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**Comment to the Secretariat in Response to the Call for Structured Input
On
Removal activities under the Article 6.4 mechanism**

By John M. Fitzgerald

Attorney and Advocate

June 19, 2023

Sent via email to: Supervisory-Body@unfccc.int.

Dear Supervisory Board and Secretariat:

I am John M. Fitzgerald, Attorney² and Advocate, and Member of the Board or Executive Committee of several conservation and climate protection organizations. I have worked for over two years with many scientists on the development of methane removal and methane emissions avoidance methods, as you prefer to call near source removal and/or suppression, after working throughout most of my career of the past fifty years at the state, national, and international levels to advance natural resource conservation, renewable energy and ecosystem restoration through the law and science. For example, I represented Defenders of Wildlife in helping to halt the international commercial sale of ivory in 1989 at CITES COP, to negotiate the Convention on

¹ As you require a logo, Gawain's shield is mine for purposes of this submission. This is the pentangle on the shield of Gawain in "Gawain and the Green Knight". As a knight of the Round Table Gawain did his best to represent and advance the causes of civilization and chivalry. He learned that the pursuit of perfection for himself or his colleagues is always a pursuit worth undertaking even though perfection is not attainable in this life yet pursuit of perfection in those qualities leads to progress, justice and understanding.

² I am a member of the Bar of the District of Columbia, the U.S. District Court of the District of Columbia Bar and the U.S. Supreme Court Bar.

Biological Diversity in Nairobi in May of 1992 and served on the U.S. Delegation to the first COP of the CBD in 1993. I led a delegation of the Society for Conservation Biology that helped the Nagoya COP to write the 2010-20 Strategic Plan for the CBD.

My comments are focused primarily on the topic of the science and governance of methane removal as those questions are posed by the Supervisory Body in its “Information note - Guidance and questions for further work on removals” (A6.4-SB005-A02).

In most cases my answers³ to your questions are presented below each the questions to which they respond.

2. Elements for structured consultation and further work

Cross-cutting questions:

1. Discuss the role of removals activities and this guidance in supporting the aim of balancing emissions with removals through mid-century.

The removal of methane from air may be accomplished by a number of nascent technologies. Some are more advanced than others. The most advanced are near-source removals, where methane concentrations are highest. Conversely, the least developed are for use in atmospheric concentrations (near 2 ppm). The UNFCCC Parties and Secretariat are urged to recognize this field in addition to the removal of carbon dioxide. Thus, under “definitions,” methane removal should be a recognized activity and given the fact that there are several proposed and researched methods of removing other GHGs and black soot the definition should encompass any climate forcing agent.

Given the climate urgency posed by rapidly increasing methane levels in the atmosphere and the very high rate of global warming potential associated with methane, removing it from the atmosphere presents one of the few opportunities for successful near to medium-term climate recovery. Methane removal’s immense potential would be greatly enhanced with UNFCCC recognition, which will further enable needed research and development funding as well as policy support from other international and national bodies.

For more on this potential, I refer you to Methane Action’s *Catalog of Research Funding Needs to Advance Methane Removal*, describing nearly 20 current or potential projects (<https://methaneaction.org/catalogue-of-research-funding-needs-to-advance-methane-removal/>). (Note: Methane Action was a not-for-profit non-governmental organization that was subsumed in early 2023 by Spark Climate Solutions, another NGO.)

³ Peter Jenkins who is also a lawyer and also familiar with methane removal contributed several paragraphs to this letter in an earlier draft and I have retained some of those. Sections of these comments may also have much in common with those of other commenters I have helped, but I wanted you to have the benefit of all of my suggestions so I am sending these in directly. I also submitted comments during your first two rounds which I hope you have kept on file as I do not want to burden you with too much now.

The U.S. National Academy of Sciences is in the process of conducting a major study on methane removal. (<https://www.nationalacademies.org/our-work/atmospheric-methane-removal-development-of-a-research-agenda>). The science journal *Environmental Research Letters* is preparing a dedicated issue to publish collected articles on the topic later in 2023 (https://iopscience.iop.org/collections/1748-9326_Focus-on-Methane-Drawdown). These will undoubtedly further expand the field.

Here is a list of key recent related publications:

Oeste, F.D.; de Richter, R.; Ming, T.; Caillol, S. Climate engineering by mimicking natural dust climate control: The iron salt aerosol method. *Earth Syst. Dyn.* 2017. 8, 1–54.

