

Climate Action Reserve
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Comments on the Nitrogen Management Project Protocol

The Climate Trust greatly appreciates the opportunity to submit comments regarding the Climate Action Reserve's Nitrogen Management Project Protocol, Version 1.0 (NMPP, v1.0). We commend the Reserve for its leadership and rigorous efforts to broaden the scope and accessibility of its offset methodologies to new sectors and participants.

The Climate Trust is a 501(c)(3) nonprofit organization headquartered in Portland, Oregon. Our mission is to provide expertise, financing, and inspiration to accelerate innovative climate solutions that endure. The Climate Trust was created in 1997 in response to the United States' first regulation of greenhouse gases (GHGs) under the Oregon Carbon Dioxide Standard. Since that time, we have expanded work on behalf of regulated and voluntary offset buyers in Washington, Montana, Massachusetts, and Colorado, among others. In this capacity, The Climate Trust has gained more than a decade of experience supporting project development and offset credit procurement through the management and investment of a carbon project portfolio with \$20 million in dedicated funding.

The Climate Trust is also particularly interested in assisting the successful development of a nitrogen management protocol by the Reserve. We are currently collaborating with Camco and Climate Check to road-test current nutrient management protocols as partners in the greenhouse gas Conservation Innovation Grant led by The Fertilizer Institute. By engaging corn farmers and scoping and implementing nutrient management projects in Iowa and Illinois, The Climate Trust and our partners are gathering critical information on the practicality and accessibility of several methodologies seeking to reduce N₂O emissions from agricultural management practices. We are happy to share our experience from this and other projects with the Reserve to help refine and adapt this protocol to meet the need for emissions reductions with environmental integrity, scientific rigor, and practical accessibility for project participants and developers.

General comments on the NMPP, v1.0 draft

The Climate Trust supports the Reserve's development of this protocol, particularly its efforts to standardize project eligibility and accounting procedures as well as refining aggregation policies to expand access to the broadest array of farmers able to implement practices to reduce GHG emissions. Compared to other sectors and project types, nitrogen management projects are expected to yield more modest volumes of credits per participant and will be much more sensitive to procedural hurdles and implementation costs, making policy choices affecting transaction costs especially important.

A robust aggregation strategy is essential for the agriculture sector to participate in the offset market in a substantial way. We support the Reserve's sustained attention to aggregation in this protocol, as these policies

will play an indispensable role in delivering a meaningful level of emissions reductions through nitrogen management projects. Despite this emphasis placed on aggregation however, we remain concerned that the scope of verification requirements, particularly regarding the number of site visits, runs counter to the efficiencies and cost-saving that aggregation is intended to provide. We believe that in their current form, these verification requirements may very well leave most nitrogen management projects infeasible due to excessive verification expenses.

The Reserve's emphasis on standardized eligibility and accounting standards is a welcome contribution to help streamline and increase transparency in the approval and verification of emissions reductions achieved by these projects. Continued efforts in this direction are vital to ensure more cost-effective projects can be developed by reducing transaction costs without compromising the high quality credits the Reserve has built a reputation on.

In addition, The Climate Trust supports the Reserve in continuing to expand the eligible range of offset project types and activities, including to additional nutrient management practices. In this methodology, the Reserve rightfully acknowledges the uncertainty in our current scientific understanding of the N₂O emissions corresponding to various nutrient management practices. In practical terms, however, limiting an offset methodology solely to N-rate reductions is also likely to constrain the accessibility of the methodology to farmers for whom N-rate is one of a variety of management considerations whose costs and benefits are likely to significantly outweigh any funding that ultimately derives from offset crediting. The Climate Trust fully supports the Reserve's emphasis on scientific rigor and intent to consider and adopt scientifically robust quantification methodologies for additional nutrient management practices beyond N-rate reductions. We look forward to reviewing those additions to the NMPP in the future.

The comments that follow address more specific aspects of the NMPP that we believe could be adapted to offer greater accessibility to interested farmers and project developers, provide greater clarity, consistency with existing offset project methodologies, and facilitate the Reserve's stated goals.

