarding growth model outputs, the approved growth model Forest Vegetation Simulator (FVS) is under constant development for improvement by the USFS Forest Management Service Center. In our approach, to estimate carbon stocks inside the project area in the baseline scenario, a growth model is required. We defer to FVS as broadly recognized as the best available tool for such purposes. Uncertainty is incorporated as a standard input into the approved growth model, FVS, based on inventory data. Baseline uncertainty is calculated and included in the total uncertainty, which is used to determine the uncertainty deduction applied to the emission reductions and removals achieved during a reporting period when calculating the quantity of credits to be issued.
24	American Forest Foundation	The evaluation and adjustment of baseline quantification should be done by an independent third party, or otherwise informed by independent, third-party sourced datasets. Having this	Evaluation and parameterization of the baseline model is subject to verification by an independent, 3rd party, VVB. All VVBs sign the ACR Conflict of Interest disclosure. “Assessment

		evaluation be sourced and performed by the project creates a clear opportunity for intentional or unintentional bias and mismatched information between the project developer and the verification body and standard, resulting in significant risk of over-crediting. A clear conflict of interest is present when the project developer holds this role. (Section 2.1)	of growth model assumptions, outputs, and projections" is within the scope of VVB review. In alignment with other comments, we have further standardized the baseline Substantiation of Harvest Intensity section to reduce subjectivity and increase verifiability.
25	American Forest Foundation	The Observed Conditions Assessment should not only assess new limitations to baseline management, but should also assess previously determined management for its continued plausibility. Is the selected baseline still the most plausible? Is a new prescription becoming more plausible? Assessing whether land is still eligible to harvest can result in a significantly different outcome than assessing whether land is still most plausibly going to be harvested. This is critical to assess. (Section 2.1.1)	Please refer to comment 6 regarding the verifiability (or lack thereof) of "plausible". The Baseline Dynamic Evaluation Framework (Table 1) "forest management practices" category considers whether harvests at least as intensive as those modeled in the baseline have actually occurred on the landscape. If not, the baseline is adjusted/remodeled. This provides reassurance as to whether baseline harvest activities are sufficiently plausible.
26	American Forest Foundation	"Are physical conditions unchanged such that the baseline scenario is still accessible and operable?" The way this is worded assumes that the previous assessment was done correctly. Instead, this should be re-assessed using the latest data/techniques. Assuming previous methods were	We have changed this wording to "Were physical conditions sufficiently operational and accessible to perform the baseline scenario".

		correct introduces bias. (Table 1, category Operability and Access)	
27	American Forest Foundation	“Would regional mills, ports, rail yards, and other timber markets within financially feasible hauling distances accept the baseline scenario’s timber output?” This should be re-worded as “did” rather than “would.” Because this is an ex-post assessment, it should be possible to determine whether the baseline’s timber output was an amount accepted within a given reporting period. Whether the mills did accept that volume is a more robust assessment than whether they would, which involves future assumptions. (Table 1, category Regional Timber Market Capacity)	We changed this wording to "Could regional mills...accept the baseline scenario's timber output".
28	American Forest Foundation	“If verifiable evidence can be provided to show that specific timber market capacity reductions are caused by reductions in timber inputs due to GHG projects, then, for the purpose of the baseline scenario, those facilities can be assumed to operate at their capacity as of the project Start Date.” This is an inappropriate allowance. If timber market capacity is reduced for any reason, baseline assumptions are no longer valid and should be updated, as the modeled baseline activities can no longer be assumed to occur as expected. This is	If baseline timber production is accepted by regional mills at the time of project start, it stands to reason that with continued supply regional mill capacity would conservatively stay the same or likely increase over time. Meanwhile, carbon projects are expected to grow more carbon and consequentially impact the timber or product classes supplied to nearby mills. This potential leakage is accounted for in crediting, but the fact remains that local mills could be affected. Penalizing carbon projects for doing what they

		particularly true where multiple carbon projects exist independently in the same geography, and the carbon project using this methodology cannot be assumed to have directly led to mill capacity reduction. This allowance should be removed. (Table 1, category Regional Timber Market Capacity)	are designed to do (increase carbon stocks by decreasing harvesting compared to business as usual) would only incentivize landowners to increase harvest levels again and negate the good work and long-term impact of the carbon projects themselves. Notably, if regional mills and processing facilities close for any other verifiable reason than decreased supply due explicitly to the project, the baseline will be adjusted as necessary with the *ACR IFM Tool for Dynamic Evaluation of Baselines*.
29	American Forest Foundation	"Do management revenues minus costs result in a net positive return, such that the baseline scenario is still financially feasible?" This question should be clarified to address the specific reporting period in question. If costs exceed revenue in a given reporting period, it may not be appropriate to assume that money was available to take on those costs when returns are years into the future. This consideration should be built in and require additional justification. (Table 1, Financial Feasibility category)	Financial feasibility, similar to all other categories in the *ACR IFM Tool for Dynamic Evaluation of Baselines*, is assessed as baseline harvests occur and over the timeframe being verified (either observed conditions or periodic modeling assessments). We have added an exception for baseline management activities that are not immediately profitable but are implemented to establish more profitable future stand conditions, but otherwise this assessment occurs at the same temporal scope as the verification is covering.
30	American Forest Foundation	NPV assumptions should also be reassessed. Discount rates and NPV assessment are some of the biggest drivers of the baseline, and these are not	As stated in 4.1.1., "Ownership is ... subject to dynamic evaluation in verifications in which the timber rights transition to a new ownership". During dynamic evaluation we would employ the

		reassessed in the periodic evaluation tool. These should be re-assessed, including whether managing for NPV is a valid assumption, as an addition to the Financial Feasibility category of Table 1. For example, across our experience of enrolling 500 landowners in a carbon program, we have not found a single non-industrial private landowner who manages to maximize NPV. The assumption that NPV will be perfectly managed for should be revisited and substantiated or revised. The purpose of the NPV analysis becomes less clear with the addition of the period baseline evaluation. (Table 1, Financial Feasibility category)	same rule as set in 4.1.1: "If the timber rights of the project area were recently acquired (within less than 5 years of the project Start Date), the baseline model may be parameterized using the previous ownership. Otherwise, the current ownership may be used". This approach incentivizes acquisition of high discount rate ownerships (such as private industrial) by low discount rate ownerships (such as NGOs), specifically for enrollment in carbon projects. The suite of constraints in section 4.1.2 present a robust baseline setting framework that is far more conservative than simple NPV maximization.
31	American Forest Foundation	Data sources for the entire evaluation should be clarified as required to provide. (Section 3.1)	Section 2.1 states "The dynamic evaluation process may result in either increases or decreases...In any case, clear evidence justifying any changes in accordance with the Baseline Dynamic Evaluation Framework must be provided".
32	American Forest Foundation	Given the complex technical difficulties of ensuring that a modeled baseline – however frequently updated – does not result in over crediting, we would suggest that, rather than adopting all of the above fixes, ACR seriously considers switching to a	We, of course, agree with the goal of creating a methodology with maximum climate impact. We are building upon a methodology adopted by hundreds of landowners achieving climate impact across millions of acres of U.S.

		truly dynamic baseline approach as represented by VM 0045 and VM 0047. Although dynamic baselines are themselves not perfect and will require much improvement, they are much more challenging to game and thus will answer the predominant challenge we have noted with all of our above comments: that is, that the actor responsible for maintaining and updating the baseline has a strong financial incentive to ensure a certain result; and, that result, though beneficial to the parties of a specific transaction, is adverse to the interests of humanity at large in combatting the climate crisis. All of the improvements and refinements in the world will struggle to eliminate bias when there is such a perverse incentive in place. If, instead, standards, developers, buyers and investors shifted to use truly independent dynamic baselines, and focused our energy on building a marketplace that accommodated the robust quantification they enabled, we would make much faster progress towards a scalable market that benefitted landowners, developers, buyers, investors, and, most importantly, the atmosphere. We believe that both creating feasible and low-barrier pathways for landowner participation in carbon markets and accurate accounting that aligns credits produced with atmospheric impact	forestlands. The updates in version 2.1, inclusive of edits made in response to public comments, add greater clarity, specificity, and rigor to make the baseline setting process more systematic, independent, and verifiable and to minimize any potential for bias or adverse selection.

		are essential. If we don't get the impact right, the value won't be there for landowners, and if we don't design methodologies and programs to work for landowners, the value won't be there for planet. We can't sacrifice either one. This methodology, with the additional revisions and recommendations highlighted here, can be a step toward both of those essentials.	
33	Anew Climate	Manipulation of water tables or filling of wetlands is prohibited (the requirement is also stated under v2.0): Does this prohibit lands that previously manipulated water channels/tables prior to the project's start date? Given that many properties in the southeast exist on lands where water tables may have been previously altered but are in an active state of restoration, this would eliminate many properties from eligibility. Clarity on the temporal bounds of this requirement is requested.	This has been updated to "Manipulation of water tables...is prohibited within 10 years prior to the project start date and throughout the project term to negate the potential for related gaseous emissions from soil and chemical processes".
34	Anew Climate	Comparable Property Identification (p.26): 150-road miles from the property perimeter limitation should be caveated with “unless sufficient evidence can be presented that a maximum hauling distance of more than 150-road miles is appropriate for the project area.” While 150-road miles is a reasonable maximum haul distance in most regions, forests located in	We have added that the 150-mile radius can be expanded if it can be verifiably demonstrated that either the project area or comparable properties routinely move raw timber in distances greater than 150 miles.

		proximity to strong road infrastructure can travel at highly efficient speeds and can often access market destinations beyond the 150-road mile limit. Greater maximum haul distances should be acceptable where verifiable evidence can be provided to justify such distances.	
35	Anew Climate	Comparable Properties Identification Timber Ownership Class: (p.26): Comparable properties should be limited to those with the same timber ownership class (using the ownership class that determined the discount rate) to provide the most accurate comparison of relevant management practices. This is particularly important so that non-industrial timberland owners do not create baselines based off of the management of industrial timberland owners. If no adequate comparable properties can be found within 150-road miles of the project boundary, then there should be an allowance to either: i. Expand the search radius until two (2) adequate comparable properties with similar forest types can be found. ii. Use the next closest properties in size for a given forest type, within 150- road miles of the project boundary, as comparable properties.	We have revised the approach based on this and other feedback to identify comparable properties within the same NPV timber ownership class discount rate. The Eligible Comparable Property Identification section of the *ACR IFM Tool for Comparable Properties Analysis* establishes procedures in the case too few eligible comparable properties can be identified. In these instances, Project Proponents first expand the eligible search area in 50 mile increments up to a 500-mile buffer. At this point, if comparable properties cannot be identified, the Project Proponent can then begin to expand the comparable properties analysis to properties of different sizes, and finally different timber ownership classes, one at a time.
36	Anew Climate	For selecting comparable properties for recently acquired lands, it should be specified that if the	4.1.1. (Ownership) states "If the timber rights of the project area were recently acquired (within

		timber rights for the project area were recently acquired (i.e. within less than 5 years of project Start Date), the comparable properties may be based on the timber ownership type of the previous ownership for the duration of the project term.	less than 5 years of project Start Date), the baseline model may be parameterized using the previous ownership. This language has also been added to the eligibility criteria of the *ACR IFM Tool for Comparable Properties Analysis.*
37	Anew Climate	If all comparable properties within the same ownership class are enrolled in carbon projects, the 150-road mile distance limitation should be expanded until two (2) comparable properties without carbon projects can be identified within the same timber ownership class.	We have clarified that "Properties enrolled in a GHG project that incentivizes reduced harvesting may be designated as ineligible at the Project Proponent's discretion" within the *ACR IFM Tool for Comparable Properties Analysis.* We have also specified the approach in instances when too few comparable properties are eligible for selection in section (see also response to comment 35).
38	Anew Climate	It should be noted that the project area itself can be used as a Comparable Property when considering historic harvesting activity prior to the project Start Date.	Selection of the project area itself is now an available option within the Comparable Properties Selection section of the *ACR IFM Tool for Comparable Properties Analysis.*
39	Anew Climate	Instead of "Within each forest cover stratum, the lesser (i.e., more conservative) Harvest Intensity for each forest cover stratum (among the minimum two comparable properties identified) is determined, which is then used in constraint development." This section should read "Within each forest cover stratum, the average Harvest Intensity for each forest cover stratum (among the minimum two comparable properties identified) is determined, which is then used in constraint	We have significantly revised the approach based on this and other feedback. We now provide the *ACR IFM Tool for Comparable Properties Analysis* which evaluates all comparable properties in the vicinity and ranks them according to Similarity Criteria, excludes outliers, and provides a narrow list of eligible sites for comparison. The approach is conservative in identifying Harvest Intensity on select comparable properties to set maximum Harvest Intensity, rather than just identifying and

		development." There will be situations where there are only 1 or 2 comparable properties in certain timber ownership classes and using the lesser of the two may not be representative of common practice management. Averaging the comparable properties' harvest intensities gets closer to the true "common practice" of similar landowners than defaulting to the lesser harvested of the two. Using the average intensity should be recognized as sufficiently conservative as it will discount the harvest intensity of the higher of two real-world proxy management examples.	evaluating Harvest Intensity on any two chosen eligible properties on the landscape.
40	Anew Climate	There should be bounds of 25% - 200% for comparable property stratum acreage when comparing to project stratum acreage. This will prevent comparable landowners with a very small acreage in a particular stratum being used to calculate harvest intensity for that stratum. For instance, if a comparable landowner had a total of 100 acres of pine that was clearcut in a given year, the methodology should not allow this to be used for the substantiation of harvest intensity for a project's softwood stratum consisting of thousands of acres.	The Eligible Comparable Properties Identification section of the *ACR IFM Tool for Comparable Properties Analysis* now prescribes these bounds, as well as a minimum 1,000 acres threshold, for comparable properties.

41	Anew Climate	Alternative data that could be used to estimate historical harvests: ACR could potentially suggest additional methods to estimate historical harvesting activities on comparable properties. Some examples of data to be used as inputs for the calculation of Harvest Intensity on comparable properties might include: o Management records from a participating entity (e.g., Project Proponent, landowner) or another landowner/forest manager; o Aerial imagery, remote sensing products, or a geospatial analysis demonstrating forest loss consistent with harvest treatments (Good examples of databases that capture forest loss are the LCMS database: https://data.fs.usda.gov/geodata/rastergateway/LCMS/ o Global Forest Change Database: https://data.globalforestwatch.org/documents/941f17325a494ed78c4817f9bb20f33a/explore) o Past sales data that indicates volume at the time of sale, which can be an indicator of how much harvesting took place prior to the sale; or o Other verifiable evidence.	We have clarified in the Comparable Property Harvest Intensity section of the *ACR IFM Tool for Comparable Properties Analysis* that management records, including past timber sales records, may be used with verifiable qualifications. We have also included an Approval Process for Forest Loss Identification Models which would allow alternate data sources and models to be utilized, subject to prescribed Model Performance Assessment.
42	Anew Climate	ACR could potentially list some publicly available data sources for identifying forest loss from natural	The Natural Disturbance Removal section of the *ACR IFM Tool for Comparable Properties Analysis*

		disturbance such as fire, insects, and diseases. Examples of databases suitable to distinguish forest loss from harvesting activities are the following: o The Global Forest loss due to fire database developed by the Global Land Analysis & Discovery (GLAD) lab (https://glad.umd.edu/dataset/Fire_GFL) o The slow loss layer representing forest loss decline from natural causes from the Landscape Change Monitoring System (LCMS) developed by the USFS (https://data.fs.usda.gov/geodata/rastergateway/LCMS/)	has specified datasets for determining fire and hurricane damage, as an example, and that "Other reputable and verifiable datasets and sources for determining areas impacted by wildfire (and other natural disturbances) may be used".
43	Anew Climate	The following sentence should be amended to require projects to use ground-truthed inventory data to validate the accuracy of remote sensing models: "All GHG Projects that utilize a remote sensing model must report on the accuracy of the model using standardized approaches to accuracy assessment (e.g., error matrix) based on ground-truthed validation data from the carbon project area and/or other nearby properties with similar characteristics."	Section 6 of the *ACR IFM Tool for Comparable Properties Analysis* provides guidelines for labeling detected harvests using independent data sources. The exact sentence referred to here has been amended and incorporated into Section 6.
44	Anew Climate	If the National Land Cover Database (NLCD) is used for stratification purposes, it should be noted that recent harvests may be classified as shrubland, barren land, or others. Project proponents should	We have clarified that recently harvested areas shall be stratified using the version of the NLCD most recently preceding the lookback period, and reasonable efforts should be made to correct the

		make efforts to correct designations of recently harvested land to the appropriate classification.	classification of recently harvested lands within the Forest Cover Stratification section of the *ACR IFM Tool for Comparable Properties Analysis*.
45	Anew Climate	ACR should explicitly specify that market leakage should be reassessed during every dynamic evaluation. o It should be noted that changes to the ex-ante baseline, due to the dynamic evaluation, could potentially affect the market leakage rate, which would have an impact on the leakage rate applied to previous reporting periods. ACR should clarify that changes in leakage rate will not result in crediting adjustments for previously credited reporting periods.	We have chosen to conservatively maintain our existing approach of assigning leakage at the start of the Crediting Period. Projects claiming a lower leakage rate due to higher expected with-project harvesting would be liable for previous over-issuances due to a lower leakage rate, if with-project harvesting was not as high as anticipated at the conclusion of the Crediting Period. As more literature on carbon project leakage develops, we plan to revisit the deduction and method itself.
46	Anew Climate	Under the IFM Methodology V2.0 this option is only applicable to properties under 2,500 acres. For many small landownerships over 2,500 acres, forest certification can be financially infeasible. Anew suggests that this value is increased to 10,000 acres.	The 2,500 acre threshold for FMPs under IFM v2.0 was introduced during peer review, simultaneous with the additional safeguard of demonstrating compatibility with Montréal Process Criteria. In hindsight, the addition of demonstrating compatibility with the Montréal Process Criteria brings additional rigor in ensuring the sustainability of long-term FMPs, such that the specific acre threshold can be reasonably expanded. We have increased the acre threshold for using long-term FMPs for Sustainable Management Requirements to 5,000 acres, which

			is the consistent threshold for small ownerships throughout ACR's program.
47	Anew Climate	Please clarify that projects are not required to model self-imposed legal constraints such as conservation easements that are enacted after the project Start Date.	Table 1 Legality category of the *ACR IFM Tool for Dynamic Evaluation of Baselines* states that "Self-imposed legal constraints that explicitly reinforce the project action need not be considered", consistent with the Legality section of the methodology. The methodology further states "The only exceptions to modeling legal constraints...are the following self-imposed legal constraints explicitly reinforcing the project action: Easements".
48	Anew Climate	Similar to the Regional Timber Market Capacity section, the Operability and Access section should note that if verifiable evidence can be provided to show that the decline in infrastructure is caused due to the presence of GHG projects in the region, then, for the purpose of the baseline scenario, the regional infrastructure can be assumed to be the same as the infrastructure capacity that existed as of the project Start Date. o Anew suggests adding that verifiable evidence may include quantified decline in road infrastructure attributed to changes in harvesting activity on nearby GHG projects, attestations from regional professional foresters, and independent reports. Attestations from affected timber market	The *ACR IFM Tool for Dynamic Evaluation of Baselines* Operability and Access category states "…infrastructure degradation within the project area due to reduced harvesting associated with the GHG Project need not be considered". We allow for verifiable evidence, including qualitative testimony from Professional Foresters or independent reports, to accompany this assertion.