Ming, T.; de Richter, R.; Oeste, F.D.; Tulip, R.; Caillol, S. A nature-based negative emissions technology able to remove atmospheric methane and other greenhouse gases. *Atmos. Pollut. Res.* 2021. 12, 101035.

Jackson, R.; Abernethy, S.; Canadell, J.; Cargnello, M.; Davis, S.; Féron, S., et al. Atmospheric methane removal: A research agenda. *Philos. Trans. R. Soc. A.* 2021.

Brenneis, R.; Johnson, E.; Shi, W.; Plata, D. Atmospheric- and low-level methane abatement via an Earth-abundant catalyst. *ACS Environmental Au.* 2021. 10.1021/acsenvironau.1c00034.

Ming, T.; Wei, L., et al. Perspectives on removal of atmospheric methane, *Advances in Applied Energy.* 2022. Volume 5, 100085.

Sturtz, T.; Jenkins, P.; de Richter, R. Environmental impact modeling for a small-scale field test of methane removal by iron salt aerosols. *Sustainability.* 2022. 14, 14060.

In light of the abundant activity, including anticipated small-scale field tests, I recommend UNFCCC references to “removals” be revised to include methane removal as well.

Further to that point, I offer constructive criticism of certain wording in the Information Note on Removal Activities of May 17, 2023, (A6.4-SB005-AA-A09). In that document, Table 1 describes “Proposed changes in the definition of removal activities” based on input from Working Group III (appended at the end of this comment). One proposed change discussed in Table 1 as far as “Pros” and “Cons” is to “Include non-CO₂ greenhouse gases (GHGs)”. As expanded on earlier in this comment, we fully agree with the description of the “Pro” argument, that is, methane removal’s inclusion in the definition would allow “- a broader scope to include potential activities from ongoing innovations under greenhouse gas removal (GGR)”.

I am, however, concerned that the “Cons” stated in Table 1 are overly simplistic. The first statement indicating that non-CO₂ GGR removal is “not currently anticipated” is

inconsistent with the state of the research as we have described above. Extensive innovations are indeed removing methane now from high concentration sources, such as in enclosed livestock operations and from methane-laden soils, and investigators are aiming towards lower concentration sources. Progress towards removal at relevant scales is anticipated based on the current extensive research ongoing, although we cannot provide a timeline for that outcome now.

Similarly, the second and third Cons raise doubts as to whether removal of methane at relevant scales could have comparable and additional mitigation effects in relation to the removal of CO₂. We believe those Cons mischaracterize the potential that methane removal offers – it is a vital potential complement to CO₂ removal needed in order to achieve UNFCCC climate goals.

Question number 1 frames the purpose of 6.4 and this exercise incorrectly: The Secretariat can address a perceived goal of no net emissions by 2050 while also noting at the outset that such a goal now is wholly insufficient to fulfill the goals of the UNFCCC itself or the ultimate goal and objective of restoring a climate that fosters the full health of the planet and its occupants. The UN has now adopted the right to a healthy environment as a human right as have many parties and subsidiary jurisdictions. Therefore, to aim for less is to aim to violate that right.

So, I suggest you include deep net negative approaches that will reverse climate change as soon as practicable, as the current situation is itself unsafe.

2. What are the roles and functions of the following entities in implementing the operations referred to in this guidance: Activity proponent(s), Article 6.4 mechanism Supervisory Body (6.4SB), 6.4 mechanism registry administrator, Host Party, stakeholders?

The Supervisory Body's (SB) primary function is to transparently assist the Secretariat and the Secretary General of the UN and the parties in governing the removal of climate forcing agents, including black soot, and direct and indirect greenhouse gases while not impairing efforts to reduce emissions or otherwise restore ecological functions. As noted in letters signed by experts, (e.g., <https://methaneaction.org/expert-statement-oxidation-methane/> and <https://methaneaction.org/letter-in-support-of-declaration-on-reducing-atmospheric-methane-2/>) such governance must ensure that removals include methane and are not underdone, overdone or improperly done. For example, they must not be withheld by those who might seek to maximize profits past a point of reasonable and fair returns on their investment, nor must they be excessively applied without proper safeguards to prevent or control and reverse adverse side effects by those who would seek to maximize their profits by applying them first to wider area than can be managed well.