1. The NMPP scope is unnecessarily limited to corn crops in the North Central Region.

Scoping reviews of the theoretical potential for reducing N₂O emissions have typically identified corn cropping and the reduction of nitrogen fertilizer application rates as the single largest opportunity for achieving N₂O emissions reductions in the United States. This NMPP justifiably prioritizes this single combination of crop and nitrogen fertilizer management practice, but unnecessarily limits its scope to corn in the North Central Region.

The Climate Trust supports the immediate inclusion of an approach that would allow for a broader set of cropping systems and geographies. In particular, The Climate Trust encourages the Reserve to utilize the IPCC Tier 1 emissions factor for N₂O from fertilizer applications, derived from an even broader dataset covering more cropping systems and geographies, so that the methodology could be immediately applied beyond corn crops in the North Central Region. A similar approach has been included in the MSU-EPRI methodology currently undergoing validation for the Verified Carbon Standard, and could be easily adapted for the NMPP.

2. The NMPP does not provide sufficient assurance that project activities will not reduce N input below crop N demand.

In the definition of approved project activities (Table 2.2), the Reserve describes the approved activity of Reducing N Rates as “reduction in the annual nitrogen application rate... *without going below N demand*” (emphasis added). The Climate Trust fully supports this addition to the project definition, which the NMPP attributes to a request from the Scientific Advisory Committee. In the current draft, this requirement is not mentioned or reflected anywhere else in the NMPP text. It is therefore unclear whether any changes to the NMPP have been made to ensure this critical addition to the definition of the project activity is being meaningfully integrated into the NMPP requirements.

The Climate Trust would prefer to see a clearer articulation of how the Reserve intends to reflect the project activity definition that N rates not be reduced below crop demand elsewhere in the NMPP, especially in the discussion and calculation of Performance Thresholds.

3. The NMPP should directly address the risks farmers are likely to perceive for participating in a nitrogen management project.

Nitrogen fertilizer, beyond its value to crops as a nutrient, is often considered as a risk mitigation strategy for farmers. Particularly when commodity crop prices are high, as they have been for corn recently, farmers may reasonably apply nitrogen fertilizer to a modest extent above the minimum level required to meet plant demand to ensure a profitable yield. The NMPP’s current exclusive focus on N-rate reductions is justified through the discussion of the current state of science, but will nevertheless likely raise farmer concerns that this methodology does not adequately consider or reflect the farmer’s fundamental need to sustain yields and remain profitable.

The potential threat to yields from N-rate reductions, and in the extreme, the progressive depletion of soil nitrogen, should be a concern for policymakers generally, but should also be anticipated as a serious concern to any farmer considering participation in a nitrogen management project under this protocol. Even if the NMPP is revised in a way that ensures no economic or environmental risks would be introduced by following the NMPP guidelines, farmers considering participating in a nitrogen management project will be particularly sensitive to these issues, and the NMPP would benefit from a more explicit recognition and treatment of the expected concerns and risks farmers are likely to perceive.

The Climate Trust encourages the Reserve to address these potential risks directly and prominently in the protocol to help assuage concerns that participating in a nitrogen management project following this protocol would make a farmer more likely to experience reduced yields or profitability.

4. The focus of the NMPP solely on nitrogen management may produce unintended environmental or economic consequences for enrolled farms; further consultation with the Scientific Advisory Committee should ensure such outcomes are avoided.

The Climate Trust believes the sustainable production of food to meet the needs of a growing global population should not be discouraged by any offset policies being considered now or in the future. In practice, the management of nitrogen should be considered as one component of a comprehensive nutrient management strategy. The NMPP focuses narrowly on the management of nitrogen, which is intuitive given its focus on reducing N₂O emissions, but The Climate Trust would nevertheless encourage the Reserve to consult the Scientific Advisory Committee with a directed discussion on whether there are unintended environmental or economic consequences that may be likely based on the prescribed rules and guidelines in the NMPP, especially the Performance Standard and Thresholds and policies regarding manure use.