		representatives may be provided as verifiable evidence but must be accompanied by additional evidence.	
49	Anew Climate	Anew recommends including additional examples of evidence that show the regional decline in timber market capacity due to the presence of carbon projects. Examples could include local media coverage on how carbon projects have impacted mills, testimony in public hearings proposing anti-carbon legislation, or publicly made comments on the impact of carbon projects as sufficient evidence of the impact on Regional Timber Market Capacity.	We appreciate the comment but have refrained from including media coverage or public comments that are not documented or further supported. We have included attestations or documented statements from Professional Foresters or independent reports as examples of acceptable verified evidence.
50	Aster Global	General: It would be useful for ACR to provide a redlined/tracked changes version of the methodology or incorporate this into future public comment requests to allow reviewers to focus on parts of the methodology that have changed.	ACR notes this request for future methodology public comments.
51	Aster Global	It is generally unclear what “long-term” means. Additionally, it is unclear if an adaptive management plan would meet the requirements for a “long-term” plan.	We have now defined “long-term management plan” as “a written document that guides current and future management practices to meet defined management objectives over 10 years or longer”. This definition was written such that the long-term management plan is reflective of without-project management objectives and therefore, while it can be adaptive and subject to continual updates, it is not subject to dynamic

			evaluation. This option is only eligible to private landowners owning less than 5,000 forested acres.
52	Aster Global	"This includes: 1) describing the predominant forest management practices occurring on comparable sites of the region that have not been enrolled in a GHG project (e.g., similar forest type, ecological condition, species/product mixture)." Additional clarity with specific minimum requirements would ensure parity between projects and VVB interpretations.	We have clarified that comparable sites of the region must be within the same Ecological Region and demonstrating the same dominant species and product offering as the project area. Ecological Regions are spatially defined and which provides a more objective verification assessment.
53	Aster Global	"The ACR IFM baseline represents a project-specific harvesting scenario that implements Common Practice Silviculture while respecting all relevant constraints to forest management (Figure 1)." Is this supposed to reference the Common Practice Silviculture as defined and described by Projects per Section 2.4?	We have added clarification in comment 52 above in this regard. Common Practice in the 3-prong test is used to assess additionality. Assessment of additionality is separate from Identification of Baseline (now more specifically termed "Silvicultural Prescriptions" in the Forest Management Practices section of the methodology).
54	Aster Global	Section 4.1 requires that Project's describe the ownership scenario under which the baseline model is parameterized. However, it is unclear how the term ownership is defined (e.g. is private vs. public sufficient or are projects require to specify a sub-category such as TIMO vs. NGO vs. Private Citizen owned land). Additional requirements	We have added the following language: "A specific legal entity or person must be identified, and, at minimum, their timber ownership class must be determined per Table 4".

		regarding how specific the ownership definition must be is needed for clarity.	
55	Aster Global	"Each baseline silvicultural prescription must be substantiated by at least one of the following:" Although a minimum is specified, the methodology would be improved if statements/attestations from RPF's were required to be supported by these other kinds of evidence.	The Silvicultural Prescriptions section of the methodology requires substantiation of Common Practice Harvest Intensity for the region using 1 of 3 options: *Professional Forester Attestation Form*, publications, statements, or attestations from an applicable state or federal agency, or peer-reviewed or academic publication. Then, the appropriateness of each baseline silvicultural prescription specifically for the project area must also be substantiated using the *Professional Forester Attestation Form*. This, along with the addition of the Harvest Intensity constraint, increases the stringency and verifiability in allowable baseline forest management practices.
56	Aster Global	"Containing similar ecological condition(s) and/or species/product mixture." The methodology would be improved if the term "ecological condition" were defined. The methodology would be improved and allow for greater parity in interpretation by VVB's and Project's if the methodology specified minimum characteristics of ecological conditions that must be considered. Without this clarity, application of	We have removed the reference to "similar ecological condition(s) and/or species product mixture" and have replaced it with a requirement that similar properties are within the same Level II Ecological Region (https://www.epa.gov/eco-research/ecoregions-north-america; see also footnote 12) and same dominant species and product mixture.

		this section will not be consistent among projects nor will VVBs be able to apply .	
57	Aster Global	"Containing similar ecological condition(s) and/or species/product mixture." The methodology would be improved if the term "ecological condition" were defined. The methodology would be improved if the "and/or" was changed to "and."	Please see response to comment 56.
58	Aster Global	"The percent biomass removed is relative to the sum of the above and belowground live biomass carbon and above and belowground standing dead wood (if included) pools. Harvest treatments may be separated by distinct treatment type or may be grouped together and averaged for each forest cover stratum." It is unclear how this requirement can actually be implemented and what the requirements for VVB assessment would be. For example, if project used another landowner's inventory information that was shared, is the VVB expected to assess this inventory information and what should the extent of the assessment be (remeasurement of plots, recalculation of inventory data, interviews with other landowner etc.).	This section has been reworked and is now contained within the *ACR IFM Methodologies Tool for Comparable Properties Analysis.* The Harvest Intensity Calculations section provides detail on sources of substantiation, including the *Comparable Properties Analysis Calculator* and other potential sources of substantiation. We have also added a Verification section to the *ACR IFM Methodologies Tool for Comparable Properties Analysis* which specifies the scope and extent of verification of Harvest Intensity. VVBs would need to confirm the data sources are appropriate and values and associated calculations are accurate but would not be required to obtain further data from other landowners or perform remeasurements.
59	Aster Global	HARVEST INTENSITY CALCULATION – it is unclear what the temporal component of this calculation is.	We have clarified in the Loopback Period Definition section of the *ACR IFM Methodologies Tool for Comparable Properties Analysis* that "The

			lookback period must consist of at least 5 consecutive years within the previous 10 years…".
60	Aster Global	"Management records from a participating entity (e.g., Project Proponent, landowner) or another landowner/forest manager;" It is unclear how VVBs would be able to verify that the management records from another landowner/forest manager are accurate. Additional clarity is needed within the methodology or V/V Standard to clarify this.	Please see response to comment 58. We have further clarified that "Management records…must be based on verifiable evidence" and provided several examples.
61	Aster Global	"Harvest Intensities of multiple harvest treatments (i.e., percent biomass removed per acre)" – on a percent biomass removed per acre basis a 100% removal of saplings and 100% removal of mature timber are the same; however, this seems to be inconsistent with the intent of the methodology.	We have included canopy height in the matching process. Canopy height is intended to act as a proxy for merchantability, the latter of which is difficult to measure directly with remote sensing. By including canopy height in the Similarity Criteria analysis, properties are more likely to be matched if their canopy height distributions resemble the project area. Ultimately, 100% removal of saplings is not a profitable activity. While this activity may occur from time to time, we do not expect it to be widespread to the point of influencing a project's Harvest Intensity constraint.
62	Aster Global	HARVEST INTENSITY CALCULATION – Considering the wide range of potential input data sources, calculation methods, Remote sensing techniques,	In response to this and similar comments we have developed *ACR IFM Methodologies Tool for Comparable Properties Analysis*. It prescribes

		etc. that could be applied, ACR should consider developing a tool shall be used by Projects to ensure consistency across projects and VVBs.	techniques and approved datasets. It does allow for datasets of greater accuracy to be used where demonstrated. The approach and steps, however, would remain the same and are subject to VVB review.
63	Aurora Sustainable Lands	Page 26 - Comparable property identification. Can you clarify how these specifications treat noncontiguous properties? Most large forestland holdings are non-contiguous. We request clarification on the acceptability of non-contiguous comparable properties. a. Recommend adding a volume of harvest removal concept as an alternative means of demonstrating comparable property status. The project proponent could demonstrate aggregate volume loss across a large number of properties as a means of proving out the baseline scenario. This would be in addition to basing comparable status off of the size of the parcel.	The *ACR IFM Methodologies Tool for Comparable Properties Analysis* Eligibility Criteria section guides the treatment of non-contiguous parcels. Within we provide three potential approaches in relation to project attributes. We also specify that multiple parcels belonging to a single owner may be combined or treated as a single property for determining geographic size, eligibility criteria, and associated calculations. Finally, we developed a Similarity Criteria that ranks properties by attributes including acres of merchantable timber, and in relation to your volume of harvest removal concept.
64	Aurora Sustainable Lands	Page 26 – Recommend allowing for the expansion of the 150-road mile radius if evidence can be provided that longer hauling is feasible, and normal, within the region. Loggers on many properties in the West, Appalachia and certain other smaller geographic regions routinely haul for 200 miles (and as much as 300 miles) when the	We have added to the *ACR IFM Methodologies Tool for Comparable Properties Analysis* that " If the Project Proponent can verifiably demonstrate the utilization of timber markets beyond the 150-mile buffer, by either the project area or another property in the same transportation network yet further from the timber market, the buffer may be

		sawlog value supports the incremental cost of trucking.	expanded to match the distance to the furthest timber market utilized".
65	Aurora Sustainable Lands	Page 26 – How does this account for the impact of existing carbon projects? Carbon projects tend to cluster in areas where the price of carbon is competitive with the price of wood. If say, in southern West Virginia, the majority of the comparable acreage properties are already harvest constrained by the presence of carbon projects, how can comparable properties be identified? Anecdotally, some of the most aggressive harvest practices Aurora has encountered are in areas where there is a large amount of harvest constrained forestland. For example, private lands adjacent to national forests in the interior west tend to be heavily harvested but lack many other privately held neighbors of similar scale within 150 miles. Recommend extending the search radius beyond 150 road miles if there is a significant portion of the forest within the applicable region that is harvest constrained.	We have included new text in Eligibility Criteria section of the *ACR IFM Methodologies Tool for Comparable Properties Analysis* that "Properties enrolled in a GHG project that incentivizes reduced harvesting may be designated as ineligible at the Project Proponent's discretion". Should a project wish to exclude carbon projects and in doing so cannot find the minimum number of comparable properties, we have also added three steps for expanding the eligibility criteria in instances when too few eligible comparable properties are identified.
66	Aurora Sustainable Lands	Page 26 – Historical harvesting on the property. A carbon project should be allowed to cite itself as a comparable project if its historical harvesting, prior to the project start date, supports that. Aurora is developing projects on several properties whose recent historical management closely resembles	ACR has developed the *ACR IFM Methodologies Tool for Comparable Properties Analysis*. Within, the Comparable Property Selection allows use of previous harvest activities in the project area to set baseline Harvest Intensity. We do note that selection of the project area itself would likely

		the pro forma ACR baseline. Without the option of carbon financing, it is likely that industrial managers will have continued that harvest trend. Accordingly, this standard would be prejudicial and not fully account for the positive impact that a landowner with multiple projects is having if the project proponent could not refer to that specific land base's management history.	only occur in the initial verification, as subsequent verifications would be compared to the project area under conservative management for carbon.
67	Aurora Sustainable Lands	Page 27 – What are approved means of determining volume removal on third party properties? Forestland owners do not advertise how much they harvest. To the contrary, they make counterparties sign non-disclosure agreements before sharing this, meaning there is often no publicly available information on harvested volumes. If remote sensing is the only approved means, what specific platforms are eligible? How has this methodology addressed challenges with remote sensing tools of accurately converting tree height to tree volume? a. Page 33 - Reiterate question. What stratification methods would qualify?	We have developed the *ACR IFM Methodologies Tool for Comparable Properties Analysis* as an ACR approved approach, including approved data sources. It also contains minimum specifications for stratification. The approach sets a minimum acceptable threshold upon which more sophisticated datasets and methods can be compared for approval and use, if they meet equal or greater precision. Remotely sensed canopy height is used as a proxy for merchantability, rather than as a direct assessment of biomass. As such the accuracy of remote sensing in predicting tree height to volume is less impactful in this context.
68	Aurora Sustainable Lands	Page 28 – With respect to the "at least two comparable properties" language, can you clarify under what circumstances would a project proponent need to identify more than two	We have revised the approach to identify at least 8 comparable properties (9 including the project area itself) for consideration, exclude outliers, and to choose 1 from the remaining list.

		properties when the methodology specifies that the baseline is equal to the least volume removed among those identified? Recommend removing "at least".	
69	Aurora Sustainable Lands	Page 29 – Harvesting Intensity. Recommend adjusting "within each forest cover stratum the lesser…" to "within each forest cover stratum the average". For large carbon projects, such as ours, there may only be two or three properties within 150 miles of similar size and forest cover strata. The average is more indicative of common practice.	We have revised the approach in conjunction with comments 67 and 68 such that this comment is no longer relevant.
70	Aurora Sustainable Lands	Page 36 – This component of the methodology was intended to render conservation credit issuances conservative. Comparable property identification and harvesting intensity calculation are a far more intuitive and rigorous means of assessing baseline stocking. Including this concept in a dynamically assessed baseline is somewhat confusing? How can a 20-year average baseline stocking be calculated in year 1 when the baseline is unknown? We acknowledge the ripple effects that changing this aspect of the methodology would have. Regardless, we appreciate ACR's thoughts on the 20-year average stocking concept in the current methodology.	Harvest Intensity is one constraint of Baseline Identification that fits into the growth and yield model. The model is still required to be simulated for 100 years from the project start date and averaged. If the average changes due to a dynamic baseline assessment it may adjust up or down. If it increases, the project incurs a debit to the next credit issuance. If it decreases, the project would be awarded more credits. The Comparable Properties Analysis Calculator simulates the accounting approach required in such instances.

71	Aurora Sustainable Lands	Section 2.2. table 1. Page 10: Please confirm interpretation of 2.2 that a landowner's decision to enroll a property in a working forest easement that legally encumbers their ability to harvest some natural areas would likely qualify as a “self-imposed legal constraint that explicitly reinforce the project action.”	The Additionality section in the methodology states that "Legally binding conditions of self-imposed legal constraints which explicitly reinforce the project activity, put in place less than one year before or any time after the project Start Date, need not be considered". The Legality constraints section clearly states easements as a self-imposed constraint reinforcing the project action. We further stipulate that states that "Demonstrations of explicit reinforcement of the project action must include attestations and or other verifiable evidence, produced and dated within one year of when the constraint was enacted, that reference the GHG Project. While specific details regarding the GHG Project (e.g., project name, Methodology) are not required in these demonstrations, they must, at minimum, document the intent to enroll the project area in an improved forest management carbon project".
72	Aurora Sustainable Lands	Section 2.2. Table 1. Page 12- "Attestations from affected…” Recommend that “Attestations” be replaced with “Attestations or publicly made statements from or regarding”.	We have added "...attestations or other documented statements..." as examples of verifiable evidence in the Legality constraint section.
73	Carbon Direct	Most large IFM projects are made up of many (sometimes hundreds) of small parcels spread out	a. Thank you for bringing this type of scenario to our attention. We have included additional

		over large distances. This may pose challenges for the methodology as it is currently written. Imagine a 20,000 acre project in the US South that is made up of 100 parcels. These parcels are arranged such that they are in the same wood basket, but the distance from the farthest north parcel to farthest south parcel is 100 miles. In such a scenario. a. A comparable parcel must be at least (.25*20,000) 5,000 acres. It is possible that there is no single parcel in the wood basket that is that size. Recommendation: If no single parcel is large enough to meet the minimum size requirement, we suggest that multiple parcels can be grouped together to form a single grouped parcel. Grouped parcels should come from a single owner if possible and ideally would have similar sizes, For example, if the project is made up of 3 100-acre parcels, 2 50-acre parcels, and 1 10-acre parcel, the matching parcel groups contain 3 100-acre, 2 50-acre, and 1 10-acre parcel each. Two distinct grouped parcels should be established to act as the comparison parcels. b. For projects made of multiple parcels it is unclear from the current methodology if the comparison parcels are selected as 150 miles from any part of the project, or 150 miles from the project center. Recommendation: We suggest that	language in the *ACR IFM Methodologies Tool for Comparable Properties Analysis* providing guidance for applying the comparable properties analysis when the project area is composed of multiple non-contiguous parcels. Your suggestion regarding grouping similarly sized parcels is included. b. The methodology specifies 150 road miles from the project area perimeter. We have chosen to keep this provision to ensure ample comparable properties for analysis. We have added a bullet that comparable properties must be sourced from within the same Ecological Region (as defined in the methodology), which helps address the concern regarding sourcing from the same wood basket. Additionally, we have specified that, if the 150-mile buffers of two non-contiguous portions do not overlap (i.e., they are more than 300 miles apart), each portion must be treated independently, requiring multiple complete Comparable Property Analyses and Harvest Intensity calculations.