The role of the SB, in other words, is not to be limited by self-imposed constraints of the best guess as to safe levels of eight years ago nor by offset markets or cap and trade or cap and tax systems but to assist those and go beyond those to restore the healthy environment to which all the world is entitled. The SB can fulfill its specific mandates from the Paris Agreement and go beyond in responding to current experience at the same time.

The other players must all assist each other in this. The Parties acting together in coalitions or parallel should charge fees on emissions or on practices that weaken the sinks of nature and with those funds award at market rates payments for research, investigations, assessments and enforcement of each element of GHG removal. For procedures on such awards, they can adopt the practices set out in the U.S. Office of Public Participation of the Federal Energy Regulatory Commission for administrative level participation as in rulemaking, and for judicial review, the practices under the U.S. Clean Air Act.

Public Interest Stakeholders should be awarded market rates so that their experts and attorneys may present the best scientific evidence in the most effective manner to support the integrity of the 6.4 process. Commercial stakeholders already receive subsidies in being able to deduct such expenses from their taxable incomes and the fossil fuel companies' oil, coal and gas extractions are often subsidized from beginning to end as well directly and by being allowed to externalize the costs and effects of the pollution their production and products emit.

A fee, such as has long been authorized by the U.S. Independent Offices Appropriations Act of 1951, to cover the costs of permitting agencies should be levied by the parties or the COP/CMA on emitters whose pollution 6.4 seeks to remove. This fee could in turn support the administrators and intervenors but should not be the only basis for such funding lest they become overly dependent on licenses to pollute.

The COP/CMA should empower the SB to give priority to proposals from entities within, or of, jurisdictions that are assessing pollution fees such as those of the European Union and its Carbon Border Adjustment Mechanism and the State of Washington which is has recently enacted a measure that will fund and establish a Greenhouse Gas Removal program. The State had the budget capacity for that due to proceeds from its cap and fee on GHG pollution.

The Peterson Institute for International Economics, a market-oriented think tank, has just published a paper recommending that the EU and US lead an international agreement on methane limits, fees and border adjustments (tariffs). (See, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4477571) Fees collected could support independent monitors and public interest participants and intervenors of local, national and international scope.

The suggestions above go to the role and function of the SB in that the SB is the only impartial and objective rule enforcing body over the entirety of this process and it will not have the budget by itself to ensure that those being paid to remove GHGs and report and correct on the success of that and any CO2 leakage do so thoroughly and honestly. Therefore, the COP/MCA should empower it to fund payments to independent experts who are less likely to be influenced by the oil and gas lobby or others. This is the reason why most conservation laws in the U.S. provide for that. For example, a lesson to be applied under "B. Monitoring and Reporting", is the fact that it took the Environmental Defense Fund to monitor and report on excess unreported gas leaks from wells in the western U.S. and Stanford University and others to measure and report leaky gas pipelines. It was not the Environmental Protection Agency who discovered those. The natural tendency of any

sponsor of removal is to assure and recover full credit (Under the next section, C) and ignore problems if it has to pay to correct them under "E. Addressing Reversals" and "F. Avoiding Leakage". Oil and gas companies want those initial removals to appear to work so they can keep pumping and stay below the NDC and Methane emission reduction limits.

3. How are these elements understood, in particular, any interrelationships in their functions, timeframes, and implementation?
 1. (a) Monitoring period
 2. (b) Crediting period
 3. (c) Timeframe for addressing reversals

³ Including Article 6.4 mechanism activity cycle procedure for projects (A6.4-SB005-AA-A03); Requirements for the development and assessment of mechanism methodologies (A6.4-SB005-AA-A07); Development, revision and clarification of baseline and monitoring methodologies and methodological tools (A6.4-SB005-AA-A05); Development, revision, clarification and update of standardized baseline development (A6.4-SB005-AA-A06); and Developing a sustainable development tool for the mechanism (A6.4-SB004-AA-A06).

Questions on specific elements

A. Definitions:

Discuss the role and potential elements of definitions for this guidance, including "Removals".

Under "definitions," as discussed above in answer to question 1., given the fact that there are several proposed and researched methods of removing methane and other GHGs and black soot, and given the fact that hydrogen is an indirect greenhouse gas via its taking up of the hydroxyl radical that would otherwise eliminate methane, the definition should encompass any climate forcing agent.