5. The Removed-to-Applied Nitrogen (RTA) Performance Standard should be recalculated directly from farm- or field-level data.

The Reserve's emphasis on utilizing standardized performance thresholds has helped accelerate the transparency and consistency of offset quantification, and The Climate Trust generally supports this approach as a practical improvement upon the more subjective project-specific additionality and eligibility tests that have been applied through recent history. A critical component for these standardized approaches, such as the development of performance standards, is the reliance upon accurate and transparent data. Despite statements to this effect in the NMPP, however, The Climate Trust remains concerned that the chosen Performance Standard and Performance Thresholds have been quantified using several simplifications that raise substantial concerns over the accuracy and suitability of the derived values for use as a Performance Threshold.

The NMPP (as described in Appendix A) attempts to "back in" to calculating a distribution for a nitrogen use efficiency metric, a ratio for Removed-to-Applied Nitrogen (RTA), using average N-rates and yields for each state along with assumed variances and correlations from an undisclosed source. An earlier Workgroup draft of this protocol suggested the assumed variances for both N rates and yields are based upon a single survey in one state from which such statistics were available.

The accuracy of the data used to determine performance standards is critical, especially if the threshold means the difference between being eligible to receive credits and losing an eligible crediting year due to underperformance. According to Figure A.2, which shows a range of considered coefficients of variation for yield data, the range considered at the 75th percentile may correspond to a difference in RTA values by nearly 0.1. Similarly, according to Figure A.3, which considers the potential values for correlation between yield and N-rates, the range considered would correspond to a difference in RTA values of roughly 0.06 at the 75th percentile. In Figure A.4, which shows the calculated RTA values for various percentiles in Michigan, a difference in RTA of 0.1 would be enough to move a producer from below the 75th percentile to above the 80th percentile. A similar table for a different state which had been published in an earlier version of the Workgroup Draft also showed a difference in RTA of 0.1 would be enough to move a producer from below the 70th percentile to the 80th percentile for that state.

Between the assumptions made for the coefficients of variation for yields, N-rates, and the correlation coefficient between the two, it seems highly likely that these assumptions upon which the current RTA Performance Standard is based may have introduced substantial inaccuracies with significant implications for potential project developers and participants.

The Climate Trust urges the Reserve to re-calculate these distributions directly from ARMS or another suitable dataset where paired yield and N-rates are available at the field and/or farm level.

6. The Removed-to-Applied Nitrogen (RTA) Performance Threshold values may require progressive depletion of soil nitrogen, potentially compromising future crop yields, creating other environmental and economic risks, and potentially limiting farmer enrollment and corresponding emissions reductions that may be achieved.

Apart from our unease regarding the manner in which the RTA Performance Standard was calculated, The Climate Trust is also concerned with the RTA values which have been set as Performance Thresholds in each state. We are specifically concerned with RTA Performance Thresholds that have been set above a value of 1.0, meaning more nitrogen must be removed from a field as crop biomass than was added to the field as synthetic or organic nitrogen amendments in order to have any emissions reductions credited each year.

Although we recognize important N inputs such as crop residues or remnant N from earlier biological fixation have not been incorporated in these RTA values, The Climate Trust remains concerned that current RTA Performance Thresholds could still require soil mining. For example, the Thresholds for corn-on-corn cropping for Missouri (1.64 and 1.52), Michigan (1.49 and 1.37), Minnesota (1.24), and Iowa (1.2) would require farmers to remove (as harvested biomass) anywhere from 120% to 164% of the nitrogen they applied to a field in order to be eligible for any crediting each year.

It is apparent that at some point above RTA values of 1.0 that soil mining will be occurring, and may even be required by the current Performance Thresholds. The progressive depletion of soil nitrogen would not only compromise yields and farm profitability, but also affect a host of other environmental aspects in farm management such as the conservation of soil organic matter.

The Climate Trust would prefer to see a clearer articulation of how the Reserve intends to reflect the project definition that N rates not be reduced below crop demand in the discussion and calculation of these Performance Thresholds. We believe more direct consultation with the Scientific Advisory Committee on this issue is also advisable.

