

Agenda item 3.4.

Paragraph 14 of the annotated agenda

Draft Standard: Addressing non-permanence and reversals

Article 6.4 Supervisory Body – 18th meeting

Bonn, Germany, 6 to 10 October 2025



The Supervisory Body at its 10th meeting adopted its 2024 workplan and requested the MEP to prepare recommendations on the following products relating to the recommendation on removals:

- a) Guidance on post-crediting period monitoring, reporting, and remediation of reversals, post-reversal action and host Party roles;
- b) Guidance on late, incomplete, or missing monitoring report submissions and treatment of activities for which a reversal results in removals level that falls below baseline;
- c) Reversal risk assessment tool;
- d) Guidance on avoidable and unavoidable reversals and reversal compensation.

At SBM011, the Supervisory Body agreed with the MEP recommendation to consolidate the four related issues and to develop a standard on addressing non-permanence and reversals covering these issues.



At SBM014, the Supervisory Body (SB) adopted the “Standard: Requirements for activities involving removals under the Article 6.4 mechanism” and requested the MEP to continue its work on the above issues on the basis of the adopted Removals Standard.

At MEP 007 the MEP prepared a draft Reversal Standard which contained two proposals;

- First call for public inputs on this draft Reversal Standard.



At SBM017, the SB provided direction to the MEP:

The Supervisory Body requested the MEP to prepare a single recommendation, identifying options where necessary. The Supervisory Body underlined that, while the MEP is invited to explore the full range of potential approaches to operationalize the requirements of the removals standard for consideration of the Supervisory Body, it shall stay within the mandate set by the previous decisions of the Supervisory Body including the removals standard.

At MEP 008, the MEP considered the public input received and made a recommendation.

- Second call for public input conducted (10-24 Sept.);
- Webinar (18th Sept.);



Purpose

To address the mandate provided by the SB to develop a standard on addressing non-permanence and reversals, while considering the guidance provided by the SB at its seventeenth meeting (SBM0017).



Key issues and proposed solutions (1) Overview

The below specific sections and paragraphs require the attention of the SBM:

Appendix 1:

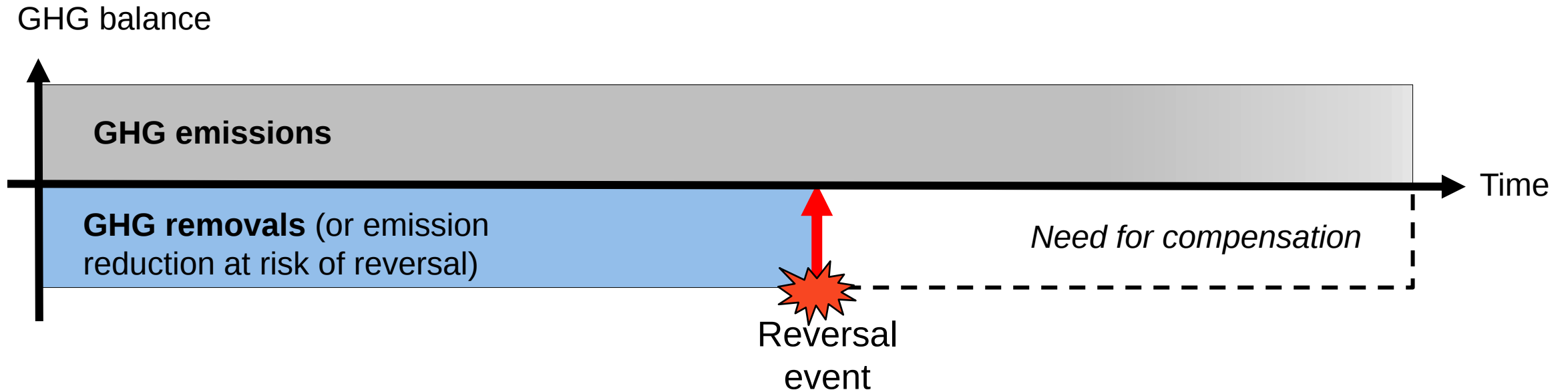
- a) Para. 3(g): Threshold for “negligible risk of reversal”
- b) Para. 13: Alternative approaches for reversal-related monitoring and reporting
- c) Section 6: Equations (9) and (10) to calculate the SOP and OMGE (respectively Share of Proceeds for adaptation and Overall Mitigation in Global Emissions)
- d) Para. 39: Materiality threshold for reporting observed reversal events