This broad definition is in fact much more in keeping with the UNFCCC and Paris Agreements recognition of the several greenhouse gases and their fundamental purposes as well as the mandates of other international laws both in customary law and treaty provisions establishing the duties of one nation not to harm the environment of another and to make whole those who have been injured to the extent practicable. The UNFCCC and Paris Agreements and resolutions and actions undertaken to implement them are not licenses to pollute that abrogate these fundamental duties but mechanisms that need to keep pace with the rapidly developing experience, research results and remedies in the field of climate change.

B. Monitoring and Reporting:

1. What timeframes and related procedures should be specified for these elements referred to in A6.4-SB003-A03?

a. For initial monitoring and submission of monitoring reports (paragraph 3.2.14);

For subsequent monitoring and submission of monitoring reports (paragraph 3.2.14);

For monitoring and submission of monitoring reports following an observed event that could potentially lead to a reversal (paragraph 3.2.14);

For monitoring and reporting, including any simplified reporting, conducted after the end of the last crediting period of activities involving removals (paragraphs 3.1.10 and 3.2.13).

2. Discuss any further considerations to be given to the core elements for monitoring and reporting in A6.4-SB003-A03; where possible, identifying the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.

C. Accounting for removals:

1. Discuss any further considerations to be given to the core elements for accounting for removals in A6.4-SB003-A03; where possible, identifying their applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.
2. For activities involving removals that also result in emissions reductions, what are the relevant considerations, elements, and interactions between this guidance and the requirements for the development and assessment of mechanism methodologies, including.

In the nomenclature or definitions of 6.4 so far, removals tend to be ambient while reductions in emissions tend to cover near source removals. We suggest that 6.4 be used to support both in order to encourage the reduction of the presence of climate forcing agents overall and in order to avoid inefficient use of time drawing boundaries that may defeat that goal. These methods span a broad spectrum of activities and reductions but they should all be encouraged. You can still track both without disqualifying the near source reductions and removals. The stocktaking exercise can also include subdivisions to identify best practices in each sector. This can also be mutually supportive with the Methane Pledge accounting process as well.

In one example or aspect of non-ambient but significant reduction/removal, dams with large impoundments can be a source of methane and water vapor and dam removal usually brings many co-benefits such as the return of anadromous fish, which in turn have climate and co-benefits. Methane can be removed or prevented to some extent from behind dams as well as one presentation to the Ambient Methane Removal Community zoom meeting demonstrated.

D. Crediting period:

Discuss any further considerations to be given to the core elements for crediting periods in A6.4-SB003-A03; where possible, identifying the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.

E. Addressing Reversals:

In order to minimize the risk of non-permanence of removals over multiple NDC implementation periods, and, where reversals occur, ensure that these are addressed in full.

In response to both E and F below, a major reason for including non-CO₂ removals is that most such removals are permanent conversions rather than temporary or longer-term storage of a molecule that can leak.

1. Discuss the applicability and implementation aspects of these approaches, including as stand-alone measures or in combination, and any interactions with other elements of this guidance:

- a. Non-permanence risk buffer (pooled or activity-specific);
- b. Insurance / guarantees for replacement of ERs where reversals occur (commercial, sovereign, other);
- c. Other measures for addressing reversals in full.

In regard to 1 overall, it would make sense to require the removal of methane or other more powerful climate forcing agents, either near source or ambient, as a back-up for CO₂ removal reversals and to require performance bonds that can be liquidated to pay for that service.

2. Discuss the appropriate timeframe(s) for applying the approaches, including any interactions with other elements of this guidance and the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.

3. What risks of non-permanence need to be minimized, and how can these risks identified, assessed, and minimized?

4. In respect of risk assessment, how should the following elements be considered in the implementation of the approaches in (a) and any other relevant elements in this guidance?

- a. Level of non-permanence risk assessment, e.g., activity- or mechanism-level
- b. Timing for risk assessment(s)

c. Entity(ies) responsible for risk assessment(s), e.g., activity proponent, 6.4SB, actuary

5. How should the following elements be considered in the implementation of the approaches in (1) above and any other relevant elements in this guidance?

a. Methods for determining the level of buffer pool contributions

b. Composition of buffer pool, including in relation to ER vintages and contributing activity types or categories

c. Intentional and unintentional reversals

d. Treatment of uncanceled buffer ERs, including after the end of the last crediting period of the contributing activity

e. Specifications for ERs that cancelled for compensate for reversals, including in relation to ER vintages and contributing activity types or categories

f. Replenishment in case buffer cancellations exceed contributions; slide language on re-raising baseline level of storage before new crediting

6. In the event of a reversal, what interactions and implementation aspects should be considered in respect of other elements of the activity cycle?