		for projects made of multiple parcels the 150 mile radius should be measured from the centroid of the group of parcels to assure that comparison parcels are from the same wood basket.	
74	Carbon Direct	We believe the restriction that a comparison parcel is “owned by a non-federal entity” is not strict enough to ensure comparability. Past research has shown (https://www.nature.com/articles/s43247-023-00984-2) that land ownership is related to management after project implementation and therefore comparison parcels should come from similar ownership groups. Recommendation: Therefore comparable parcels should be required to come from similar ownership types. For example, parcels owned by NGO’s should use comparison parcels of NGO’s, REIT and TIMO owned parcels should compare to REIT and TIMO’s etc.	We have added a bullet in the *ACR IFM Methodologies Tool for Comparable Properties Analysis* Eligibility Criteria section that comparable properties be sourced from "...an entity of the same timber ownership class as the project area". We further specify that properties with an equal or lesser discount rate (based on ownership class) may also be used. And, we have added a process within the same section for expanding the 150-mile buffer radius in instances a sufficient number of comparable properties cannot be identified.
75	Carbon Direct	Stand age is one of the most important variables for determining when a stand will be cut. Therefore, comparable parcels should not only have similar strata (as defined by forest type) but also stand age. However, current remotely sensed datasets of stand age may be too imprecise for auditing purposes. Recommendation: ACR should (1) place restrictions on comparable parcels such that they have similar	We have developed the *ACR IFM Methodologies Tool for Comparable Properties Analysis* with step-by-step instructions for the Harvest Intensity calculation. Within, the document defines canopy height classes as a proxy for merchantability (pre-merchantable, pole timber, sawtimber) for age class and merchantability. The canopy height classes are used in developing a Similarity Index

		age distributions, not only forest type (2) ACR should provide recommendations on what datasets are acceptable for estimating stand age.	for ranking and choosing eligible comparable properties to address this concern.
76	Carbon Direct	The use of multiple comparison parcels allows for averaging harvest intensities across stratum. We suggest that averaging across stratum, weighted by area, is a better approach than using the minimum harvest intensity per stratum. Using the minimum harvest intensity may in some cases lead to overly conservative estimates of harvest intensity. Recommendation: We suggested that project proponents be allowed to offer alternative well-documented formulations including averaging across stratum, weighted by area.	We have revised the approach within the *ACR IFM Methodologies Tool for Comparable Properties Analysis.* The revised approach allows the Project Proponent to select a comparable property from a narrowed list of matched (i.e., the most similar) comparable properties. This negates the need for averaging, since only the most similar comparable properties (after outlier detection) are available for selection in constraint development.
77	Carbon Direct	Currently, Harvest Intensity can be calculated in many ways - remote sensing, management records etc. However, it is not clear precisely what type of information will be sufficient. For example, if using remote sensing data, what temporal and spatial resolution is needed. Likewise, what level of uncertainty is acceptable for remotely sensed data. Recommendation: We suggest that the ACR provide guidance on what remote sensing products would be sufficient to demonstrate forest harvest. For example, if LCMS data is sufficient, it would be useful for ACR to say this publicly. Likewise, minimum standards for temporal and spatial	We have developed the *ACR IFM Methodologies Tool for Comparable Properties Analysis*. The document names approved methods, datasets, and specifications and a prescriptive approach to baseline setting. Thank you for this comment.

		resolution should be set and maximum uncertainty should be stated. Without such information, it will be difficult for project developers and verifiers to do their jobs.	
78	Carbon Direct	The example workbook provides harvest intensities for clear cuts and for thinings. We believe there is sufficient remotely sensed data to identify clear cuts. However, it is more difficult to identify thinnings from remotely sensed data. Yet, for many forested systems thinnings will represent a significant percentage of biomass removal. Recommendation: We suggest that ACR provide detailed guidance on what remote sensing data sources are sufficient to identify thinnings. Such guidance would include minimum levels of spatial, temporal, and spectral resolution as well as maximum levels of uncertainty.	Please see response to comment 77 regarding the *ACR IFM Methodologies Tool for Comparable Properties Analysis*.
79	Carbon Direct	The requirement that "Harvest Intensities of comparable properties were not exceeded, both in each single year (Table 6 of Harvest Intensity Calculator) and cumulatively during the Crediting Period (Table 7 of Harvest Intensity Calculator)" may be problematic, because even very similar forest may have high inter-year harvest variation. More flexibility should be provided for year to year variation in harvest intensity. Recommendation: We suggest that harvest	We agree that, under reasonable forest management befitting a baseline scenario, harvest rates may vary from year to year based on many factors. However, there is still value in maintaining an annual constraint to maintain conservatism in the approach. We previously addressed this issue specifically for small landowners (<5,000 acres) with the Annual Small Landowner Harvest Intensity Factor

		intensity of the baseline should be able to exceed harvest intensity for some individual years as long as it does not exceed harvest intensity of the comparison parcel over the crediting period.	(Equation 1). We have now reframed this to allow all landowners to harvest up to 1.25 times the annual Harvest Intensity derived from Comparable Properties, while maintaining the higher allowance for small landowners. This allows baselines to incorporate realistic inter-year variability while maintaining a high degree of conservatism.
80	Carbon Direct	Forest management takes place over decades. The five year dynamic updates used here are meant to ensure that baseline harvest levels are realistic. However, even similar parcels with similar stand ages may be managed differently over a given five-year period, even if management (as represented by total harvest volume) is similar over a 30 year period. That is, there is simply a high level of year-to-year variability in forest harvest and requiring baseline changes after a five year period may be too short of a time period to understand if comparable parcels are diverging in harvest intensity. Recommendation: We suggest that ACR research the impact of using a ten-year rolling comparison time period instead of a five-year fixed period. That is, the project could identify five years out of a ten year-period to compare harvest intensity instead of the fixed five year period.	We agree and have incorporated this exact approach.

81	Carbon Direct	Many projects are likely to use remote sensing data to estimate harvest intensity. Many remote sensing products will use composite images to ensure high quality harvest detection. However, the use of composite images may lead to a delay between data availability and project timeline. That is, it will often be the case that a project assessing harvest intensity in year five of a project will only have four years of remotely sensed data. Recommendation: ACR should thus allow for some timing adjustment such that year five harvest intensity can be correctly and accurately calculated using remotely sensed data, which may have a lag.	The *ACR IFM Methodologies Tool for Comparable Properties Analysis* Lookback Period Definition section prescribes a lookback of 5 consecutive years within the previous 10 years, counting backwards from the most recent year for which data is readily available from the end of the Reporting Period, addressing this comment.
82	Carbon Direct	The Observed Conditions Assessment & Periodic Modeling Assessment are conservative in the sense that if conditions change baseline harvest is reduced. This is a nice step forward in making sure that over crediting does not take place. However, there are many situations where we may actually expect baselines to increase harvest - new mills, increased prices, reduced environmental regulation ect. Currently there is no way that harvest intensity can be increased over time. Recommendation: ACR should explore the feasibility of making changes in the baseline symmetric: if harvest intensity increases in the real world, it should also increase in the baseline.	We have clarified in section Dynamic Evaluation section of the methodology that baseline stocks may be adjusted both up or down. This is also clearly specified in the *ACR IFM Tool for Dynamic Evaluation of Baselines* Process section.

83	Carbon Direct	Most IFM projects both remove additional C02 from the atmosphere and avoid emissions. ACR accounted for removals differently in v1.3 and v2.0. Version 2.1 provides a new methodology to calculate removals. Recommendation: Overall, we find version 2.1 accurately accounts for removals by calculating removals solely on the change in with-project carbon stock and with-project harvested wood products.	Thank you for this comment.
84	Eastwood Forests, LLC	Redefining common practice based on paired properties in the 150-mile surrounding 'neighborhood' introduces a number of flaws as well as a number of substantial challenges. Substantiated common practice silviculture prescriptions may include rather extreme practices (representing the true threat to the carbon pools). However, requiring two properties employing regular use within 150 miles fails to capture the potential threats to the carbon pool, and thus does not represent true additionality. · Projects with neighbors who are conscientious or have other harvest constraints or objectives will not realize true additionality, while those with neighbors who are 'less ethical' or have fewer harvest constraints could benefit more fully. Project merit and viability should not depend on	The methodology modifications provide sufficient opportunity to compare the project area to the regional forested landscape and create a representative baseline. The overarching goal is to constrain harvest intensity to a level that is occurring on the nearby landscape in recent history. The approach is generous in allowing selection of comparable properties within a 150-mile buffer of the project perimeter (and further with certain qualifications).

		the immediate neighbors, but rather on the real threat to the carbon pools. § There are plenty of examples of depleted timberlands on the market that evidence the negative impacts that a single motivated landowner can have on a forested property often amongst very well-managed neighboring timberlands. The accepted NPV maximization models are already conservative in this respect, since they account only for timber revenue maximization and not for cut and sell business models which rely on the inherent residual value of land vs timber value. · Some conservatism is warranted, however overcompensating can result in the loss of motivation for investors, who are critical to realizing NBS impact.	
85	Eastwood Forests, LLC	Identification of truly Comparable Properties will be critical to an accurate determination of harvest intensity, and poor alignment could result in either unrealized OR exaggerated additionality. · It is difficult to ascertain whether potential proper□es are aligned, particularly to the stratum level, on several levels. § Harvest intensity typically develops regionally via efforts towards maximizing NPV, within the limitations of statutory, market and workforce	We appreciate these considerations and the complexity of identifying comparable properties. We have created *ACR IFM Methodologies Tool for Comparable Properties Analysis* and Comparable Property Matching and Selection approach to guide this analysis. The approach will decrease subjectivity and increase verifiability, directly addressing many of the points here.

		constraints, along with a number of property-specific constraints: · Age, density, timber quality, terrain, soils, infrastructure and numerous other harvest constraints can exist between properties that are only a short distance apart, any/all of which could significantly influence the harvest intensity. o These parameters are not readily assessable on privately held forestlands, especially in the detail required to determine truly comparable conditions. o Remote sensing techniques are notoriously inaccurate at determining many of these attributes. · Non-legislated or non-statutory influences on harvest such as supply agreements (inflationary impact), easements (deflationary impact), etc. are difficult to assess. · Markets and workforce constraints may be quite different within a 150 mile distance. · Landowner objectives are difficult to assess and may change.	
86	Eastwood Forests, LLC	Appropriate stratification developed around the project inventory may not be applicable to neighboring proper□es. · Within the same suite of available common practice silviculture, various ownerships can have vastly different harvest constraints. If less-intense harvesting is being practiced, it is most likely due to	We agree robust stratification will be important. The *ACR IFM Methodologies Tool for Comparable Properties Analysis* relies on selecting similar properties based on a new ranked and selected "Similarity Criteria". The similarity criteria includes canopy height as a metric for

		other constraints such as timber maturity, impacts of silviculture, markets, etc., all of which are currently accounted for via the NPV maximization model without the need to use neighboring property comparisons.	merchantability class, which addresses this concern.
87	Eastwood Forests, LLC	There is an inherent leakage bias introduced. Projects that reduce harvest rates incur leakage deductions in the ERR calculations for transferring harvest to neighboring properties – that is, increasing the harvest intensity there. The increase in harvest intensity on properties used for matched comparisons will lead to higher permissible baseline harvest intensity, which negates some of the leakage deductions.	The methodology accounts for market leakage with a deduction from ERTs for expected market forces. *ACR IFM Methodologies Tool for Comparable Properties Analysis* clarifies that if the Similarity Index identifies a Project Proponent owned property (or any other comparable property) as an eligible comparable, it is still subject to the outlier detection test. This serves as a safeguard for the Project Proponent, or other nearby properties, harvesting intensively to influence the Harvest Intensity calculation.
88	Eastwood Forests, LLC	The difficulties in matching properties to a verifiable standard puts a heavy burden on both the OPO and the VVB to accurately assess the property comparison. § Information is difficult to obtain from private ownerships, thus, remotely sensed data would be required. · Expensive: o Especially for project evaluation for property acquisition diligence. Prior to ownership it will be difficult to invest the necessary funds to adequately	We agree, at least initially, the additional processes added in this methodology may translate to higher costs in project due diligence and development. However, we do not think that the end result will lead to inaccuracies or subjectivity, but rather, projects based on harvest conditions in the region and relevant timeframe. We have added greater safeguards around comparable site/property selection and in relation to developing the *ACR IFM Methodologies*

		assess project viability. o Higher expenses may eliminate some smaller scale projects. o The increased expense and technical requirements are especially burdensome to smaller developers who may not have the capacity or resources to collect the data. · Which would give a competitive advantage to the larger developers, one of whom is the primary collaborator for the new methodology. · Inaccurate – it is difficult to accurately assess biomass removal remotely, especially for par□al-harvest silvicultural systems in hardwoods. o Ground-truthing of remote sensing models may not be possible if there are no project harvests to calibrate the model. · Highly subjective interpretation – exact alignment of property attributes will likely be impossible, leaving the assessment open to inexact interpretation of harvest availability, intensity and other conditions.	*Tool for Comparable Properties Analysis* to address many of these concerns.
89	Eastwood Forests, LLC	Within-stratum restrictions are not a good parameter for harvest intensity. Maturity level and thus harvest availability could be concentrated in one stratum on a property. Focusing potential harvest there at levels above that of neighboring	The methodology sets minimum specifications that will result in conservative baselines. Please see our response in regard to comment 86 concerning merchantability thresholds.

		properties is a legitimate baseline scenario if merchantable stands are available.	
90	Eastwood Forests, LLC	No available options are provided if Comparable Properties are not available or become unavailable due to ownership changes. Given the growing pool of conservation lands (public ownership, NGOs, easements, carbon projects, etc.), and conversely the shrinking pool of large, unencumbered private forestlands, it will become more difficult to truly match properties to establish common practice.	Please see response to comment 84 regarding ability to expand range for sourcing comparable properties if needed.
91	Eastwood Forests, LLC	The current (v2.0) method of baseline determination is a much more plausible means of determining the true baseline. It can also be applied dynamically, but does not rely on data of questionable quality and relevance, but rather on readily available and verifiable information.	We intend to update the *ACR IFM Methodologies Tool for Dynamic Evaluation of Baselines* to be available for optional use with projects developed under all prior versions of the ACR IFM methodology. This update will follow the release of ACR IFM v2.1.
92	Eastwood Forests, LLC	Should you decide, against our recommendations, to continue with the Comparable Properties methodology: · The 150-mile distance, especially road distance, is too restrictive and should be expanded to a regional, market or statutory level. Existing restrictions addressing limitations of statutes, market, workforce, etc. make distance restrictions unnecessary. · The percentage by stratum should be eliminated, instead using only the stand-level intensity. Harvest	Please see response to comment 84 regarding the ability to expand range for sourcing comparable properties if needed. In regard to this and other comments we have developed a Similarity Index approach within the *ACR IFM Methodologies Tool for Comparable Properties Analysis*, which addresses merchantability with a canopy height proxy. The canopy height proxy can be calibrated based on regional timber expertise.

		intensity within any stratum is significantly dependent on stand ages and other attributes. Current remote sensing technology cannot accurately determine the relative maturity of non-planta□on timber. Thus, parsing strata into 'ready for harvest' vs 'still maturing', particularly on un-owned proper□es, is not practical. Since the condition of the reference stratum may be significantly different than that of the project stratum (e.g. include many stands not yet available for harvest) on otherwise similarly matched proper□es, the harvest intensity parameter should not be based on a stratum-level percentage, but rather on stand-level harvest intensity alone. That is, how much biomass is removed from a merchantable stand when it is harvested.	
93	Eastwood Forests, LLC	While we agree that dynamic baselines have the potential to maintain a more current measure of additionality, there must be a recognition of the impacts that the uncertainty and inherent risk has on the potential for carbon investment. The likelihood of reduced issuances over time and the uncertainty of the magnitude will require a significant reduction in expected IRR per dollar invested. This, along with the significant new conservatism introduced, could potentially eliminate any advantage and/or incentives that	We acknowledge that dynamic evaluation increases uncertainties in long-term internal rate of return. We have taken steps to mitigate these concerns by developing a specific set of criteria under which the baseline must be evaluated, modeled, and as necessary remodeled (*ACR IFM Methodologies Tool for Dynamic Evaluation of Baselines* Framework section).

		carbon projects currently provide to forestland owners, thus significantly reducing the number of projects being developed. If higher offset prices can be commanded for the improved integrity, then perhaps this is moot, but that is by no means a certainty.	
94	Eastwood Forests, LLC	Besides the expectation for declining additionality over time, we have questions regarding serious impacts from an unaddressed potential situation: · What happens if the adjusted long-term average baseline rises above the current carbon stocks even though stocking may not have decreased or has perhaps even increased? § Is this a reversal? § If not considered a reversal, are no ERRs issued until the project can grow past the new baseline? § How long before the project is cancelled if it can't grow out of such a situation?	If project stocks dip below previously issued stocks this is considered an "intentional reversal". If they dip below baseline stocks this is a project termination. The Project Proponent must compensate for intentional reversals, and all ERTs ever issued to the project in instance of termination. Please see response to comment 70 in regard to baseline averaging and adjustments.
95	Eastwood Forests, LLC	Minimizing the potential variability of the dynamic model while still maintaining its integrity as a continually current measure of additionality is critical. Eliminating the reliance on the questionable assessment of actions on neighboring properties would be a prudent option. The current (v2.0) baseline modeling methodology could be applied dynamically, thus allowing for a continual	We have responded to the potential reversal suggestion above (comment 94). We value the perspective and think the *ACR IFM Methodologies Tool for Comparable Properties Analysis* adds value. We have developed significant safeguards for identifying eligible comparable sites that add rigor and reduce much of your concerns.

		assessment of additionality without introducing bias, inaccuracies and conflicts of interest. This ultimately is our suggestion for the direction of the new methodology, along with clarification of, and a protocol for, the potential 'reversal' situation.	
96	Finite Carbon	Determining and substantiating Common Practice during initial baseline development could incorporate the concept of harvest intensity as one metric to satisfy the three-pronged additionality test as described in the ACR Standard. However, the Harvest Intensity definition and framework proposed within the draft methodology, in application, is not a workable approach due to practical, technical and data limitations. Percent biomass removal per acre per year is a reasonable measure to gauge the level of harvest removals across a landscape. However, the anticipated challenges come into clear view when stepping through the Harvest Intensity Calculation leading to baseline constraint development as presented in the draft methodology. In our comments below, we provide more explicit feedback related to the methodology's Harvest Intensity Calculation as a tool to constrain a project's initial baseline and conduct a dynamic evaluation of the baseline through time based on comparable sites. Where appropriate, we have	We appreciate your feedback on the methodology and comparable properties assessment. The *ACR IFM Methodologies Tool for Comparable Properties Analysis* takes significant strides in this regard. We respond to your specific comments in this regard below.