Appendix 2:

- a) Section 1.2 and 1.3: Reversal reporting (notification and annual reversal)
- b) Section 2: Late, incomplete or missing report submissions
- c) Section 3 para. 40 (indefinite Post-Crediting Monitoring (PCM) period) and sub-section 3.2: Termination of monitoring and reporting in the PCM period



Key issues and proposed solutions (2): Underlying issue



- GHG removals can compensate GHG emissions (fungibility)
- In case of GHG reversal (and in the absence of compensation), the balance between emissions and removals is disrupted
 - ➔ The result is at the expense of the atmospheric system



Key issues and proposed solutions (3): Negligible risk of reversal

Para. 3 (g): Negligible risk of reversal:

A risk of reversal that would result in a loss of no more than [X] percent of all the A6.4ERs issued with respect to the total emission reductions and/or net removals achieved by the activity during its active crediting period, calculated over a 100-year timeframe starting from no earlier than the end of the last active crediting period;

☞ The MEP recommends that the Supervisory Body adopts a single value applicable to all activities from 0.5 per cent to 2.5 per cent over a 100-year period



Appendix 1 / Para. 13:

The proponents of a mechanism methodology may propose alternative approaches to the provisions listed in paragraph 15 if these alternative approaches ensure, with a high level of confidence, that reversals from Article 6.4 activities are fully remediated in the crediting period and post-crediting monitoring period and ensure that the alternative approaches do not cause instances of moral hazard.¹² These approaches may only be proposed if all of the following conditions are satisfied for the applicable greenhouse gas reservoir:

- a) That activity participants using the mechanism methodology have no control over the GHG reservoir;¹³
- b) That the GHG reservoir is not in the same location as where the mitigation activity is implemented;
and
- c) That changes observed in the GHG reservoir cannot be attributed to the mitigation activity.¹⁴



Appendix 1 / Para. 15:

Proponents of mechanism methodologies may propose alternative approaches to any of the following provisions, so long as those alternative approaches meet the conditions of paragraphs 13 and 14:

- a) General requirements for the identification and quantification of reversals (section 7.1);
- b) Frequency of submitting monitoring reports (section 7.2);
- c) Monitoring and reporting in the post-crediting period (section 7.4);
- d) Reversal-related notifications and reports (section 1 of Appendix 2);
- e) Post-crediting period monitoring and reporting (section 3 of Appendix 2); and
- f) Post-reversal actions (section 4 of Appendix 2).

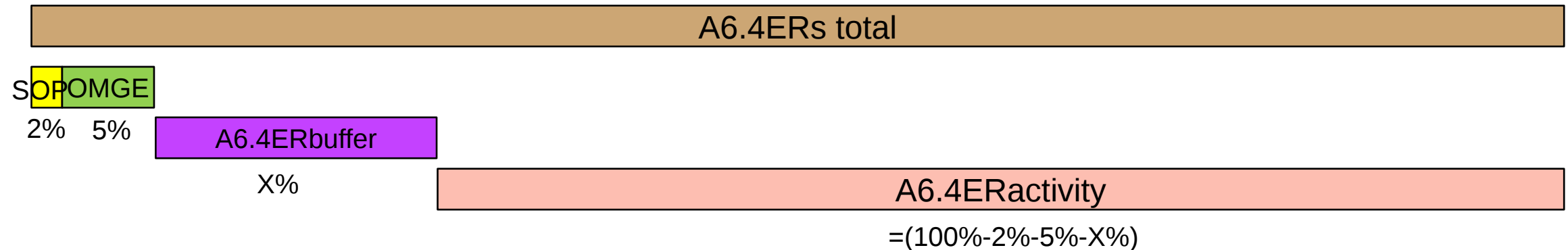


Key issues and proposed solutions (6): Equation (9) and (10) to calculate the SOP and OMGE