Either party or the SB should be able to liquidate and use the performance bond as soon as a leak is discovered to correct it and its effects while giving notice to the other parties.

F. Avoidance of Leakage:

Discuss any further considerations to be given to the core elements for leakage avoidance in A6.4-SB003-A03; where possible, identifying the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.

Again, a major reason for including non-CO₂ removals is that most such removals are permanent conversions rather than temporary or longer-term storage of a molecule that can leak.

G. Avoidance of other negative environmental, social impacts

Discuss considerations to be given to core elements for avoidance of other negative environmental, social impacts; where possible, identifying the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.

I am glad you have focused on this question. It is essential for any human intervention that may affect the environment and has been recognized as such for many years. Most nations ratified the Convention on Biological Diversity soon after it was signed in 1992. Article 14.1 requires such impact assessments and warnings to other countries of impacts that may affect them. Article 14.2 provides for system of compensation for harms done. Such compensation duties could be coordinated with not only the Loss and Damages provisions of the Paris Agreement but with non-CO2 removals in light of the local co-benefits of reduction in ground level ozone, reduction in N2O and black soot which as small particulates harms human health as well as the climate.

Your wording of the question misses the point that the assessment process provides all stakeholders an opportunity to suggest better alternatives, and mitigation measures that can become mandatory commitments so that the actions taken end up not only avoiding negative impacts but restoring health. For example, young people are committing suicide out of lack of hope for their futures and the despair that comes with seeing only bad news on the horizon. A prime social impact of removals is engaging society in providing informed and enlightened hope and with it, support for active advocacy in support of research, development and deployment of GHG removal and ecosystem and health restoration methods. See,

> <https://insideclimatenews.org/news/12062023/love-of-the-land-and-community-inspired-the-montana-youths-whose-climate-lawsuit-against-the-state-goes-to-court-this-week/>

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The International Association for Impact Assessment begins its description of Social Impact Assessment with the following:

1. The goal of impact assessment is to bring about a more ecologically, socio-culturally and economically sustainable and equitable environment. Impact assessment, therefore, promotes community development and empowerment, builds capacity, and develops social capital (social networks and trust).
2. The focus of concern of SIA is a proactive stance to development and better development outcomes, not just the identification or amelioration of negative or unintended outcomes. Assisting communities and other stakeholders to identify development goals, and ensuring that positive outcomes are maximised, can be more important than minimising harm from negative impacts.
3. The methodology of SIA can be applied to a wide range of planned interventions, and can be undertaken on behalf of a wide range of actors, and not just within a regulatory framework.
4. SIA contributes to the process of adaptive management of policies, programs, plans and projects, and therefore needs to inform the design and operation of the planned intervention.

See, <https://www.iaia.org/wiki-details.php?ID=23>

Programmatic impact statements can efficiently assess large scale programs and their alternatives. The SB and COP/CMA should facilitate these as they can make site specific assessments much easier and useful for the program and parties overall.

If one party does not have the authority or resources for assessment then the other party or a fund set up by the COP/CMA could finance important removal assessments so that the work can move ahead.

Finally, the Secretariat, Supervisory Body and the Meeting of the Parties to the Paris Agreement should include large programs of near source removals of non-CO2 climate forcing agents that may be available sooner and be more controllable at first than ambient atmospheric removal methods but together be able to provide significant reductions and co-benefits. The program should also require independent monitors of performance of all removal projects undertaken via the 6.4 program including the mitigation of any negative impacts of such programs as the identification of mitigation commitments has for at least a decade been a requirement of good impact assessment processes.

I appreciate the help of the Secretariat in ensuring that the format of my earlier submissions met their criteria and again appreciate the opportunity to help you do this important work.

Sincerely,

A handwritten signature in black ink, appearing to read "John M. Fitzgerald". The signature is fluid and cursive, with a large initial "J" and "F".

John M. Fitzgerald