		provided some additional/alternative approaches that we hope ACR will consider during the methodology update process.	
97	Finite Carbon	The required selection of comparable properties in the private sector for comparison to another landowner's carbon baseline is problematic in application unless the participating entity/entities own other eligible properties to leverage in satisfying this requirement. Large timberland investment asset owners would potentially have a clear and distinct advantage over private, NGO, and indigenous landowners. Harvest volumes, harvest units, timber values, silvicultural practices, and other information on other private land harvests are private and confidential information. Potentially only California makes this information public for use as a comparable site. Additionally, of those sources available for consideration, many that would contain the level of information required to perform this assessment are behind a paywall and would not be readily available for the purpose of a third-party audit/verification. Few, if any, incentives exist for any private landowner to share this information for the use of another private landowner's carbon project and then spend time providing documentation and interviews during third party verifications over the	We largely agree that management records may be difficult to obtain in many cases. You mention California as a possible exception, and certain New England states may also make this information available. Across the USA, it is more likely that management records from publicly owned lands will be available. We expect that carbon projects will need to determine Harvest Intensity using remote sensing in many instances. To this end, ACR has provided a detailed walk-through in the newly developed *ACR IFM Methodologies Tool for Comparable Properties Analysis*, prescribing several freely available data sources as well as a management records option. We have also developed a *Professional Forester Attestation Form* to substantiate choice of regionally appropriate silviculture in a standardized fashion. Your interpretation of the NWOS results is interesting. We would like to emphasize that the proposed Harvest Intensity framework does not replace all the previously established baselining

		span of a project's lifetime. Often, ownership property details are excluded, obscured, and indirectly estimated in comparable sales analyses by USPAP-accredited timberland appraisers, and project developers would be likely to fare worse than appraisers in obtaining the even-more detailed property-specific information required by this proposed change. Putting these challenges aside, we believe there are several other key considerations that ACR must further examine: - According to a recent USFS National Woodland Owner Survey (NWOS), only ~35% of private forest landowners solicit management advice from foresters and/or actively maintain a forest management plan . This can lead to many cases where landowners may not implement scientifically-sound silvicultural practices. In consideration of this, would a carbon project baseline comparison against a poorly managed property (i.e. one that may not adhere to typical regional silvicultural practices) be equally as legitimate as one where more truly suitable silviculture (i.e. in accordance with state/regional guidance) is practiced? Further, who would ultimately determine what may or may not constitute regionally appropriate silviculture?	safeguards (e.g., silvicultural practices, operability and access, regional timber market capacity, external approval). As written, Harvest Intensity introduces one additional layer to add to (rather than detract from) the conservatism of other constraints. We are comfortable with the notion that, in instances where nearby properties are managing aggressively for NPV or otherwise, the baseline common practice silviculture may reflect this. Actual management occurring on comparable nearby properties can be used to set Harvest Intensity, where justified with the respective tool. Regarding appropriate data sources for verifying management records, the Comparable Property Harvest Intensity section of the *ACR IFM Methodologies Tool for Comparable Properties Analysis* specifies past timber sale data, published data of harvests on public lands, professional forester attestations, mill reports, scaling tickets, and other verifiable forms of evidence may be used. We have consulted with many stakeholders, including VVBs on the proposed changes. There was a general consensus for more prescriptive

		- What process would a verifier follow to validate the information from comparable sites accurately without violating the privacy of their information? - Would these other parties be required to provide contractual evidence, appraisals, mill slips, or other sensitive information to demonstrate their outcomes? - Has ACR consulted with participating VVBs to elicit feedback regarding the feasibility of verifying this approach and potential impacts to costs, timelines, and capacity limitations? The use of comparable properties should be limited to states where the information is publicly available in avoidance of privacy concerns that will inevitably have to be overcome. In States that do not provide the necessary verifiable evidence as public information, we strongly suggest that ACR reconsider the comparable property approach to determine Common Practice Silviculture.	guidance on Comparable Properties Analysis, which resulted in the development of the associated tool.
98	Finite Carbon	The credibility of a project's baseline scenario is of utmost importance and a more frequent assessment of the baseline assumptions may serve as a mechanism to bolster the integrity of a project's GHG emission reduction/removal assertions. However, we believe the proposed approach in the Tool for Dynamic Evaluation of Baselines carries issues with consideration of the	We have added greater detail to the approach throughout the *ACR IFM Methodologies Tool for Dynamic Evaluation of Baselines*. We have also developed a step-by-step extensive supplementary document, titled the *ACR IFM Methodologies Tool for Comparable Properties Analysis,* detailing how to perform the analysis with publicly available data. In consideration of

		operational scope and scale, the availability of accurate comparable property information, and the overall frequency of the assessment itself.	the broader range of comments, we have chosen to retain the dynamic evaluation of baselines approach.
99	Finite Carbon	The method by which ACR IFM structures a project's baseline scenario (typically a drawdown of carbon until t=T), most projects receive the majority of their ERTs in the first 5 years. If the type of baseline reassessment proposed in v2.1 were to be forward-looking, it would disincentivize more conservative baselines with slower, longer drawdowns of timber stocks, while having minimal impact on the overall issuance of credits. The comments below reflect specific feedback related to the proposed Periodic Modeling and Observed Condition Assessment(s) as well as some recommended considerations for improving the described approach. It is not well understood why the selection of a 5-year interval for the Dynamic Baseline Evaluation was deemed appropriate in this application. Dynamics and guidelines affecting forested land-use/management - including mill openings/closures [2], updates to regulatory requirements (i.e. state BMPs/FPAs) [3], and technological improvements (i.e. harvest equipment [4] , improved genetic seedlings [5]) - are typically observed to follow a much less frequent update cycle. While we	The methodology sets a new constraint for observed Harvest Intensity, which strongly safeguards against baselines with an unsupported level of aggressive harvest. Further, the approach incentivizes Project Proponents to create baselines that they expect will align with management in the region. And, if a baseline is set that is unsupported by the comparable Properties Analysis, it would be evaluated and remodeled prior to issuing credits. Thus, the methodology has adequate safeguards to protect against the points on adverse incentives and impact to crediting. We have adapted the approach to allow a 5 or more-year consecutive lookback period over the last 10 years for the Comparable Properties Analysis, which addresses your concerns that Harvest Intensity should be a longer-term assessment.

		agree that some re-examination of baseline conditions within the 20-year crediting period would be suitable for the methodology, we do not believe that a 5-year return interval appropriately captures the longer-term management dynamics in the field of forestry. For consideration, many state agencies utilize a 10-year update cycle for the purpose of updating forest management plans on public lands as well as for state-run landowner incentive programs on private lands [6]. [2] https://trace.tennessee.edu/cgi/viewcontent.cgi?article=7147&context=utk_gradthes [3] https://www.sciencedirect.com/science/article/abs/pii/S0378112717303936 [4] https://scindeks-clanci.ceon.rs/data/pdf/2466-4367/2016/2466-43671601001G.pdf [5] https://www.mdpi.com/1999-4907/9/5/283 [6] Florida: https://www.fdacs.gov/Forest-Wildfire/Our-Forests/Land-Planning-and-Administration/Land Management-Plans-for-State-Forests2/Current-State-Forest-Management-Plans Maine: https://www.maine.gov/dacf/mfs/policy_management/woodswise/tree_growth_tax_law.html Minnesota: https://www.dnr.state.mn.us/forestry/section/index.html	

		Vermont: https://www.fdacs.gov/Forest-Wildfire/Our-Forests/Land-Planning-and-Administration/Land Management-Plans-for-State-Forests2/Current-State-Forest-Management-Plans Washington: https://www.dnr.wa.gov/publications/fp_sflo_fs_planning_workbook.pdf Wisconsin: https://dnr.wisconsin.gov/topic/forestplanning/actionplan2020	
100	Finite Carbon	• Legal Requirements/Regulatory Framework: We agree with the application of this test to confirm that the baseline scenario would still be legally permissible pursuant to any required laws/statutes, however it is unclear if this would also include voluntary regulatory mechanisms (i.e. state BMPs, agency recommended forest management guidelines, etc.). We suggest clarifying that this test would only apply to legally binding requirements. • Physical Condition/Access: We agree with the application of this test to confirm the access and operability of the baseline scenario, however we believe there is more specification needed to define the appropriate scope and scale. We suggest that ACR provide an example list of changes/factors that would materially affect operability and access assumptions within the baseline scenario. • Mill Capacity: We agree with the application of this test to confirm the viability of the baseline	Both the Legality section of the methodology and the *ACR IFM Methodologies Tool for Dynamic Evaluation of Baselines* Table 1 explicitly state the BMPs are considered legally binding constraints. This is consistent with the current version of the ACR IFM methodology v2.0 and has not changed. The methodology contains an explicit list legal constraints and exceptions. We have added two explicit bullets in the Operability and Access section of the methodology. The *ACR IFM Methodologies Tool for Dynamic Evaluation of Baselines* also provides several examples that may trigger baseline remodels, such as road accessibility, infrastructure changes, land ownership, tenure or access. We have developed the *ACR IFM Methodologies*

		scenario's timber output. • Comparable Property Harvest Intensity: As discussed above, we do not believe this test, in its current form, would be a workable approach for the purpose of examining and validating Common Practice Silviculture. We strongly suggest that ACR specifies this framework under the use of an existing, publicly accessible forest information source (i.e. FIA) to inform any type of comparable analysis given the considerable limitations of utilizing property-level harvest and remotely sensed data for this purpose. • Financial Feasibility: We agree with the application of this test to confirm the baseline scenario's financial feasibility.	*Tool for Comparable Properties Analysis* that prescribes publicly available datasets for the Comparable Properties Analysis. We appreciate your positive feedback in regard to regional mill capacity and financial feasibility sections.
101	Finite Carbon	In review of 'ACR-IFM-on-Non-Federal-US-Forestlands-v2.1-ERT-Calculator-Public-Comment-2024-02-01' there are several items included within the scope of the Dynamic Evaluation which we believe are not executable or clearly defined: 1) The example used is a 15,000-acre forest. Throughout the 20-year Crediting Period, the project incurs several significant area-based reductions to the baseline (1,500 acres of SMZs in RP4, 2,500 acres of inoperable slopes in RP5, 500 acres of aspen cover types in RP8). While it is understood that these are just examples, it should	1) ACR has considered the increased financial uncertainty associated with dynamic evaluation. For this reason, we defined a specific checklist of baseline parameters subject to dynamic evaluation. The *ACR IFM v2.1 ERT Calculator* purposefully incorporates large reductions in baseline harvest potential for example only and may not be representative of typical project implementation. Section 2.1 states "The dynamic evaluation process may result in increases, decreases, or no change in baseline carbon stocks...".

		be noted that the aggregated impact of these changes would remove 30% of the baseline area through the Crediting Period, which would result in a drastic reduction of the project's ERT crediting projection. Has ACR considered the implications this would have on a prospective Project Proponent's willingness to enroll a project in IFM given the financial uncertainty these changes would impose? It seems further concerning that the examples provided are only net negative to project performance – there would seem to be extremely limited opportunity to remediate any of the described impacts. 2) In the example used for RP5, the slope inoperability is based upon "regional workforce shortages" It is unclear what data sources would be available to support such a specific determination of harvestable slopes being reliant upon labor availability. 3) In the example used for RP12, the "Access Test" describes a scenario in which a washed-out bridge removes access to 500 acres of baseline area, with access later re-obtained in RP15. This would not be an executable exercise on the Developer's behalf, nor would it seem to be an appropriate exercise for the purpose of quantifying GHG emission reductions/removals under the premise of an IFM	2) We have removed regional workforce capacity and this example scenario is no longer applicable. 3) Specific inoperability due to a bridge wash out is only an example of a potential access. But if a bridge wash out made it no longer possible to access 500 acres for a specific reporting period(s) this could be handled by 1) removing the associated acres from eligible baseline harvests for the term in question, or 2) adjusting the baseline in consideration of number of plots affected by the closure. These are two examples that would not require a spatially explicit baseline while respecting the access issues in question.

		project. The derivation of a project baseline bears significant resemblance to the development of a high-level, strategic forest management plan. Many of the tools and processes used in IFM project development are not adequately equipped to handle a more specific tactical/operational type of planning framework. We believe it would be far more appropriate to apply an alternative mechanism that would effectively capture the likelihood of an access issue such as the one provided in the example, perhaps included within a risk category in the pending v2.0 Buffer Risk Tool. Furthermore, given that the existing IFM methodology requires implementation of state BMPs in the baseline, is there not already a mitigating mechanism embedded in the associated modeling for the type of event described in this example?	
102	Finite Carbon	As lead author of the ACR's Improved Forest Management for Non-Federal US Forestlands v1.0 (2010), Finite Carbon initially conceived of the baseline approach detailed in the methodology and carried through to v2.0. Now, as ACR contemplates major updates to the structure and function of the baseline in the v2.1 IFM methodology, we wanted to take the opportunity to provide historical context and constructive input	Categorical NPV discount rates by ownership, including non-federal public, have been included in this methodology since the 2011 version update by Columbia Carbon LLC (https://acrcarbon.org/wp-content/uploads/2023/03/IFM-Methodology-for-Non-Federal-U.S.-Forestlands_v1-0_Semptember-2011_FINAL.pdf).

		on baseline considerations, to assist ACR in meeting its stated goal "to create confidence in the integrity of carbon markets". The original baseline concept in IFM v1.0 was designed to be a comparison of carbon outcomes from actual management to a management profile that maximized the Net Present Value (NPV) from extractive silviculture. IFM v1.0 also required the baseline to be financially feasible, physically possible, legally permissible, and under typical silvicultural assumptions for the forest types and conditions (including landowner demographic) on the project. During the process of designing this methodology, we considered the applicability of the baseline approach to public lands. In consultation with stakeholders and after a thorough review of the applicable literature, the methodology authors in consultation with ACR concluded that public forests were subject to vastly different management restrictions and considerations when compared to private forests. As such, when ACR published IFM v1.0, public forests were deliberately and thoughtfully excluded from eligibility. This policy choice mirrored the stance of other carbon protocols such as the Climate Action Reserve's U.S. Forest Protocol and the California Air Resources	In developing ACR IFM v2.0, ACR recently and thoroughly re-evaluated the appropriateness of NPV discount rates across ownerships (including State/County lands) and published a summary: https://acrcarbon.org/wp-content/uploads/2023/03/description-of-npv-discount-rates-for-acr2019s-ifm-methodology-v2-0_final_2022-07-07.pdf. For State lands, NPV discount rate is one of many safeguards in developing a baseline. The new External Approval constraint, for example, goes far in referencing state or county forest management plans requiring explicit approval, as an additional safeguard. The baseline intensity constraint offers yet another suite of safeguards for baselines for state lands. For example, if using a comparable properties analysis, eligible comparable properties must generally be of the same timber ownership class, which would require non-federal public lands to compare with other non-federal public lands. Existing public projects in ACR's portfolio have modeled agency approved FMP baselines and used ERT revenues to incentivize project scenario management that exceeds approved harvest levels.

		Board's Compliance Offset Protocol U.S. Forest Projects. A NPV maximizing baseline, as used in the current IFM methodology (with or without discount rate adjustments), is simply inappropriate for use on public lands. This is well documented in the literature. For example, in Public Perceptions of County, State, and National Forest Management in Wisconsin, USA, Floress et al (2019) summarize that, "A gradual change from economic to non-economic values over time has been noted in news stories about forests. This shift in the approach of public forest management from one centered on economic commodities and values such as timber to a more holistic set of human and ecological benefits has been found by others." Max-NPV baselines maximize return from turning timber into cash as freely and as quickly as possible, and do not reflect the "best–known intentions" of municipal forest management. Cash flow is seldom the predominant determinant management objective for any municipality, rather municipal objectives are usually established through complex regulatory processes where diverse stakeholders influence the final management objectives for the future. Municipal baselines simply cannot be accurately represented by a counter-factual NPV-maximizing	The 2010 version of the methodology and documentation has been added to the methodology website.

		baseline analysis, as outlined in the current methodology. Subsequent revisions to the original ACR IFM protocol by other parties opened eligibility to non-federal public landowners. Notably, the major protocol revision from v1.0 to v1.3 included the significant scope expansion to allow non-federal public lands, despite the inapplicability of an NPV baseline approach for these lands. We believe that the voluntary carbon market must evolve to increase access across landowner sizes and ownership classes. However, the key differences in legal structure, management, decision-making, and regulatory authority between private and public landowners necessitate public owners be considered separately with respects to approved methods to estimate baseline emission reductions. As ACR prepares in this update to evaluate the appropriate use of baseline theories, we urge a full review of baseline methods and applicability. The blending of private and public forestlands in the IFM protocol is a vulnerability to overall program integrity. As such, we strongly recommend that public lands be excluded from eligibility under ACR	

		IFM version 2.1 until a time that an alternative baseline determination for public lands is developed. Finally, we note that the ACR IFM v1.0 (which excludes public land eligibility) is absent from the ACR methodology public documents page. For transparency and public process, Finite Carbon requests the Registry post the original v1.0 methodology and associated documentation to the IFM methodology documents webpage.	
103	Finite Carbon	We support the further detailed categorization of constraints relevant to baseline modeling and believe these are a sound addition to the Methodology.	Thank you for this comment.
104	Finite Carbon	• Inventory SOP Documents: We agree with additional detail added regarding biomass quantification and relevant equations and believe this is a sound addition to the Methodology. • Missing/Rotten Calculations for Live Trees: We agree with additional detail added regarding the method for collecting and applying cull attribute data and believe this is a sound addition to the Methodology. We would like clarification on whether data and calculation of missing biomass is required to be on tree thirds explicitly, according to the volume apportionment shown in Table 5 in	We appreciate the positive feedback on clarifications. After consultation with stakeholders, we have chosen to allow other verifiable approaches to estimating cull (e.g., whole-tree deductions), but when estimating cull by thirds of the tree, the values in this table shall be used.

		Section 4.3.2, or if whole tree estimates of percent missing may still be used as in previous methodologies, i.e. is the table presented for reference's sake, or is calculation to be based on the percentages shown?	
105	Finite Carbon	We agree with the application of cull attribute data and believe this is a sound addition to the Methodology.	Thank you for this comment.
106	Finite Carbon	We agree with the application of the revised Equation 31 and associated Vintage Calculations and believe these are sound additions to the Methodology.	Thank you for this comment.
107	Foster Forestry	ACR must provide greater clarity on the criteria for stratification, their relative rank, and their use in harvest intensity calculation such as the calculator. The criteria in section 3 should be clarified in this order of priority as "forest cover type, site class, and age class". Size (such as basal area) and density (such as stems per acre) vary independently from one another (many small or few large trees) so should be excluded by ACR as confounding. Management regime is a secondary not a primary stratafication criteria. Note that these 3 criteria are supported by the literature as percent commercial species, site class, and age class (also accessibility which ACR considers in constraints) were the drivers of harvest	Stratification in section 3 of the methodology may be used to increase inventory statistical confidence. The section provides examples of common stratification parameters and does not claim to be an exhaustive list or to prioritize certain parameters over others. A more extensive stratification approach has been provided in the *ACR IFM Methodologies Tool for Comparable Properties Analysis*, which has more relevance to baseline setting and the context of this question.

		intensity in temperate forests in Europe from the article below.	
108	Foster Forestry	ACR must require all 3 of these stratafication criteria not only for the project area but also in harvest intensity comparables in the baseline. With only forest cover type used for stratafication, areas could vary widely in site class, age class, and accessibility and therefore not truly provide harvest intensity comparables. Per Levers et al., 2014 “interpreting harvested timber volumes without considering ecosystem productivity [or age] could be misleading as the same volume of timber extracted from forest systems with high or low productivity [or old or young age] may indicate very different levels of forest harvesting intensity.”	We have added considerable detail in the *ACR IFM Methodologies Tool for Comparable Properties Analysis,* including stratification criteria and Similarity Matching within forest type that considers merchantability, site conditions, operability, distance to project area, and more.
109	Foster Forestry	ACR must require finer resolution of forest cover type stratification in using one of the 28 FIA forest type groups listed below as opposed to gross resolution of needleleaf, broadleaf and mixed. Comparing harvest intensities for example among lodgepole pine, ponderosa pine and whitebark pine which occur together elevation gradients in the Rocky Mountains is entirely inappropriate because of differences in silvics and natural disturbance histories.	The purpose of stratification in section 3 is to improve statistical confidence in the estimation of forest carbon stocks. A poorly designed stratification would result in high uncertainties in forest carbon stock estimates and require a confidence deduction, but it does not affect the integrity of the project carbon estimates. The *ACR Standard* specifies that uncertainties greater than 20% result in a 100% confidence deduction, further safeguarding the approach.