7. The Proposed payment stacking restrictions and discounts may not reflect how government payments are awarded, represent a complicated and subjective financial additionality test, and unnecessarily penalize farmers adopting management practices that offer benefits beyond N₂O reductions.

This methodology contains the Reserve's first effort to define policies allowing payment stacking in terms of project eligibility, but also limiting the scope of credits that could be awarded to projects based on these stacked

payments. Although The Climate Trust can see the theoretical value for such a policy in terms of adding another additionality safeguard through a financial assessment, we believe that the policy currently articulated in this draft would establish an unnecessary and subjective financial additionality test with a convoluted set of procedures whose complexity are not fully anticipated or appropriately captured in the text. This is also a clear departure from the Reserve's stated desire to standardize offset quantification and, we contend, is unnecessary in light of the various other additionality and performance tests already included in the methodology.

As currently written, the NMPP would not discount crediting for projects that have approved 590 nutrient management plans and are receiving EQIP or other incentive payments so long as those payments are not explicitly contingent upon a reduction in N rates (or presumably any other project activities that would be added to the NMPP in the future). The Climate Trust supports this type of exemption, but questions whether the payment stacking policy could realistically be objectively applied even in cases where EQIP or other government payments did include an explicit consideration of project activities as defined by the NMPP. Government payments from EQIP and other programs are typically intended to support an array of specific and broader conservation outcomes beyond those more narrowly focused on N₂O emissions reductions that would be incentivized by the NMPP.

The methodology currently requires determining the proportion of government payments responsible for the implementation of NMPP-defined project activities on a cost-basis. This type of analysis would necessarily involve reviewing an individual farmer's financial records and could clearly be fraught with complications. The attribution of some or all of a government payment to project emissions reductions on a cost-basis is also especially problematic for a practice change such as N-rate reductions which should be a cost-saving practice change.

The Climate Trust recommends the proposed payment stacking rules be removed completely unless and until they are revised to ensure they could be objectively and transparently applied in a manner consistent with how government payments are awarded and how on-farm decision-making occurs.

8. The Proposed payment stacking restrictions and discounts are inconsistent with treatment of comparable management restrictions in other Reserve protocols.

The NMPP currently prohibits any fields from stacking EQIP or other government payments if the contract for these payments was entered into at any time before the date the project is submitted to the Reserve. This policy fails to reflect the fact that project start dates may occur before the project's submission date, and significantly contrasts with a similar issue addressed in the Reserve's Forest Project Protocol. The Forest Project Protocol, version 3.2 allows forest projects to adopt binding Habitat Conservation Plans or conservation easements as much as one year prior to the project start date without affecting the project's eligibility, baseline, or other offset quantification steps. The justification offered in the Forest Project Protocol that these management restrictions may be enacted in support of the project activities is equally applicable to nitrogen management projects adopting nutrient management plans or other best management practices through a government conservation program, regardless of whether financial compensation or other benefits are anticipated.

The Climate Trust encourages the Reserve to revise the NMPP to be consistent with the timeline and consideration offered to forest projects for voluntarily-adopted management plans or restrictions.

9. The revocation of an eligible crediting year seems to be inconsistently applied and is an unnecessary punitive measure for failure to meet a Performance Threshold.

In section 3.5.1.1 of the NMPP, which describes the application of the Performance Standard for N-rate reductions, any field which fails to meet the RTA Performance Threshold in an eligible crop year would lose one of its five eligible crop years. In contrast, there appears to be no such penalty for fields which are found to be loading N in non-eligible years (i.e., the non-corn year(s) in a rotational cropping system). These N-loaded fields would forfeit eligibility for the subsequent eligible crop year, but are apparently not penalized with the removal of one of the field's five eligible crop years.