Calculation of SOP and OMGE: as share of total A6.4ERs (single option 1)

$$A6.4ER_{activity,t} = A6.4ER_{total,t} - A6.4ER_{SOP,t} - A6.4ER_{OMGE,t} - A6.4ER_{buffer,t}$$

$$A6.4ER_{SOP,t} = A6.4ER_{total,t} \times SOP$$
$$A6.4ER_{OMGE,t} = A6.4ER_{total,t} \times OMGE$$



👉 Approach found to be in alignment with the A6.4 RMP (4/CMA.4)

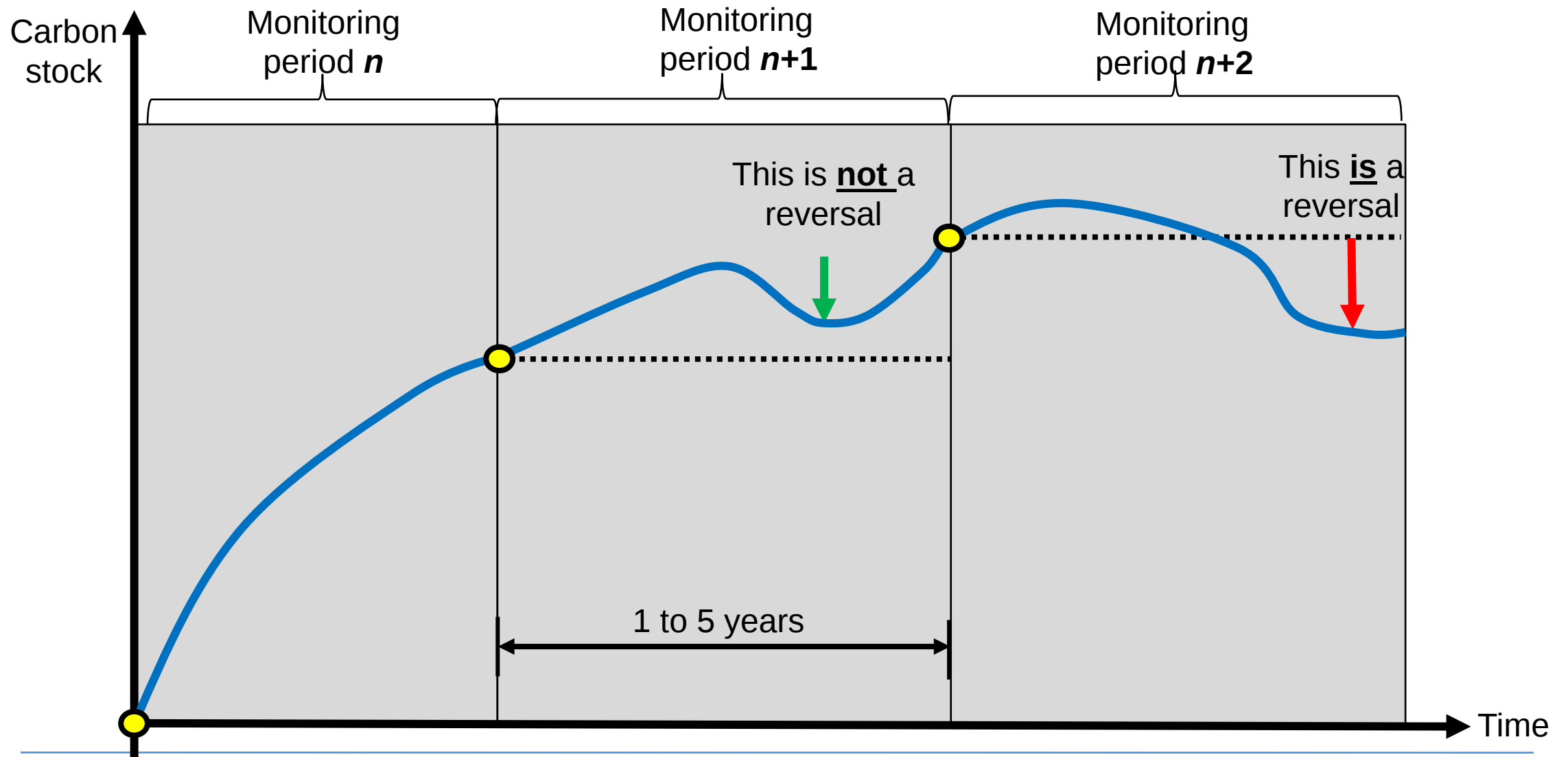


Appendix 1 para. 39.

For the purpose of identifying whether any observed event involving the release of stored greenhouse gases has led to a reversal, mechanism methodologies may include provisions to conservatively calculate the total removals expected to occur within the monitoring period in which the observed event took place. If the **total expected removals within the monitoring** period are larger than the **sum of emissions from all observed events involving the release of stored greenhouse gases within the same monitoring period**, then methodologies may **determine that no reversal is deemed to have occurred** for the purpose of notifying the Supervisory Body of observed events involving the release of stored greenhouse gases. The provisions of this paragraph shall only apply to activity types that generate ongoing net removals without ongoing interventions by the activity participant²⁴, and shall not be applied to any other matters, such as quantification of emission reductions and/or net removals.



Key issues and proposed solutions (8): Materiality threshold for reporting observed reversal events



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Appendix 2 para. 3.

Activity participants shall notify the secretariat of any observed event involving the release of stored greenhouse gases that could potentially lead to a reversal within 30 days of becoming aware of the observed event. (...)



Key issues and proposed solutions (10): Reversal reporting (notification and annual reversal)

Table 3. Summary of reversal-related reporting requirements

Requirement	Purpose	Timing of submission	Whether verification is required
Notification	Inform the Supervisory Body of a potential reversal	Within 30 days of the end of an observed event	No
Preliminary assessment report	Determine whether a reversal has occurred	Within 90 days of the end of an observed event	Yes, but only if the preliminary assessment report concludes that a reversal has not occurred
Monitoring report	Quantify amount and classify the type of reversal	Within 365 days of the end of an observed event	Yes
Annual reversal report	Ensure regular communication with activity participants	Annually, due 31 March each year	Yes, and verification can be done ex post as part of the verification of a monitoring report