110	Foster Forestry	ACR takes a unique approach of using comparables similar to real estate valuations as opposed to VSC's approach of using FIA data for establishing dynamic regional baseline. ACR must require the disclosure of the entire pool of comparables within the 150 mile "timbershed" and the selection process employed for VVBs to assess whether the minimum of 2+ were "cherry picked" in terms of being most advantageous for the proponents.	We have developed the *ACR IFM Methodologies Tool for Comparable Properties Analysis* based on this and similar comments. The revised approach is highly prescriptive and decreases subjectivity and the ability to potentially "cherry pick" comparable properties. We require full disclosure of comparable property attributes to the VVB and ACR. For baseline reporting, we respect privacy concerns such that only key similarity criteria (e.g., distance to the project area, ownership type, property size and attributes, etc.) are publicly reported (see Reporting section of associated document for more).
111	Foster Forestry	ACR must address accessibility and reliability issues for comparable data since there is no Multiple Listong Service (MLS) for forest harvest data. ACR states two sources of management records and remote sensing (geospatial analysis and aerial imagery are subsets of remote sensing and should be defined as such) and a third source of "other verifiable evidence" that ACR must define in greater detail. ACR must provide guidelines on how comparable volumes and areas may be reliably observed for VVBs to assess. What are the criteria for LiDAR collection and the acceptable precision	We have developed the *ACR IFM Methodologies Tool for Comparable Properties Analysis* to guide the approach. Within, we have prescribed an ACR-approved approach that incorporates approved datasets and techniques. Projects utilizing other remote sensing models must report on the precision of the given model using an error matrix, as stated in section 6 of the associated tool. If management records are used, they must meet

		errors from an Area Based Approach (error matrix)? Should management records include mill scale records for greater reliability? What geospatial or satellite analysis is acceptable given their poor record for monitoring degradation as opposed to change from forest to nonforest?	the criteria in the Comparable Property Harvest Intensity section of the associated tool.
112	Foster Forestry	ACR must justify its inclusion of standing dead (snag) and particularly down dead (log) wood in the baseline boundaries. Commercial management plans rarely involve downed logs or snags monitoring and ABA-LiDAR is poor at detecting and accurately modeling down dead wood since this material is sub-canopy and uncorrelated with canopy characteristics.	Both aboveground and belowground standing dead are considered "optional" pools and must be consistently "included" or "excluded" in the project and baseline scenarios (section 2.3). The baseline is expected to decrease dead wood compared to the project and dead wood is therefore a conservative pool to exclude. Projects may opt to measure and account for these pools at an added expense to inventory costs.
113	Foster Forestry	ACR must align its definition of harvest intensity (line 20 in the calculator example) with that used by Levers et al., 2014 and others to refer to biomass or volume removal per area without a time step and not conflate intensity over space with rate over time. Lines 18 and 19 would be switched in the calculator with the former harvest intensity (biomass per area) and the later harvest intensity rate (biomass per area per year). This change would have the additional advantage of allowing rates to be adjusted with different lookback periods.	Time is an important factor in applying a constraint on harvest intensity and the cited paper does consider time, a period from 2000 to 2010. Since that study's time period is fixed across all analyses, its results are presented irrespective of time. However, baseline setting for ACR IFM projects requires explicit consideration of time, because multiple time scales are considered (single years, 20-year Crediting Periods, variable length Reporting Periods). This methodology’s time-integrated approach allows an observed harvest intensity over a given

			lookback period to be applied to a variety of circumstances in the baseline.
114	Foster Forestry	ACR must provide consistent and standardized guidance for converting tree volumes to biomass in harvest intensity calculations. Management plans and mill scale receipts typically report commercial volumes which are distinct from live tree biomass.	We have clarified that management records are eligible within the *ACR IFM Methodologies Tool for Comparable Properties Analysis* Comparable Property Harvest Intensity section. Management records and mill receipts reporting merchantable volumes only must use the methods in the Harvested Wood Products section of the methodology to back-calculate total tree volumes removed. Harvest Intensity calculations utilize percent biomass removal, as now clarified in the Harvest Intensity Calculations section of the *ACR IFM Methodologies Tool for Comparable Properties Analysis*.
115	Foster Forestry	ACR must require that once the comparables are chosen, these comparables are retained over the 40 year life of the project unless land use changes from forest to non-forest such as agriculture or development, or unless project becomes enrolled in a forest carbon offset program (as shown for simplicity in the example Excel calculator). The rationale for maintaining the same comparables is the article below which showed that volume/area	The purpose of the *ACR IFM Methodologies Tool for Comparable Properties Analysis* is to substantiate that harvest volumes comparable to that of the baseline are occurring on reasonable proxy sites in the project region. Because no two lands have the exact same conditions or management intent it would not be appropriate to require the same proxy sites throughout the project term to be used.

		does not vary much between USA forest owner types, however rate varied greatly in terms of length of entry period (uneven-age) or rotation age (even-age) (volume/area/year) which can only be captured by monitoring the same comparable over decades. This comment 2-4 refers to Step 4 of calculating intensity rate by number of years. This comment 2-4 also can obviate the need for complicated equation 1 in the methodology.	
116	Foster Forestry	ACR must avoid vague terms such as “partial cut” used in the public comment Excel tool. “Partial cut” can refer to any harvesting treatment- non-regeneration thinning, coppicing, uneven-aged regeneration and even-aged regeneration with reserves even high-grading —and thus is meaningless. ACR should add to its glossary the established regeneration method and thinning terms from Helms, 1998 Dictionary of Forestry and use these terms exclusively. “Selection cuttng” is another such vague term that must be specified as “single tree selection” or “group selection”	The terms used in *ACR IFM Comparable Properties Analysis Calculator* are simply examples. The methodology requires substantiation of Silvicultural Prescriptions and Harvest Intensity. Harvest Intensity normalizes biomass removed per acre regardless of silvicultural treatment.
117	Foster Forestry	ACR must justify with its current 5 issues of constraints to forest management and observed conditions, its oversight of a 6th issue of natural disturbances (type, severity, spatial extent and temporal periodicity). A severe fire or wind blow down in terms of percent biomass mortality	The *ACR IFM Methodologies Tool for Comparable Properties Analysis* now includes provisions to specifically demonstrate that deforestation or forest cover stock loss is specifically attributed to harvest activities by screening against publicly

		affecting the comparable properties but not the project area (or vice versa) will have a dramatic impact on offset calculation via live tree mortality, also salvage harvesting, and potential regeneration delays.	available datasets of natural disturbance and performing further due diligence.
118	Foster Forestry	ACR must reconcile plot data not being more than 10 years old with its 5 year dynamic baseline.	We have extended the "lookback period" for comparable properties to 10 years. While you are correct that "Project scenario" plot inventory data cannot be older than 10 years, the baseline is modeled based on the initial inventory and adjusted based on observed conditions over time.
119	Foster Forestry	ACR must resolve the fact that permanent not temporary plots are necessary for precise measurements of forest change in stock difference approach per article below from Scott, 1998.	Both permanent and temporary plots are capable of determining forest change, so long as they are statistically sound and free of bias. Projects using temporary plots must be resampled by the VVBs via unpaired t-test. Notably, all projects in our portfolio have implemented permanent sampling plots to date.
120	Foster Forestry	ACR must also resolve the fact that permanent plots cannot involve variable radius due to in-growth changing plot size and shape also per article below.	Variable radius plots are capable of measuring changing forest conditions. Agreed that variable radius plots do not lend themselves well to verification due to ingrowth. Again, in our portfolio all projects to date have used permanent, fixed radius plots.
121	Foster Forestry	ACR must provide more data on the biomass distribution Table 5 to prove that the table has	Table 5 was developed according to footnote 30. It is available for review upon request.

		undergone peer review and specify applicability by site, tree species and tree age.	
122	Foster Forestry	ACR must require definitive and modern allometric equation use to reduce error in biomass estimation. ACR should require the most parsimonious option of only 3, which aligns with the FVS model calculations for USA biomass. The article below found that allometric equation errors exceeded measurement, sampling and representation errors––therefore the same data calculated with ACR options 1, 2 or 3 would likely end up with significantly different results.	We appreciate this recommendation but ultimately refrained from reducing the selection of specific biomass estimation approaches at this time. All three biomass estimation approaches in the methodology are peer reviewed and commonly used in U.S. forestry applications. Further, the methodology states "Project Proponent must use the same set of equations, diameter at breast height thresholds, and selected biomass components for ex-ante and ex-post baselines and with-project estimates", diminishing the potential for differences in carbon estimates simply due to differences in biomass estimator methods. Notably, the paper cited prescribed examined biomass estimates in tropical forests and did not investigate any of the models prescribed in this methodology.
123	Foster Forestry	ACR must justify its above guidance to the published literature regarding forest market leakage summarized below. ACR must justify its market leakage deduction levels of 0-0.3 relative to the 0.4 median from the literature.	The ACR IFM methodology separately recognizes and accounts for two types of leakage: activity-shifting and market leakage. Accounting for both types of leakage is conservative, given nearly all estimates of leakage in the literature have been inclusive of both activity-shifting and market sources. Nevertheless, for conservatism and to control for leakage to the extent possible, project

			participants are required to demonstrate there is no activity-shifting leakage occurring within their operations – i.e., on other lands they own/manage outside of the carbon project. To mitigate market leakage, the ACR IFM methodology imposes a standardized deduction factor based on the literature. The conservatism of a 30% leakage deduction is well supported by research specifically focused on leakage in a carbon context (Sedio and Sohngen, 2000; Sohngen and Brown, 2004; Murray et al., 2004; Hooda 2007; Kuik 2013; Lasco et al. 2007; US EPA 2005; Warman and Nelson 2015; Wu 2000). Generally, the larger the scale of the carbon program (ACR's Forestry program encompasses nearly 2.4 million acres) the lower the carbon leakage (Paroussos et al. 2015; Pan et al. 2020). Also, the approach applies the leakage percentage to overall ERTs (vs. only differences in HWPs), regardless of harvesting levels. This is undoubtably conservative since the existing literature-base provides leakage estimates as a percent but does not specify how/where it should be applied in the accounting process. By

			deducting leakage at the final ERT level, the standardized rate is applied in the most conservative way, and results in a higher leakage deduction than the same percentage deducted from HWPs. ACR is interested in making strides to continually refine leakage quantification in the specific context of carbon offsets, a subject in need of more research, with the intention of reassessing our leakage deduction rates as pertinent data becomes available.
124	Foster Forestry	ACR must justify its exclusion of belowground land use activity-shiming leakage, primarily fossil fuel extraction within the project property. ACR must require belowground land ownership and leasing right disclosure in the PD and require leakage deductions corresponding to fossil fuel extraction GHG emissions as appropriate to close this loop-hole.	The ACR IFM project need only account for SSRs relevant to the project activity (reduced harvesting). Whether the project conducts belowground resource extraction is beyond the scope of the carbon project. If aboveground SSRs are affected by resource extraction, they are accounted for in the calculation of ERTs.
125	Foster Forestry	ACR must justify support in the literature for the thresholds of 5-25% wood products reduction or 5,000 acre size. Literature does suggest thresholds for project activity/intervention types, such as separating IFM set-asides (logged to protected forest (LtPF)), which paradoxically tend to have lower market	ACR's IFM methodology incorporates a leakage deduction of 20% for aggregated or programmatic projects consisting of small private landowners owning <5,000 total forested acres. This deduction recognizes program design and landowner attributes as important components of leakage and aligns with recent work supporting

		leakage, from IFM deferred harvests (extension of rotation age/entry period (ERA)). Some evidence for 0% market leakage exists but ACR should make this a positive list of activity/intervention types that either increase wood market or have zero direct impact. These include LP-HP (Low Productivity to High Productivity) specifically fertilization and thinning (commercial or precommercial) and RIL (Reduced Impact Logging) specifically skid trail designation, road closures, directional felling, and vine cutting.	diversity in geographic location, ownership type, management objectives, and tree species and wood product type as contributing factors that reduce leakage (Amacher et al. 2004; Galik 2018; Murray 2004). Further justification can be found in ACR's peer-reviewed *Methodology for the Quantification, Monitoring, Reporting, and Verification of GHG Emissions Reductions and Removals from Small Non-Industrial Private Forestlands v1.0*.
126	Foster Forestry	ACR should consider defining timber ownership classes positively for what classes are rather than negatively for what classes are not to provide easier classification with today's diverse ownerships. "Private industrial" to capture both REITs and TIMOs would become "private industrial and investment," "Private non-industrial" would become "family," "non-federal public" would become "jurisdictional and municipal," and "NGO" would become "charity, church, museum and school."	Forest ownership classes are discussed in greater depth here (https://acrcarbon.org/wp-content/uploads/2023/03/description-of-npv-discount-rates-for-acr2019s-ifm-methodology-v2-0_final_2022-07-07.pdf; also referred to in footnote 22). As you say, there are many diverse ownerships and developing an exhaustive list is not likely to hold up over time. Choice of ownership for NPV is assessed by both the VVB and ACR at validation, which sufficiently addresses this concern.
127	Rocky Mountain institute	ACR's IFM updated methodology is likely to improve the validity of baseline setting, but it is not dynamic baselining. ACR's IFM methodology establishes the baseline through modeling an ex-ante harvest scenario that will maximize Net	Please see response to comment 6.

		Present Value (NPV). The essence of dynamic baselining lies in ex-post comparison of project intervention with a carefully selected control group. Thus, it is fundamentally different from the ex-ante modeling approach ACR's methodology takes. The central piece of baseline modeling in both the current (Ver 2.0) and new versions (Ver 2.1) of ACR's methodology is ex-ante modeling based on NPV. It requires the project proponent to project a harvest scenario under which the NPV over the next 100-year period will be maximized, considering all legal and operational constraints of the land. Credit issuance then results from the difference between this ex-ante scenario and the measured data from the with-project scenario. Dynamic baseline takes a fundamentally different approach to evaluate the project impact. Dynamic baseline is grounded in causal inference techniques. It does not forecast any ex-ante scenario on how the project site will be used without intervention. Instead, it requires carefully selecting and matching control sites of the same baseline conditions relative to the project site prior to the start of the project and monitoring the ex-post results in both control and project sites. Particularly, with time-series or panel	

		measurements, such data can be used to eliminate the impact of changing macro conditions (such as in policy and market) that both control and project sites are subject to. Ex-post comparison between the project site and control then captures the impact of project intervention. For the reasons above, we would like to highlight that the updated Methodology for Improved Forest Management on Non-Federal U.S. Forestlands is not a dynamic baseline based methodology and should not be marketed as such.	
128	S&A Carbon	"The only exceptions to modeling legal constraints, which are not required to be considered in baseline modeling if enacted less than one year before or any time after the project Start Date..", Fully support this time frame for exceptions. Reasonable and practical. "Any of the above exceptions must be considered in baseline modeling if enacted prior to one year before the project Start Date. Demonstrations of explicit reinforcement of the project action must include attestations and or other verifiable evidence, produced and dated within one year of when the constraint was enacted, that references the GHG Project. The last sentence needs a little more clarification. Is this the intention? Demonstrations of explicit	Thank you for the support on clarifying timeframe around modeled constraints. In regard to explicit reinforcement of the project action, we use the term "project action" as it is used throughout the ACR program. In the case of an IFM project, the "project action" is the improved forest management itself, relative to baseline forest management. "Reinforcing the project action" therefore means to be complementary to the GHG project. We have refrained from requiring language that is too specific in the demonstrations of explicit reinforcement, because we expect these self-imposed legal constraints to come into effect very early in the project development process,

		reinforcement that the baseline model incorporates the project action(s) that comply with the constraint. Such demonstrations must include attestations…...	potentially prior to listing with ACR or even deciding which GHG program to enroll in. We have added the following clarifying language: "While specific details regarding the GHG Project (e.g., project name, Methodology) are not required in these demonstrations, they must, at minimum, document the intent to enroll the project area in an improved forest management carbon project."
129	S&A Carbon	"Each baseline silvicultural prescription must be substantiated by at least one of the following…" "Each baseline silvicultural Rx" is this intended for each stand/strata type, say for example a pine stand vs an oak stand? Wondering if the supporting documents used to justify an Rx needs to be relatively recent and applicable time frame? Last 5-10 years vs 50 years ago? Might be more clear and accurate to put in some relative time frames for applicability. For consideration, common practice silviculture may within a region vary by landowner type (BIA, Land Trusts, industrial, smaller private landowner) and by acreage (5k acres vs 100,000 acres+). The landowner types have different objectives which influence what common practice is applied. For example, in the NE, smaller landowners will likely	We appreciate the suggestion but have refrained from setting specific timelines on materials for substantiating Harvest Intensity or being too specific regarding ownership size. Some flexibility is warranted so long as the source is reputable. The new Harvest Intensity constraint is a safeguard against unfounded baselines that addresses many of these concerns.

		manage northern hardwood forests via uneven-age approaches while larger landowners with objectives for financial returns may manage via even-age scenarios. Maybe these also need to be referenced in supporting evidence.	
130	S&A Carbon	There may be challenges locating and gathering information on similar and nearby operations for the use of regular adjustments to quantification of baselines and for use in the common practice test. The situation may occur where certain projects and operations do not have a comparable, nearby operation with respect to operation size, operational methods, or forest/ecological type. In these circumstances, there may be no comparable operations, or perhaps, only one nearby comparable operation. IFM v2.1(4.1.2.5.1) provides criteria for identifying comparable operations and there may be differences in opinion on the similarity of these comparable operations. ACR might consider providing guidance in instances where comparable operations are not available within this geographic range or where similar operations in scale and/or forest type do not exist. Believe the 5-year lookback period is too narrow (harvest are often delayed for various reasons weather, management/staffing, markets, legal,	We have added further criteria for identifying and selecting comparable properties in the methodology and *ACR IFM Methodologies Tool for Comparable Properties Analysis* to streamline the approach and reduce subjectivity. We have extended the lookback period for identifying comparable properties to 5 consecutive years within the last 10 years. We appreciate the support for a dynamic approach.