Because failure to meet the RTA Performance Threshold in any given year may be due to factors outside the control of the farmer (e.g., lower yields due to bad weather), The Climate Trust encourages the Reserve to address non-compliance with the Performance Threshold in eligible and non-eligible crop years consistently and without rescinding one or more eligible crop years from the total allowed within a single crediting period. Projects that fail to meet the Performance Standard should not be allowed to claim credits in the current or, in the case of underperformance during non-eligible crop years, the subsequent eligible crop year, but in either case should not be penalized with the loss of any of the five eligible crediting years. The loss of potential credits in the year of non-compliance is itself a substantial loss for the project, and need not be compounded by a punitive measure such as revocation of an eligible crop year.

10. The limitations on crop choices in rotational cropping systems should be clarified.

Section 3.4 of the NMPP ("Other Criteria") addresses supplemental eligibility rules including unclear limitations on the farmer's ability to plant certain crops in a rotation. As currently written, "the frequency and sequencing of eligible crops grown in a rotation must not change significantly due to the project (e.g. a multi-crop rotation shall not be replaced during the project with a corn-corn rotation nor a rotation such as three years of corn, followed by one year of soy)."

The Climate Trust believes any limitations on the ability of farmers to make production decisions should be carefully considered. Limiting the ability of farmers to introduce a new rotation would needlessly exclude farmers that desire to introduce new crops into a rotation with corn if they haven't done so in the historical look-back period and even though doing so may not negatively impact project emissions. For example, farmers need not be prohibited from shifting from corn-corn to corn-soy or other rotations.

From the example given in the NMPP text excerpted above, it appears the Reserve intends to prevent participants from increasing the frequency of corn planting during the crediting period. If this is case, The Climate Trust encourages a more direct definition in this regard.

11. The Structural Uncertainty Deduction as currently proposed would needlessly penalize small projects, increase transaction costs for all projects, and should instead be applied at a program-level rather than the project/aggregate-level.

Referring to the Coalition on Agricultural Greenhouse Gases (C-AGG) white paper on uncertainty in empirical and process models, the NMPP proposes a Structural Uncertainty Deduction to be applied to each project which varies depending on the number of fields enrolled and the total N rate for each field. The C-AGG white paper describes the rationale for such a deduction as well as the preferred policies for addressing input and structural uncertainties in Statements 4-6 of the executive summary:

Statement 4. *If program integrity requires that GHG emission reductions are not overestimated, an appropriate deduction should be calculated and applied to model-estimated emissions reductions based on both input and structural uncertainty.*

Statement 5. *The most feasible level to account for model structural uncertainty is at the program level; input data uncertainty may be most appropriately accounted for at the site, project, or program level depending on a variety of considerations.*

Statement 6. *When many sites are considered together, the sum of their emissions (or emission reductions) will have less uncertainty than any individual site considered alone. Therefore, the deduction for structural uncertainty will decrease as scale is achieved. Offset programs should pursue policies, such as aggregation, that mitigate this uncertainty and encourage greater participation from the agricultural sector.*

The reduction of structural uncertainty occurs as more fields apply the model for emissions quantification, regardless of how those fields are grouped into distinct projects or aggregates. The Structural Uncertainty Deduction in the current version of the NMPP would thus unnecessarily continue applying discounts to every project into the future even if such a discount would be statistically unnecessary at the program-level.

The Reserve could conservatively address structural uncertainty through alternative policies that could be applied at the program-level, consistent with the guidance from Statements 5 and 6 in the C-AGG white paper. For example, the Reserve could implement a holding account on its registry which could be used to hold credits from projects based on a program-wide Structural Uncertainty Deduction at the time the credits were issued to each project. As the number of fields enrolled and receiving credits through the application of the NMPP increases over time, structural uncertainty would be progressively reduced and the credits held in this holding account could be periodically returned to their respective projects. A policy alternative like this would avoid the unnecessary and permanent discounting of credits for every project without compromising the conservativeness of the Structural Uncertainty Deduction. The Climate Trust, a contributor to the C-AGG white paper referenced by the NMPP, believes policy alternatives like this that avoid unnecessary transaction costs while ensuring uncertainty is appropriately accounted for should be preferred over the type of policy currently proposed in this version of the NMPP.