		etc.) and changes in common practices are often policy driven, which often take more than 5 years to be fully implemented. 10 or 15-year lookback period may be more realistic, practical and workable in regards to providing supporting evidence, and financially feasible (every 5 years requires to review/update the baseline will add to costs for all stakeholders). Think a 10-15 year window for re-assessing the baseline would capture the changes occurring in common practices. Fully support the concept of a dynamic baseline approach.	
131	S&A Carbon	Fully support the added clarity in reporting and organization of this section!	Thank you for this comment.
132	S&A Carbon	Option 2: Default FVS FFE employs NVEL but currently does not account for tree level defect and the specified decay deductions in the calculation of volume or plot carbon. Have there been any suggestions for a tree-level work around for defect and component decay application? NVEL has been updated with National Scale Volume Biomass (NSVB) models which uses tree level defect but this method for calculating biomass has not been developed into FVS yet. Given that the protocol doesn't specify which version of FVS or NVEL is to be used, has this update to FIA been	Option 2: We have not seen a successful application of tree-level decay. However, as NVEL and FVS are updated, we are hopeful this may emerge. Regarding the NVEL's use of the NSVB, we have added "Newly published versions of the National Volume Estimator Library's biomass algorithms may be employed either within FVS or independently from FVS." This footnote's hyperlink has been updated.

		considered? If so, how? Option 3: Projects outside of CA, OR, WA, and AK – The current Appendix K 2023 sites NVSB method for calculating tree carbon. The hyperlink provided for the 2021 document does not lead to that older PDF. Given the changes to documentation, it may be good for the reference to bring viewers to the 2021 document as it's difficult to find.	
133	SCS Global	As a VVB with extensive experience validating and verifying IFM projects, we have recently encountered a situation that, we believe, poses a significant risk when identifying a feasible baseline scenario and the associated claim of additionality under the IMF methodology v2.1. The language in Section 4.1.2.3 regarding regional mill capacity states: "The baseline scenario's harvested timber output must not exceed regional timber market (i.e., mills, ports, rail yards, and other markets for timber) capacity for the species, size, and grade forest products produced." Specifically, the language of "must not exceed" has led to an interesting situation, which we believe will be exacerbated moving forward if not addressed. We have encountered a situation where there is a very remote log market with limited	We have added clarification that " In the instance that a participating entity has multiple GHG Projects with Start Dates within 3 years of each other that utilize the same timber markets, the combined baseline timber outputs shall not exceed the total current capacity of all the identified timber markets amongst the multiple projects in any given year. A Project Proponent is not subject to this requirement if it is acting on behalf of multiple unique landowners, forest managers, or investors (per project) who maintain management authority over each project area". This addresses the concern that a single Project Proponent would enroll multiple land ownerships and exceed mill capacity. Conversely, it is not appropriate to exclude other Project Proponents

		capacity, no neighboring markets, and several carbon projects at varying stages of development. Each of these projects has elected to claim essentially the entire available regional mill capacity in each baseline, as allowed by Section 4.1.2.3 since no single project has exceeded the regional capacity. In aggregate, this results in what is effectively a portfolio of emission reduction and removal claims which are based on a collective baseline that far exceeds the regional mill capacity, calling into serious question the feasibility of said baselines in the aggregate, resulting in what we believe to be non-additional emission reduction and removal claims. This example is not hypothetical and is a situation that we are currently trying to resolve. We believe that this highlights a relevant concern that could impact the additionality claims of current and future IFM projects. If there are 20 hypothetical projects in a particular region that each claim 5% of the annual mill capacity in their respective baselines, the 21st project would, in theory, fail to meet the requirements of additionality, as all of the regional mill capacity will have been allocated to the other projects. As the voluntary carbon market continues to expand and more IFM projects are developed, it is reasonable to expect that there will be a point	from utilizing the regional mill capacity simply because they were not first to create a carbon project in the region. The approach balances increased stringency with practicality and equity for more than a single ownership to develop a carbon project per region.

		when the aggregation of IFM projects exceeds the actual available mill capacity of a region, thus resulting in unrealistic and non-conservative estimates for reductions and removals of carbon. We believe that this is a serious concern that needs to be addressed to maintain the integrity of the voluntary carbon market.	
134	Terra Verde	For project verification, the current t-test methodology is not always effective for addressing field measurement accuracies. When field measurements comparisons between cruiser and verifier are too tight, the t-test gets to sensitive, which can cause a field verification to fail, even with less than 1% difference between verifier measurements and project proponent measurements. We suggest having an alternative materiality-based breakpoint, a de minimus (Possibly 3%)? This would override the t-test if verifier calculations are found to be within 3% (?) of project proponent calculations.	We have taken this suggestion and incorporated it into the Resampling of Carbon Stock Measurements section of the methodology.
135	Terra Verde; Doyon Limited	While we appreciate the need for, and support the idea of an annual baseline review, one of the problems with this dynamic review process is that it will introduce uncertainty into financial projections. If the baseline can change on a yearly basis, there is no certainty that the financial goals of the project will be met. This financial uncertainty	We understand the concerns from the perspective of a landowner contemplating a carbon project. There is also market desire for more frequent baseline reassessment. This methodology strikes a balance and has provided the *ACR IFM Methodologies Tool for Dynamic Evaluation of Baselines* to guide this analysis.

		would disincentivize landowners from entering their lands into new carbon projects.	
136	Terra Verde; Doyon Limited	We find this temporal boundary to be too short. Forest industry trends occur in much longer cycles than 5 years. It is unreasonable to expect that a 5-year window will capture an accurate representation of market trends. We suggest no artificial temporal boundary, but rather require a justification for the temporal period selected. Or, set it at 20 years since that is how long the baseline projections run. Example: a landowner may choose not to enter their lands into a carbon project at year 0 because the market has been soft for the previous 5 years. If a market uptick occurs at any point, the landowner can now capitalize on this uptick and harvest at whatever intensity they prefer. Had the land been entered into a carbon project at year 0, there would be no threat of harvest with any uptick in market activity. Thus the result of this short lookback period could be to disincentivize carbon project participants.	Based on this and other stakeholder feedback, we have revised IFM v2.1 to extend the "lookback period" for demonstrating comparable harvests to 10 years to strike a balance while addressing these concerns.
137	Terra Verde; Doyon Limited	Further problems with the 5-year period lookback. With a focus on Alaska, there has been a significant rise in the number of acres entered into carbon projects in the last 5 years. This has resulted in a disruption to the commercial wood products market, resulting in less harvesting due to the	See response to comment 136 regarding a 10-year lookback period. In regard to existing projects, the dynamic tool Table 1 does allow baselines to be substantiated if verifiable evidence can be shown that specific timber

		shifting of revenues to carbon projects. So the intent of the carbon market system is working: it is moving commercial lands out of harvest regimes and into carbon markets. If the basis for a future carbon project relies on a baseline that looks only at the most recent 5 years of harvest data, and the previous 5 years harvesting has been severely muted due to the shifting on lands into carbon projects, there is no incentive to commit to a carbon project. Quantified evidence may be difficult to obtain. Many factors can influence a decision on when /where/ how much timber to harvest. Again, short lookback period is unreasonable since carbon markets (in Alaska) run in larger cycles. See above for suggestion of 20-year cycle.	market capacity is reduced specifically due to carbon projects.
138	Terra Verde; Doyon Limited	If the market softened 4 years ago, such that the baseline was developed on an average over 5 years, with the oldest year being the tale end of a strong market cycle, this would imply that the oldest year would now be dropped, which could theoretically drop the baseline harvest levels significantly. Again, we feel 5 years is too stringent of a lookback period and seek justification for using such a short period when dealing with an industry known to be cyclic,	We have updated the lookback period for comparable property harvests to 5 consecutive years out of the last 10.

		and which projects estimates are made for a 20/40 year crediting period.	
139	Terra Verde; Doyon Limited	Harvest plans with location, acres, and prescription are usually open facing and available, but determining a landowners total holdings and the exact biomass percentage removed, this is not generally information we will be consistently able to find in all regions, and especially in Alaska.	We understand this information may not be available or, in some instances, may be behind a paywall. We have developed the *ACR IFM Methodologies Tool for Comparable Properties Analysis* prescribing publicly available datasets and a prescriptive method for determining Harvest Intensity. Management records are still an option if available, but we do expect remote sensing to often be used for discerning carbon stock change when these records are unavailable.
140	Terra Carbon and The Nature Conservancy	While it is important that silvicultural prescriptions be appropriately applied to the forest types and conditions in the project, it is less important that the qualitative prescriptions (ie: type of harvest) match exactly with similar properties. Different foresters may prescribe different prescriptions on similar forests, some better than others, and some with a different objective from the project. This requirement also assumes that all harvests are overseen by foresters with equally appropriate silvicultural prescriptions and that those prescriptions are applied correctly by the loggers and do in fact have silvicultural intent. What is	We agree carbon stocking is the most important component of assessing Harvest Intensity. Steps 1 through 5 of the Harvest Intensity Calculation (section 4.1.2.6.6) discern carbon stock loss as a percentage of total stocks removed, such that clearcuts versus selection harvests (for example) are normalized relative to the parcel size.

		more important for comparing properties is the common practice harvesting reductions in stocks and the resulting residual stocking, which is quantitative.	
141	Terra Carbon and The Nature Conservancy	1. Identify at least two comparable properties. a. Public datasets of parcel boundaries are notoriously inaccurate and difficult to interpret. It varies enormously from state to state and even county to county. In many places it is difficult if not impossible to determine which parcels compose a single property under ownership, which poses a challenge when we are interested in understanding harvest intensity at an ownership level. Therefore, a property level assessment does not seem feasible or appropriate for the purpose of establishing harvest intensity.	We acknowledge determining ownership across multiple parcels can be difficult. This is why the base Comparable Property Analysis occurs at the parcel (rather than ownership) level. However, we are also aware that GHG projects are often composed of multiple parcels across a single ownership. Based on this and similar feedback, we have provided guidance in the Eligibility Criteria section of the *ACR IFM Methodologies Tool for Comparable Properties Analysis* for grouping multiple non-contiguous parcels belonging to the same owner for Comparable Properties Analysis.
142	Terra Carbon and The Nature Conservancy	b. Additionally, we have found the “ecological condition” requirement to be overly vague and difficult to establish on other projects. There need to be clearly prescribed criteria that allow for comparison between properties (e,g. stand age, density, forest cover type, elevation, ownership class, etc.). This approach, hinging common practice on a handful of properties, also has the potential to invite gaming, and would require safeguards, e.g. selected properties must not be under the same ownership as the project.	We agree that "ecological condition" was vague and have now required that eligible properties are sourced from the same Level II Ecological Region, which is a publicly available and mapped dataset. We have also revised the approach to be much more specific and systematic, and have developed the *ACR IFM Methodologies Tool for Comparable Properties Analysis* that guides the approach with publicly available datasets in

			response to this and similar comments. The Comparable Properties Analysis includes Similarity Matching and Outlier Detection tests that narrow eligible parcels to only the most similar for potential selection. The approach introduces sufficient safeguards to address these concerns and appreciate the comment.
143	Terra Carbon and The Nature Conservancy	2. Identify the forest cover strata to which each observed harvest treatment is applied. a. In our experience the NLCD layer is not accurate at the resolution of a project area, especially if the project area is less than 5,000 acres. This would be an inappropriate application of this data layer.	While we appreciate the comment, the spatial resolution of NLCD (30-meter) is appropriate for delineating stands, which are the functional unit for the application of harvest treatments. Stands are generally multiple acres, while a 30-meter pixel represents 0.007 acres. This suggests that NLCD's spatial resolution is sufficient to delineate harvest treatments within stand boundaries, should harvest be detected.
144	Terra Carbon and The Nature Conservancy	b. Further, silvicultural prescriptions not only consider forest cover type, but also land use history, stand age, forest health, and landowner goals and desired outcomes. Thus, forest cover type alone may not be aligned exactly with silvicultural operations.	Please see our response to comment 140 clarifying that Harvest Intensity is a function of relative biomass loss, regardless of silvicultural prescription, and is normalized in the equations.
145	Terra Carbon and The Nature Conservancy	3. Classify comparable property harvest treatments. a. Identifying harvest treatments on properties outside of a project area (i.e. no access) is exceedingly difficult, especially in closed-canopy	We have extended the "lookback period" for assessing comparable harvests to 5 consecutive years within the last 10 years, which helps in discerning multi-phase silvicultural treatments.

		forest, unless the treatment is a regeneration cut, like a clearcut or seed tree. This method also assumes that harvests can be detected at one 5-year lookback period when harvests sometimes occur over time and may not be one discernable point in time (ex: a shelterwood harvest that occurs over several years). Remote sensing analysis is improving, and it is possible that we will have the ability to detect harvest types at a finer resolution in the coming years, but unless a developer can pay to purchase high resolution imagery or fly a drone to collect LIDAR data, this is a difficult requirement. FIA data and other state forest inventory data may be able to capture some level of harvest activity and could be applied here in place of property specific stand-level treatments.	We agree that technological limitations to remotely sensed data may limit discernable harvests. If this were to occur it would conservatively affect the baseline (Project Proponent may only detect clearcuts to set Harvest Intensity when in reality there are also selection harvests occurring on the landscape). We have developed the *ACR IFM Methodologies Tool for Comparable Properties Analysis* that demonstrates an approved remote sensing approach using publicly available data. It also addresses the use of management records or other verifiable evidence of demonstrating comparable harvests. We recognize that paid imagery/RS data may unlock additional datasets for project development and feasibility assessment, that can ultimately result in improved harvest detection. This incentivizes the use of more sophisticated data sets where costs are justified and allows flexibility as the technology improves. The referenced tool contains an Approval Process for Forest Loss Identification Models to guide such an approach.

146	Terra Carbon and The Nature Conservancy	5. Identify the average percent biomass removed per acre of observed harvest treatments. a. Again, without access to harvest records on a comparable property, this data cannot be accurately produced, and these numbers are even more difficult to back up relying solely on remote sensing data. A national, state-level, or county-level data analysis could be more accurate and useful for meeting this requirement. This information is often regarded as confidential and is unlikely to be widely shared between landowners. Also, not all harvests are tracked with pre- and post-harvest volumes.	We understand that management records may not be widely available. This does create a greater emphasis on the remote sensing approach to Harvest Intensity. We have developed the *ACR IFM Methodologies Tool for Comparable Properties Analysis* in this regard to guide this analysis using publicly available data and standardize the approach.
	Terra Carbon and The Nature Conservancy	We are proposing that ACR develop a standardized dataset at either a national and/or regional scale that project developers can consult to establish relevant common practice parameters (e.g. harvest intensity, harvest frequency, and thinning prescription (i.e., thin from below, thin throughout, or thin from above). An analogous product would be the ARB Common Practice Area Assessment Data File. However, to avoid concerns regarding adverse selection, we would propose a more continuous data layer, where projects would call data within a certain search radius and meeting certain similarity criteria. Such a dataset would need to be updated periodically to reflect current harvest practices. An immediate data source exists	We have considered the many suggestions laid out here and created *ACR IFM Methodologies Tool for Comparable Properties Analysis* that prescribes a standardized process for analyzing Harvest Intensity on comparable properties. This will streamline project development and verification and we thank you for the suggestions in improving the methodology update.

		in the FIADB, and The Nature Conservancy has already piloted a data query tool to assess harvest intensity in designated search radii in the conterminous U.S. Such a tool could be augmented with remote sensing data, to answer questions regarding harvest frequency and single harvest areas. There are several advantages to this approach: • It creates a more equitable pathway for all types of project developers to access the carbon market through the methodology, by lowering the cost of development, in particular the cost of obtaining and analyzing data and substantiating common practice. • By standardizing the process and source of data, this will streamline auditing by verifiers and facilitate administration by ACR. In its current form, we expect that V2.1 will raise many questions from VVBs and ACR about appropriate use of the tool and selection of data inputs. • It will prevent inconsistent application of the tool. Allowing every project to develop and defend its own harvest intensity value will make it difficult to compare baselines from one project to another (something this methodology aims to prevent). • It should reduce the risk of 'gaming' a baseline, where project developers could selectively choose	

		properties that allow a more favorable baseline. • ACR can standardize and control the data inputs creating consistent baselines across all projects. • Market scrutiny can focus on this dataset rather than a specific project, which would favor use of the FIADB, the integrity of which is widely acknowledged.	
148	Terra Carbon and The Nature Conservancy	We welcome the development of more frequent baseline evaluations and see this as a way to address criticism in the carbon market about modeled baselines. However, characterizing this required evaluation as “dynamic” is incorrect. The tool formalizes a structured periodic evaluation of modeled baselines, which we believe is an important advancement in the ACR IFM Methodology. Changing the terminology to reflect the nature of the evaluation more accurately is important given how it is used in Verra’s VM0045 and discussions of forest carbon baselines in the peer reviewed literature (e.g., Haya et al. 2023). The tests, considerations, and assessments are mostly clear, but the issue is whether they are realistic to implement. We have the following questions about the proposed factors that should be considered:	Please see response to comment 6.

149	Terra Carbon and The Nature Conservancy	• Legal constraints o Is a map of legal constraints required to establish "geographic extent"? Can this be substantiated by describing the jurisdiction? o What constitutes a "list of self-imposed legal constraints"? Is this meant to be something like an easement? It would be helpful to provide further clarification about how to interpret and apply this requirement in practice. Clarify what exactly this requirement means.	This test considers all legally binding constraints relevant to forest management in the project area. Citing a relevant law and geographic applicability is sufficient and a map of legal constraints is not required. Regarding self-imposed legal constraints, the methodology now provides a list of specific exceptions to required modeled legal constraints and the *ACR IFM Methodologies Tool for Dynamic Evaluation of Baselines* provides specific section references to in this regard.
150	Terra Carbon and The Nature Conservancy	• Operability and access constraints o A detailed description of access and operability sounds like a component of a harvest plan. Is ACR proposing/requiring that a full harvest plan be written for the project area? Or could this requirement be addressed through a simple attestation by a local forester or logger? Is ACR asking for a spatial representation of access for "specific areas within the project area that are constrained"? See comment about stumpage.	A spatially defined harvest plan is not required but, as the methodology states, the GHG Project must identify any areas that are not (nor expected to become) operable or accessible. Project Proponents must also conduct an analysis of relevant variables, access limitations, and other conditions relevant to physically accessing timber and performing baseline management. The *Professional Forester Attestation Form* must be used to meet this requirement and continued operability and access must be confirmed at each verification.
151	Terra Carbon and The Nature Conservancy	• Regional timber market capacity o "Timber markets considered, and their locations and transport costs relative to the project area;" Is	A map of all timber mill locations is not required. We have edited this requirement in the Regional Timber Market Capacity section of the

		ACR proposing that asking for a map of all timber mill locations relative to the project area is needed? This might be a standard dataset that ACR can provide since proprietary datasets could be costly to acquire which could limit access and usage of current data. Transport costs are included in stumpage values. See comment about stumpage.	methodology to state "Projects must first identify regional timber markets and their hauling distances from the project area". We are aware of paid-for mill capacity databases (e.g., Forisk's North American Forest Industry Capacity Database), but these are not necessary. The methodology requires "attestation from a Professional Forester, timber market reports, testimony from a Professional Forester, published literature from an applicable state or federal agency, or other verifiable evidence" to demonstrate relevant capacity. This provides several routes that can accommodate most situations without buying such data. While stumpage values can be appropriate for the NPV analysis, that does not replace a check that the mills that would accept the baseline's timber output are within reasonable distances and have sufficient capacity. We have clarified in the Financial Analysis section that "If stumpage prices are regional average, the project area's ... conditions must be well represented by average conditions of the region".

152	Terra Carbon and The Nature Conservancy	• External approval constraints o It is unclear what ACR means by “external approval”. Please provide more clarity around this requirement as it is vague and overly broad. How do you identify this third-party entity? How does this requirement change based on landowner type? Is this required for private property owners? Is this meant to be an easement holder? Regulatory entity?	We have made several clarifications based on your comment. We also now state "External approval constraints are barriers that, while not necessarily legally binding, limit forest management decision making and are imposed by external entities. Examples include tribal forest management plans requiring Bureau of Indian Affairs (BIA) approval, state or county forest management plans requiring approval from a separate agency, and forest management plans for eased lands requiring approval from the easement holder. Private property owners, especially those owning property free from any encumbrances, generally do not require external approval”. Further description is provided therein.
153	Terra Carbon and The Nature Conservancy	• Common practice silviculture o See comments in section above on common practice analysis.	Comments addressed above.
154	Terra Carbon and The Nature Conservancy	• Baseline harvest intensities o Again, “ecological condition” is a vague term. Please provide specific parameters for defining ecological condition.	Please see response to comment 142.
155	Terra Carbon and The Nature Conservancy	The proposed methodology outlines that harvest constraints, including operability and access as well as regional timber market capacity must be included in baseline constraints. Stumpage is an	We agree that, where appropriate, stumpage prices are a convenient yet defensible source of prices inclusive of many costs. We have added new language in the Financial Analysis section of

		indicator of all the economic facets that contribute to logging. Thus, when a stumpage price is presented, it is inclusive of all market conditions: that is, if market prospects are poor, the stumpage will be lower; if roads need to be built for harvesting, stumpage will be lower; if operability is poor, then the stumpage will be lower. All of this would factor into the NPV analysis. Also, the burden on the project developer to demonstrate such constraints assumes that timber harvests have such information available. Not all harvests occur with the oversight of a professional forester, and thus information such as road building, hauling, harvesting, fuel, etc. costs may not be obtainable outside of stumpage or a full harvest plan, which is not feasible for every property. It would seem that the option could be given to incorporate all costs as constraints if stumpage data is not available, or simply use stumpage in the NPV analysis without the additional burden of demonstrating all the component factors that comprise stumpage.	the methodology to provide details regarding the utilization of stumpage prices in the NPV analysis. However, we also recognize the importance of identifying project-specific constraints. For instance, regionally averaged stumpage prices are developed using operable and accessible lands. It would be inappropriate to apply these averages to all acres within a project area without consideration for their operability and accessibility. We find it reasonable to ask for the identification of specific acres that are inoperable or inaccessible, so they may be excluded from baseline harvest scheduling. We do not necessarily expect this information to come from staff directly involved in recent timber harvest operations on the property. An analysis of slope angle in addition to an attestation from a Professional Forester regarding common practice harvesting practices, for example, could be sufficient. We also find it reasonable to ask which mills would receive the baseline's timber output and whether they could. Similarly to above, it is

			important to confirm more than just financial feasibility based on current market conditions. Specific conditions relevant to the project area's market access and baseline feasibility are required to be confirmed.
156	Terra Carbon and The Nature Conservancy	The purpose of the NPV analysis is unclear if a rigorous matching-style common practice approach is applied. Also, it is unclear if the assumptions of the use of the 100-year NPV analysis would be applicable if the baseline assumptions are revisited at one and five-year intervals.	The NPV analysis and 100-year modeling timeframe are still applicable and necessary for setting the baseline model. Constraints inform the baseline model and NPV still is used in the Financial Analysis.
157	Terra Carbon and The Nature Conservancy	How does the long-term baseline average change during the five-year periodic reassessment? How are new constraints taken into consideration if it does?	The 5-year periodic modeling assessment incorporates new model constraints as necessary in a new 100-year model simulation. If the baseline average changes the stocks (and crediting) are adjusted as appropriate as a debit or credit to subsequent issuance. New constraints (such as a lower harvestable acreage) have effects on baseline stocks and the resulting average.
158	Terra Carbon and The Nature Conservancy	Is it possible for t=T to change based on these conditions?	Yes, it would be possible, and we expect for t=T to change when and if the baseline is remodeled to reflect new constraints.
159	Terra Carbon and The Nature Conservancy	How does baseline uncertainty change with these shifting requirements and is a new inventory	A new baseline inventory is not necessary. Baselines are calculated based on the initial inventory measured inventory statistics.

		required if you are making changes to the baseline calculations?	
160	Terra Carbon and The Nature Conservancy	How is a sudden jump in stocks handled with a baseline renewal?	The baseline average would increase or decrease, and Project Proponents would receive fewer or more ERTs, respectively. This would result in a debit or credit to the subsequent issuance.
161	The CHY Company	Upon our review of the draft version 2.1 of the Methodology for the Quantification, Monitoring, Reporting, and Verification of Greenhouse Gas Emission Reductions and Removals from Improved Forest Management on Non-Federal U.S. Forestlands, we have concern that the 5 year lookback period requirement stipulated in section 4.1.2.5.1 would severely limit or prohibit the use of the methodology on most private forestlands in California. The catastrophic and unprecedented massive scale wildfires that occurred throughout the state between 2018 and 2021 shifted most of the logging and milling capacity over the last 5 years in many areas towards post wildfire salvage. Across most of interior California in particular, very limited green timber harvest has occurred in recent years because mills have been forced to process the glut of fire killed timber that has flooded the market. As a result, suitable properties for conducting the harvest intensity analysis over the last 5 years as stipulated in the methodology are	We have added a provision in the *ACR IFM Tool for Comparable Properties Analysis* to account for salvage harvests which may go undetected. Also, we have extended the "lookback period" for assessing comparable harvests to 5 consecutive years within the last 10 years, which helps in identifying comparable baseline harvests over a longer lookback period.

		simply not available for many potential project areas. Due to wildfire effects, the timber harvesting trends observed in California over the last 5 years are not indicative of long-term historic timber harvesting practices in the region. Future significant fire events will likely continue to shape log market conditions and result in periodic local fluctuations in green timber harvest volumes similar to the phenomenon seen over the last few years. In order to address these challenges, we recommend considering a look back period of longer than 5 years and/or incorporation some sort of mechanism into the methodology to address the impacts of catastrophic events (i.e. wildfire) on regional green timber harvesting trends that would potentially negatively impact landowner eligibility.	
162	The Climate Trust	The Climate Trust's primary recommendation to ACR is to create a transparent, standardized and annually updated geospatial tool that all project proponents can use to obtain common practice values from comparable properties by uploading individual project area boundaries. The benefits of this approach include: • creating a market efficiency by reducing the need for each project proponent to create an in-house process or tool,	We thank you for this suggestion. We have developed the *ACR IFM Methodologies Tool for Comparable Properties Analysis* that can be used to systematically guide the Comparable Properties Analysis Harvest Intensity approach with freely available datasets. It addresses many of your points regarding standardization, transparency, and reduced subjectivity. We expect to further refine the approach as projects

		• creating more robust registry independence and standardization in baselines and crediting, • creating methodological transparency by making the geospatial analysis visible to buyers and market observers, • creating project-level transparency by providing a way to recreate individual baselines, • improving the efficiency and transparency of validation and verification processes by limiting subjectivity in the baseline evaluation process, and • improving market access, the primary diversity, equity, and inclusion challenge, by directly reducing development costs and encouraging the formation of a more robust service provider environment by limiting the requirement for highly-specific technical expertise and computational resource needs. This approach is not new. California Air Resource's Board and Washington Department of Ecology rely on standardized and transparent common practice values for their IFM protocols.	are implemented and to continue to streamline the tool in the future.
163	The Climate Trust	The 3rd paragraph should include not only infrastructure degradation but all of the factors that must considered in the preceding paragraph 2. Reduced harvesting associated with the GHG project may result in changes to all of those factors, not just infrastructure degradation.	We have added "road accessibility" due to reduced harvesting associated with the carbon project as potentially omitted from Dynamic Evaluation, in conjunction with verifiable evidence. Changes in other listed conditions may

			occur without relation to the project, so have been retained.
164	The Climate Trust	Clarify that road building and maintenance costs and fuel prices of machinery and other conditions need only be assessed if mill delivered prices are used instead of stumpage. Stumpage prices are all-inclusive of logging-related costs, infrastructure inefficiencies and other variables.	We have clarified the treatment of stumpage within the Financial Analysis section of the methodology. We agree that costs included in stumpage prices do not require additional separate treatment.
165	The Climate Trust	Ten years is a more appropriate metric by which to evaluate common practice. Management plans are typically developed for 10-year time frames (and commonly even longer periods). Given that forest management occurs on decadal time scales, limiting common practice observations to within only 5 years is too restrictive. Any immediate changes in legality, mill capacity, or operability are already being accounted for independently of the common practice evaluation on shorter time frames. Constraining re-evaluations of common practice to just the past five years adds significant uncertainty and risk to project management and verification. Furthermore, publicly-available geospatial data on forest disturbance, land cover change, and other inputs to the harvest intensity calculator are not updated on an annual basis. Restricting the harvest intensity analysis to within 5 years of the	We have taken the suggestion to limit comparable property lookback to 5 consecutive years within the last 10 years. We appreciate this comment.

		conclusion of the reporting period will mean that many analyses using publicly-available data will have multiple years of missing data. A suggested alternative approach is to allow project proponents to assess harvest intensity over any five-year period as long as that 5-year period falls within ten years of the conclusion of the reporting period being verified.	
166	The Climate Trust	Donor funding with specific restrictions put in place less than one year or any time after the project Start Date should also not be considered unless they explicitly prohibit the development of carbon credits on the property. Donor-related restrictions serve the same function as easement restrictions and should therefore be treated in the same manner by ACR.	We agree that donor funding restrictions are a self-imposed legal constraint, and it is therefore sensible to allow a pathway for the associated constraint to be excluded from the regulatory surplus test if it is enacted less than one year before the project Start Date and explicit reinforcement of the project action is demonstrated. This has been added.
167	The Climate Trust	For the reason stated above, donor funding with specific restrictions put in place less than one year or any time after the project Start Date should also not be considered unless they explicitly prohibit the development of carbon credits on the property.	Donor funding restrictions have been added to the list of self-imposed legal constraints eligible for exclusion from baseline modeling.
168	The Climate Trust	Remove the 1-year deadline for attestations (and or other verifiable evidence) required to demonstrate explicit reinforcement of the project action by self-imposed constraints. This timeframe is extremely difficult to achieve with typical contracting and development timeframes for carbon projects. It is	While we understand the need for flexibility, it must be balanced against an explicit timeframe for demonstrating clear intent. We respectfully maintain this requirement.

		also normal for questions around legal constraints to arise during the verification process, which are normally resolved through signed memos or other attestations. Verification findings are almost never issued within one year of the placement of a constraint associated with a project start date.	
169	The Climate Trust	The word “influence” may be construed widely. Suggest changing to “but whose approval of management is required”. More clarification around the third-party attestation requirement here would be appropriate.	We have updated the methodology to state "...but whose approval of management in the project area is required" and we now provide more detail on the potential demonstrations. For third-party attestations, we have clarified this as "Attestations from relevant third-party entities confirming baseline forest management and its associated harvest levels (i.e., volumes and/or acres) would receive the required external approval".
170	The Climate Trust	As stated above, a 5-year lookback period is too short for forest management. Forests are managed on decadal time scales and it is common practice for management plans to be developed for 10 year time periods or longer. Depending on the region, a five-year window may not accurately describe the types of management practice in the region (e.g, shelterwood treatments). Mill capacity, legality, and operability constraints are already being independently evaluated. Data availability is also an issue; public-facing geospatial data and	We have taken the suggestion to limit comparable property lookback to 5 consecutive years within the last 10 years. We appreciate this comment.

		management records are typically not published immediately after the year in which they were collected. A longer lookback window will enable a more comprehensive analysis.	
171	The Climate Trust	Limiting common practice to within a road mile distance based on mills is not necessarily a demonstration of common practice but a demonstration of mill capacity/financial feasibility, which is independently evaluated. Common practice should be based on a combination of forest type and region instead to demonstrate that landowners practice this type of harvest intensity and silviculture in that forest type if it is financially feasible, legal, and operable. Limiting comparable property identification to within a 150-mile haul distance does not account for the fact that properties may be located on the other side of the mill. If road miles must be used than we would suggest 300 road miles which better captures the timber basket for a mill.	The 150-mile buffer is more about identifying a reasonable distance surrounding the project area for identifying comparable properties, than it is in substantiating hauling distances. We have maintained the 150-mile buffer surrounding the property for this purpose with provisions for expanding it up to 500-miles when too few comparable properties are identified. Please see the Eligibility Criteria section of the methodology for more in this regard.
172	The Climate Trust	The term ‘ecological condition’ should be defined in the Methodology or removed as a comparable property indicator.	We have removed "ecological condition" in favor of Level 2 Ecological Regions as defined and mapped by Omernik and Griffith 2014 (https://www.epa.gov/eco-research/ecoregions-north-america).

173	The Climate Trust	Clarify or confirm that comparable properties may fall under any non-federal ownership type, not necessarily the ownership type of the project proponent.	We have added provisions such that comparable properties within the same ownership class as the project area, or within an ownership class with an equal or lower NPV discount rate, are eligible for comparison. Also, if an insufficient number of eligible properties are identified, we have added further provisions to expand the comparable properties selection to other ownership classes. Please see the Eligibility Criteria section of the methodology for more in this regard.
174	The Climate Trust	Please clarify how the size of comparable properties should be assessed. Are comparable property acres assessed at the parcel, group of contiguous parcels, or entire ownership level? Industrial landowners may own several million forested acres across the US. While management occurs on a smaller scale, these boundaries are not readily apparent to the public. Our recommendation is that ACR should provide a standardized geospatial tool to limit undue confusion and opacity in the definition of comparable properties.	The *ACR IFM Methodologies Tool for Comparable Properties Analysis* clarifies treatment of multiple non-continuous properties owned by a single entity. It provides several recommendations for aggregating such properties for the Harvest Intensity analysis.
175	The Climate Trust	Obtaining management records from another landowner/forest owner will be challenging or impossible, especially for non-public landowners. Many forest owners do not wish to make public or share their harvest (and thus financial) records.	We agree a longer 10-year lookback is warranted. This has been added to the *ACR IFM Methodologies Tool for Comparable Properties Analysis* Lookback Period section.

		Using aerial imagery, remote sensing products or geospatial analysis may be used to demonstrate forest loss, but it will challenging to evaluate uneven aged management systems using this method. Furthermore, acquiring data from within the last 5 years will be challenging or expensive to obtain and evaluate, creating a significant market barrier for landowners and new or small project developers who may not have the technical or financial means to easily access and assess this data. In order to increase project, methodological, and registry-level independence and transparency while also reducing costs and lowering barriers to entering the market, ACR should commission the development of an open-source tool that performs the required geospatial analysis. This is similar to California Air Resource Board's and Washington Department of Ecology's approach to providing an open and transparent common practice evaluator. A more thorough description of the benefits of this approach are explained above.	We have developed the *ACR IFM Methodologies Tool for Comparable Properties Analysis* to guide in the Comparable Properties Analysis. We do acknowledge that free data sources may be conservative in parsing out selection harvests. Paid data is available to accomplish such tasks and developers can decide whether the expense is justified by a more accurate/intensive baseline, or whether a conservative baseline using obvious harvests/clearcuts is sufficient, and custom models can be developed using the Approval Process for Forest Loss Identification Models. We also note that there are two other options for baseline setting, the Forest Management Plan and Removals-Only Baseline approaches within the methodology.
176	The Climate Trust	Please confirm or clarify whether the project area, not the landowner's total forested landholdings, determines the Annual Small Landowner Harvest Intensity Factor.	We have revised this equation title and text to reflect that the Harvest Intensity Factor is relevant to project area parcel size, rather than ownership size. Any project area parcel less than

			5,000 acres qualifies for the Annual Harvest Intensity Factor.
177	The Climate Trust	Using remote sensing for the Harvest Intensity assessment - More clarity around the accuracy of the model using standardized approaches to accuracy assessment (e.g., error matrix) would be helpful here.	The newly developed Section 6 of the *ACR IFM Methodologies Tool for Comparable Properties Analysis* provides further guidelines on the model performance assessment, including details on reporting the results.
178	The Climate Trust	Modifying the 20-year baseline average in response to dynamic baseline adjustments introduces uncertainty, confusion and risk into the development process and into the market. For example, if the time when T=t changes, previously issued credit volumes will no longer agree with updated ACR calc sheets and there is no guidance on how to account for that. Updated requirements around common practice justification and reassessment ensure that credit volumes are already conservative and appropriate in version 2.1 of the Methodology. Therefore, we recommended re-evaluating the need for a 20-year baseline average floor in ERT calculations.	We carefully reevaluated and discussed with stakeholders the 20-year averaged baseline. We ultimately concluded that the baseline averaging method has utility in smoothing out the baseline while being conservative in only issuing a fraction (only down to the 20-year average) of avoided emissions projected. We have added further clarification in the instance that a Periodic Modeling Assessment calculates a new long-term baseline average and the implications of such on crediting in the Periodic Modeling Assessment section of the *ACR IFM Methodologies Tool for Dynamic Evaluation of Baselines.*
179	The Climate Trust	Please clarify whether trees are evaluated by thirds in terms of height (e.g., for a 60 ft tree, each third would be 20 ft).	We have added clarifying language confirming that Table 5's biomass distribution is by thirds of the tree by height.