12. The value and scope of verification site visits is unclear and these requirements are likely to erect a significant cost barrier.

In The Climate Trust's experience, verification is a significant cost item for many projects. As a policy matter, increased costs to each project introduced through verification requirements should ideally be justified with some added value to the offset program such as increased certainty of emissions reductions or demonstration of compliance with other material aspects of an offset project protocol. Recognizing that nitrogen management projects utilizing this protocol are expected to yield relatively modest credit volumes relative to other offset project types, The Climate Trust believes the current methodology and potential project developers and participants would greatly benefit from a realistic consideration of the scale of potential verification costs for both desktop and site visits to ensure the prescribed verification requirements would not effectively bar projects from being developed.

In particular, The Climate Trust is concerned that site visit verification will offer little added value in terms of certainty of compliance or offset quantification while significantly and needlessly increasing the cost for project development. In its current scope, the NMPP only allows projects that employ rate reductions in the amount of N fertilizer applied. Because fertilizer applications would be made several months before any site visit would occur, it is unclear what value a site visit would offer. The verifier will not be able to assess whether rate reductions have been implemented based on a field inspection, but would instead do so by reviewing the records that are already required to be kept by the methodology and could be reviewed without necessitating a site visit.

The Climate Trust recommends a significant reduction in the number of verification site visits based on consultation with the Scientific Advisory Committee regarding appropriate sampling intensities. We also encourage a clearer description in the NMPP of the justification and scope for verifier review during site visits, and that the costs of such site visits be considered by the Reserve in addition to any expected benefits they may offer.

13. The statistical justification for prescribed verification sampling levels is unclear and should be revised such that sampling is based on addressing the sources of risks that would lead to credits being improperly quantified or awarded.

The statistical justification for the prescribed sampling levels is unclear. The Climate Trust encourages the Reserve to develop a verification sampling strategy that is fundamentally tied to the scale of emissions reductions claimed and the sources of risks that such emissions reductions are being misstated or incorrectly calculated. Incorporating a sampling approach based on the total acreage, amount of nitrogen applied, or volume of emissions reductions claimed could help reduce the cost for statistically unnecessary auditing, which would be particularly helpful for projects with relatively smaller credit volumes.

The Climate Trust recommends the NMPP be revised through consultation with the Scientific Advisory Committee to determine the most efficient and statistically robust sampling levels necessary to meet the Reserve's verification objectives.

14. Verification timelines should be refined to address rotational cropping systems

Alongside a review to make sure the terminology for project timeframes (e.g., eligible cropping years, reporting periods, crediting periods, etc.) are used consistently throughout the NMPP and are defined in the glossary, The Climate Trust suggests revising the verification timelines specified in Sections 7.4.1.1 – 7.4.1.4 and 8.2.1 – 8.2.3 such that verification and site visit timing is based upon the occurrence of eligible crop years as opposed to calendar years. For example, *Section 7.4.1.3 Option 2: Twelve-Month Verification Period with Desktop Verification* could be revised such that site visit verifications occur following the conclusion of every other eligible cropping year rather than every two years. This revision would prevent unnecessary site visits in non-eligible crop years for projects employing rotational cropping. Similarly, *Section 7.4.1.2 Option 1: Twelve-Month Maximum Verification Period* could be revised such that the verification period covers one eligible crop year plus any non-eligible crop years for projects with a rotational cropping system.

15. Miscellaneous clerical issues

- Table 8.2 contains reference to a 14-year crediting period although the current draft uses a 5- to 10-year crediting period.
- Table 8.1 refers to OSN values, a variable which is no longer included in the current version of the methodology.
- The variables for the distance for baseline and project manure sources from the project field should be added along with corresponding units, measurement frequency, etc. to Table 6.1.
- Sections 7.3.1 and 7.3.1.2 (which should be renumbered correctly as 7.3.2.2) both mention time-stamped digital photographs of fertilizer management practices. This is the only mention of these records in the entire methodology, and is unclear what needs to be photographed or whether such photographs would even be of use in verification.

Thank you for the opportunity to submit these comments.



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