180	The Climate Trust	2nd paragraph - Projects with initial stocking levels lower than long-term average baseline stocking (CBSL,AVE) are at greater risk for termination due to with-project stocks decreasing below CBSL,AVE because these projects will necessarily operate in close proximity to the long-term average while their stocks are approaching and crossing that threshold. Forest carbon stocks often fail to increase in a strictly linear fashion: natural disturbances, active management, and complications with forest modeling can all contribute to a short-term decrease in with-project stocks. For projects with initial stocking lower than CBSL,AVE, it would be more appropriate to set the termination threshold at the initial project stocking level. Alternatively, a clause could be introduced wherein projects have up to 5 years to surpass the long-term baseline average once again.	ACR rules surrounding reversal and termination are set out in the *ACR Standard* and the *ACR Buffer Pool Terms and Conditions*. This change is beyond the scope of a methodology update but we may revisit this in regard to a future potential update to the definition of "Early Project Termination" in the ACR Standard.
181	The Conservation Fund	Incorporating a dynamic evaluation of the project baseline will help to demonstrate that the projected conditions in the baseline model are reasonable and provide a means for correcting them if they are not. This is an excellent idea and will serve to improve the confidence in credits generated using this approach. To maintain full transparency all stakeholders should have access to the data used to make claims related to harvest	Thank you for your support regarding the dynamically evaluated baseline concept. We understand that data quality is variable based on a paid versus freely available basis. We have developed the *ACR IFM Methodologies Tool for Dynamic Evaluation of Baselines* using fully publicly available datasets as an approved conceptual framework and methods.

		intensity on comparable properties. Additionally, clear standardized methods for quantifying these values should be provided by ACR. Proprietary data products used to substantiate harvest intensity claims will lead to a number of problematic outcomes. - Verification and validation of these products will be complex as various project developers will use different data sources and approaches to attempt to quantify harvest intensity on comparable properties. A lack of a clear methodology for making these estimates and the need to create data on an individual project developer basis will make verification and validation difficult as it will be difficult to ascertain if the data product meets an undefined standard. - As no clear methodology or dataset is provided in section 4.1.2.5.1, only verification and validation teams will have the opportunity to assess if projects are adequately substantiating harvest intensity on comparable properties if project developers use proprietary products to substantiate their claim. Third-party rating agencies and credit buyers will not be able to determine if the harvest intensity claims are legitimate. - Project development and maintenance costs will	At least in the near term, we understand that paid data sources may provide a greater ability to assess selection and similar light-touch harvest activities. For those not able/willing to pay for such data sources, free data sources will still be able to discern clearcuts and large harvests. Essentially, this may mean that use of freely available data sources may require more conservative baselines, and we understand this is a tradeoff. You are correct that Project Developers must supply the VVBs and ACR with adequate data and information to confirm the accuracy of Harvest Intensity calculations and claims. The tool contains minimum reporting requirements in relation to Harvest Intensity and Comparable Properties Analysis. The tool will provide a starting point for systematic project development and that new and innovative approaches will be developed using the tool's Approval Process for Forest Loss Identification Models.

		increase substantially. Only a small group of large project developers will have access to the resources needed to create custom datasets used to substitute harvest intensity claims, reducing the number of developers able to participate in the marketplace. In order to make the substantiation of harvest intensity on comparable properties as transparent as possible, it's critical that the data used to establish biomass stocks on comparable properties today, in the past, and in the future be made publicly available for use by all stakeholders. A publicly available biomass map of the United States should be developed by ACR, beginning in 2019, and issued on an annual basis in the future. This would allow for a standardized, unbiased evaluation of harvest intensity on comparable properties. Absent such a data product, ACR should develop a methodology that utilizes publicly available data, such as Forest Inventory and Analysis plots to assess harvest intensity on comparable properties. This approach is already used for dynamic baseline analysis in existing protocols, and would represent an equitable, affordable, and transparent approach to evaluating harvest intensity on comparable properties.	

182	The Conservation Fund	Clarifying language should be added to the process for adjusting ex-ante projections outlined in Table 1 of Tools for Dynamic Evaluation of Baselines for ACR Improved Forest Management Methodologies Version 1.0. It should be explicitly clear whether the activities deemed unallowed in Observed Conditions Assessments are to be 1) subtracted altogether from ex-ante baselines, 2) replaced with alternative activities, or 3) otherwise adjusted using an approximation of impact to carbon stocks.	We have updated the Observed Conditions Assessment section within the to "...the project adjusts its baseline quantification using a calculation of impact as specified in table 1".
183	The Conservation Fund	Confirming that the projects carbon stock measurements statistically agree with the resampled carbon stock measurements using a paired t-test at a 90% confidence level may detect a statistically significant difference that is not material to project carbon stock accuracy under ACR Standard Version 8.0. A statistically significant result (low p-value) only tells you that the observed effect is unlikely to be due to chance. It doesn't tell you how large the effect might be, nor does it tell you its direction (positive or negative). For example, the resampled mean carbon stocks may be only 3-4% lower than the project mean carbon stocks, and the p-value of the paired t-test less that (.1). In this case, the project inventory would fail to pass the paired t-test at a 90% confidence level, even though the difference	We have included language addressing this issue in the methodology Resampling of Carbon Stock Measurements section.

		between the two means falls below the ACR threshold for material difference. We suggest that the paired t-test at the 90% confidence level be used in conjunction with a maximum difference between sample means, or that ACR allow verification and validation teams to utilize additional statistical tests that address the magnitude of difference between the samples, not simply determine if they are likely to be differ. For example, a VVB could note that difference between the sample means is less than the ACR material difference threshold of 5%, thus difference between project and resampled carbon stocks should be considered immaterial.	
184	TÜV SÜD	Baseline harvesting cannot >20% regional capacity by volume, species, and product in any one year (include substantiation for all elements)	While we have not taken this exact suggestion, the *ACR IFM Methodologies Tool for Comparable Properties Analysis* addresses the concern for systematically setting a maximum threshold on Harvest Intensity.
185	TÜV SÜD	Baseline harvesting attestation from local professional forester including economic feasibility, harvesting feasibility (slope, access, etc), workforce, silv method, logging method, logger/trucker capacity, species, product, etc in which each element is acknowledged. Perhaps this can be a form.	Thank you for this suggestion. We have developed a *Professional Forester Attestation Form*, addressing most of the elements listed here. We have chosen to not include workforce constraints, since we could not identify a reliable data source or method to set this constraint.

			Other constraints (namely Harvest Intensity) will ensure that baseline forest management operations are within the bounds of available labor resources.
186	TÜV SÜD	Grow-only IFM project – baseline is ICS. No restrictions on harvest except reversal penalties.	We appreciate the simplicity of this proposal and have developed a Removals-Only baseline approach. While it still allows modeling to demonstrate threat and ability of harvest, such that a rigorous evaluation of the baseline scenario is necessary, it does provide a reasonable and appropriate option for certain ownerships.
187	TÜV SÜD	Option to lump reporting to up to 5 years (annual monitoring for disturbance required, but no annual modeling)	This option is already available throughout the ACR program. Reporting Periods may be any length, up to five years since the start date of the previous Reporting Period subject to a full verification. Our hope is that project developers and verifiers consider this option when planning future verifications.
188	TÜV SÜD	Option to update project stocks only with reinventory – no modeling required (see #10)	While the ex-ante projections required at validation do include modeling of the with-project scenario, projects may choose to avoid further modeling by measuring carbon stocks concurrently with each issuance. No updates to the methodology required.

189	TÜV SÜD	Requirement for entire LMU to be within project (no gerrymandering)	We appreciate the risk of projects that only enroll fringe areas that would never be harvested anyway (i.e., gerrymandering) and we have strengthened several constraints that deal directly with this risk. For instance, we have strengthened requirements regarding the demonstration of operability and access. By more precisely evaluating each acre's harvestability, we believe the risk of gerrymandering is sufficiently mitigated.
190	TÜV SÜD	Requirement for title report to be submitted for all project area for validation.	We have added "Must demonstrate clear land title or control of timber rights through a title report or other verifiable evidence…" to the methodology Eligibility Conditions.
191	TÜV SÜD	Baseline updates for fvs overgrow??? Play with sheet	We have considered this comment within the context of the dynamic evaluation. While projects may choose to calibrate their growth model based on observed growth, we have chosen to not require this at this time. However, it will be considered in future version updates.
192	TÜV SÜD	T-test to 80% CI, do square root of plots in at least 3 strata	We have included language addressing this issue in the methodology Resampling of Carbon Stock Measurements section.
193	TÜV SÜD	Allow incrementalization between full inventories (no modeling, no stand table projection required)	Beyond the initial ex-ante projections required at validation, modeling is not required. However, since most (if not all) projects choose to verify

			annually or close to annually, modeling is used to produce carbon stock estimates as it is cheaper than full inventories. Incrementalization, as it was used in the ARB program, is not required in the ACR IFM methodology. This is because ACR does not require annual reporting. In the ACR program, Reporting Periods are equal to the verification interval (regardless of length), and there is no required reporting at a smaller unit of time than the 5 years maximum Reporting Period interval.
194	TÜV SÜD	In order to account for past management scenarios (like lack of management), avg baseline stocking must be >80% (or something else) of ICS.	We have added a "Removals only" baseline as a conservative option based on this comment.
195	TÜV SÜD	Incentivize active forest management for resilience, health, fire risk reduction. Stable carbon better than burned up carbon. Penalize high stocks in the west for risk?	Forest management that mitigates wildfire and biotic risks are explicitly considered in the forthcoming Risk Tool v2.0, incentivized through a lower Buffer Contribution Rate.
196	Weyerhaeuser	The addition of Section 4.1.2 and its description of constraints required for consideration in baseline scenario development is a positive addition to the IFM methodology. This provides clarity on which baseline constraints need to be clearly reported and verified and eliminates gray areas where real world operating constraints may have been missing from baseline model assumptions in previous versions.	Thank you for this comment.

197	Weyerhaeuser	We believe the addition of Regional Timber Market Capacity as a baseline constraint is appropriate, but the currently drafted approach would be enhanced by acknowledging thinning can be a silvicultural treatment. Mid-rotation thinning harvest may be executed at unprofitable margins as these are silvicultural treatments are necessary for the growth of higher value products in working forest.	We agree that baselines must be able to model pre-commercial harvest treatments which, while silviculturally appropriate, may not be immediately profitable. We found this language was a better fit in Financial Analysis section and have made edits accordingly there and in the respective section of the *ACR IFM Methodologies Tool for Dynamic Evaluation of Baselines*.
198	Weyerhaeuser	As currently defined, this process limits baseline "harvest intensities" during both ex-ante modeling and dynamic evaluations to that of a given forest cover type and harvest treatment on a "comparable property" during a five-year lookback period. Working forests in the US generally have decades-long rotation ages thus harvest in any five-year window can vary greatly depending on the age class distribution of that forest. Baselines counterfactuals should be based on the activity that would have occurred on the project area considering its state at time of enrollment as well as over time, not on activities observed during an isolated window of time outside of the project area. We agree that baselines should be periodically reassessed based on changes of legality, operability and access, regional timber market capacity, common practice silviculture, and	Thank you for this perspective. We have made several edits which address your concerns. First, we have increased the lookback period for evaluating Harvest Intensity to 5 or more consecutive years within the previous 10-year period. The purpose of a Harvest Intensity lookback is to temper maximum baseline Harvest Intensity based on real world conditions of similar properties in the region. We understand that in any single 5-to-10-year period the project area a working forest management trajectory may not be harvesting, but we also expect that over the given period there would be other similar properties in the region that are harvesting that could serve as a comparison. We have also increased the specificity in how the

		financial feasibility. However, harvest intensity of comparable properties as outlined is likely not practical from a technology or time frame standpoint.	Harvest Intensity calculations are done and developed a detailed walk-through document for the *ACR IFM Methodologies Tool for Comparable Properties Analysis*. With this greater specificity and clarity, the Harvest Intensity calculation and subsequent evaluation process will be streamlined.
199	Weyerhaeuser	Acres harvested is not the same as biomass volume removed. A clearcut harvest with the same acres on a comparable property may not have the same volume of biomass proportional to the stratum total removed as a clearcut on the project property.	This is a fair point which we have considered closely. The calculation of Harvest Intensity includes both acreage and percent biomass removed per acre, which partially addresses your concern. However, percent biomass removed per acre is a relative measure, while the volume of biomass removed is an absolute measure. To your point, a harvest on a higher stocked stand might result in more volume harvested, compared to a lower stocked stand, even if both are harvested at 100% biomass removed per acre. By requiring a relative measure of biomass removed, we expect this to be more technologically feasible across different remote sensing methods. Also, by using a relative measure, the precise amount harvested, which is more difficult to estimate remotely than the percentage biomass harvested, matters less because we can rely on the Comparable Property

			Analysis, and stratification processes, to bin together similar forest types representing similarly stocked forest stands. These procedures have been significantly expanded in the *ACR IFM Methodologies Tool for Comparable Properties Analysis*. We have also strengthened the *ACR IFM Methodologies Tool for Comparable Properties Analysis*, such that properties are now ranked and matched by 7 key criteria, including merchantability, aboveground biomass, and more. As such, it stands to reason that for a matched comparable property, percent biomass removed per acre should not significantly differ from the project area, when measured in absolute terms. We think it is a reasonable approach given current technological capabilities. We have added language requiring pre-commercial harvests, where identified (most likely from management records as opposed to remote sensing), to be specifically excluded from the calculation of Harvest Intensity. This is an additional safeguard to ensure harvested volume

			per acre is similar between comparable properties and the project area.
200	Weyerhaeuser	The proposed approach also falls short in considering forest characteristics that influence harvest rates when viewed through a coarse lens like the National Land Cover Database forest cover types. Perhaps most impactfully, this method excludes the influence of age class distribution on both the project area's likely harvest levels and those of the comparable property. If this is intended to be addressed by the specification that comparable properties must be "containing similar ecological conditions(s) and/or species/product mixture", this language should be more prescriptive.	We have added a Similarity Index ranking within the *ACR IFM Methodologies Tool for Comparable Properties Analysis* that considers many factors related to harvest probability, most notably, merchantability. We also now rely upon Ecological Region, which is spatially defined, to narrow the analysis to comparable sites, as opposed to ecological conditions or species/product mixture.
201	Weyerhaeuser	The current methodology states that harvest intensities of a project area may not exceed that of a comparable property, both in each single year and cumulatively during the crediting period. While allowances are made for small landowners to account for the fluctuation of harvest activity over time, this method does not account for the variation in harvest levels relative to total property acreage as influenced by age class structure in larger projects. We suggest that a defined range of the comparable property's harvest intensity for each single year (e.g., +/- 50%) and for the full	As noted in our response to comment #79, we agree that harvest rates may vary from year to year, and the Harvest Intensity constraint should reflect that. We have decided to allow the annual constraint to be 1.25 times the annual Harvest Intensity derived from Comparable Properties via Equation 1. This is not dissimilar from your suggestion of a maximum of 50%+. However, for conservatism, the cumulative (Crediting Period) constraint should be maintained as is, without inflation. Please see response to comment #79 for further details.

		crediting period (e.g., +/- 25%) be applied to baseline harvest constraint development from this perspective.	
202	Weyerhaeuser	Harvest Intensity Calculation, Step 2, instructs the project developer to identify the average percent biomass removed per acre. ACR states that data sources should be either management records, remote sensing, or other verifiable evidence. All three of these could be difficult for the project developer to ascertain. Validation and verification of these data would prove difficult and time consuming without additional guidance and structured methods with which verifiers could reach reasonable assurance regarding the accuracy of claims made.	ACR has developed the *ACR IFM Methodologies Tool for Comparable Properties Analysis* to guide the Harvest Intensity calculation for the Comparable Properties Analysis. It prescribes an approach using publicly available datasets with the optionality to use increasingly more advanced datasets upon demonstration of increased precision.
203	Weyerhaeuser	Harvest management records from other landowners could be difficult for the obvious reason that most landowners would consider this information proprietary.	We agree management records for other landowners may be difficult to obtain. The *ACR IFM Methodologies Tool for Comparable Properties Analysis* now relies primarily on remote sensing data but does allow for management records or other verifiable sources supporting Harvesting Intensity.
204	Weyerhaeuser	Remote sensing may detect forest cover changes but ascertaining accurate per acre percent biomass removals from forest stands harvested over the last five years to substantiate harvest intensity would prove difficult with current, available technology.	We have expanded the lookback period for comparable properties to 10 years. We also clarify that the tool is concerned with relative biomass removed, rather than total biomass removed. We understand that detecting thinning may be

		This is especially true in areas with a high leaf area index, and where thinnings are common practice. Without deep expertise, remote sensing is not reliable for detecting thinnings or estimating volume/biomass removed due to thinnings. At minimum it would require building a model specifically for the comparison property and collecting ground validation plots to train/validate the model.	difficult with LCMS. This would be conservative. We do allow for more advanced datasets to be used upon demonstration of equal or greater accuracy, which developers can assess against in a cost-benefit analysis, subject to the Approval Process for Forest Loss Identification Models within the *ACR IFM Methodologies Tool for Comparable Properties Analysis*.
205	Weyerhaeuser	This methodology does not provide the guidance necessary to implement this protocol with remote sensing. All remote sensing projects require an understanding of the allowable spatial and temporal resolution, as well as the allowable error and uncertainty. ACR needs to provide guidance on: Temporal resolution: How recently/frequently should the remote sensing data be collected? Depending on the allowances here, older/out-of-date remote sensing data could greatly impact accuracy. Spatial resolution: What is the minimum allowable spatial resolution? Resolution of the remote sensing data can greatly impact one's error and ability to detect biomass loss. At lower resolutions (i.e. 30 m LandSAT), project developers may have much higher precision (or low model error) but lower accuracy. At higher resolutions (i.e. Planet 3m Plan-	The newly developed *ACR IFM Methodologies Tool for Comparable Properties Analysis* contains an Approval Process for Forest Loss Identification Models that provides guidelines on several aspects requested by this comment, including minimum temporal and spatial resolution. We now also provide a clear threshold for demonstrating model precision to gain approval for use. This provides an evaluation framework for a variety of remote sensing approaches, recognizing further development and refinement of this tool to occur in the future.

		etScope data), data will have more geolocation error, but the higher resolution may lead to greater model accuracy. Uncertainty/Error: All models and remote sensing data have some level of error and/or uncertainty associated with them. ACR should provide guidance on allowable geolocation error for remote sensing data products. Additionally, we would encourage ACR to require that project developers using machine learning publish model uncertainty, and that ACR gives guidance on model error/uncertainty minimums. This paper from the US Forest Service could help provide a template for guidance around this: https://www.fs.usda.gov/research/treesearch/66272	
206	Weyerhaeuser	As markets continue to differentiate between Removals and Reduction credits, the revision of Equation 31 to base the removals calculation solely from ERT generation attributable to the project scenario is an improvement over the previous equation. By removing the deduction for baseline harvested wood products carbon storage used in IFM V2.0, this equation is now better aligned with the contextual definition of Removal provided in IFM V2.0 and eliminates the counterfactual influence that many credit buyers specifically attempt to avoid by purchasing Removal credits	Thank you for this comment.

		over Reductions. This change improves the consistency between the removals calculation and the definition of removals as carbon stock change attributable to the Project scenario.	