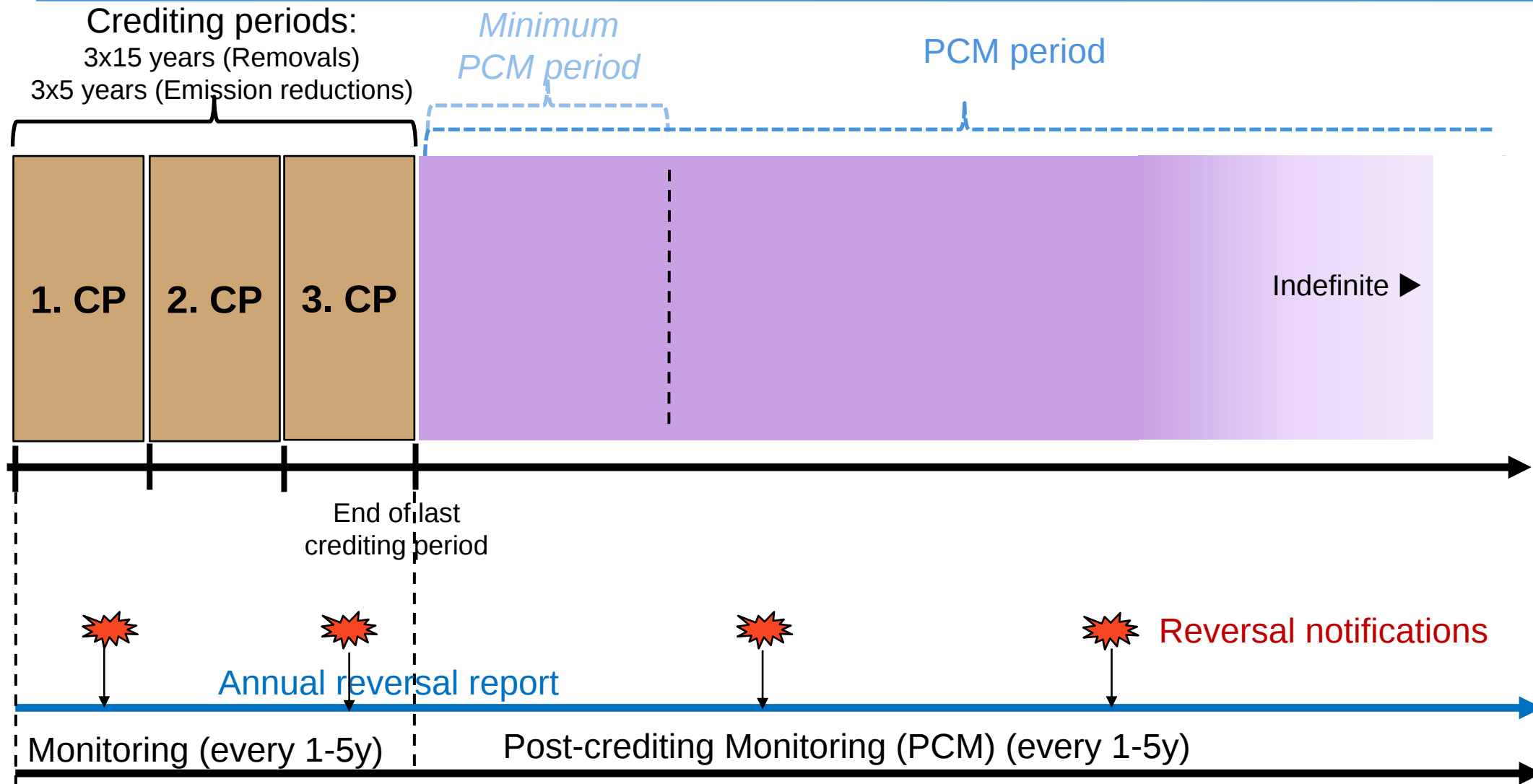


Table 4. Summary of consequences of late or missing report submissions

Report	Consequence of late report	Timing of consequence (late)	Consequence of missing report	Timing of consequence (missing)
Preliminary assessment report	None	Not applicable	Require monitoring report	60 days after notice
Monitoring report	Registry functionality suspended	Immediate	Avoidable reversal (deemed)	180 days after notice
Annual reversal report	Registry functionality suspended	30 days after notice	Avoidable reversal (deemed)	90 days after notice



Key issues and proposed solutions (12): Monitoring and reporting in the PCM period



Post-crediting monitoring (PCM) obligations (open-ended, in the absence of termination):

- Frequency of one to five years:

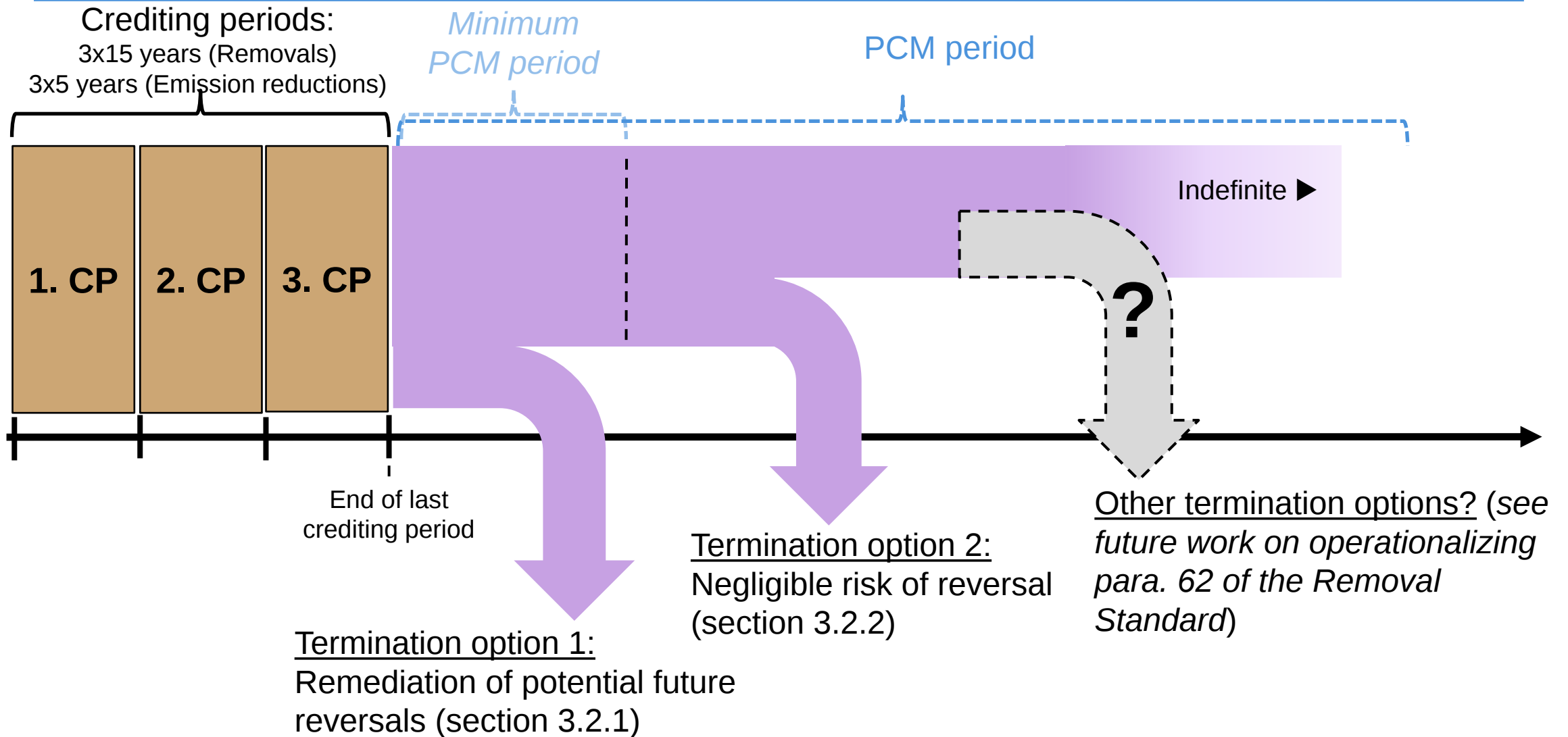
For Article 6.4 activities that are subject to reversal risks, activity participants shall continue to monitor applicable greenhouse gas reservoirs in the post-crediting monitoring period, applying the provisions of sections 1 and 2, as applicable, to:

- (a) Assess and determine whether any reversals have occurred;
- (b) Quantify the amount of any such reversals; and
- (c) Ensure remediation of reversals subject to the provisions of section 4.

👉 Recommendation to request the secretariat to develop a simplified template for monitoring reports for the post-crediting monitoring period.



Key issues and proposed solutions (12): Termination of monitoring and reporting in the PCM period



Key issues and proposed solutions (14): First transfer and buffer pool

Background: Para. 39 of the Removal standard foresees that:

39. The percentage-based risk rating calculated in paragraph 38 above shall inform:

(a) The proportion of A6.4ERs to be **transferred** to the Reversal Risk Buffer Pool Account;

Issue: - Whether placing units in the buffer pool account should be considered “**first transfer**”, or “**forwarding**” of A6.4ERs

- Risk of double corresponding adjustment if defined as “first transfer”?

Clarifications:

From 2/CMA.3 Annex / I. para 2): first transfer defined as first “international” (use towards NDC) but defined as “issuance, use, or cancellation” for OIMP

From 6/CMA.5 para. 11 to 15: *Clarifies that mitigation outcomes can only be first transferred if they have been authorized by the first transferring Party; (...)*



The proposed recommendation will provide further clarity on the requirements with regard to addressing non-permanence and reversals.



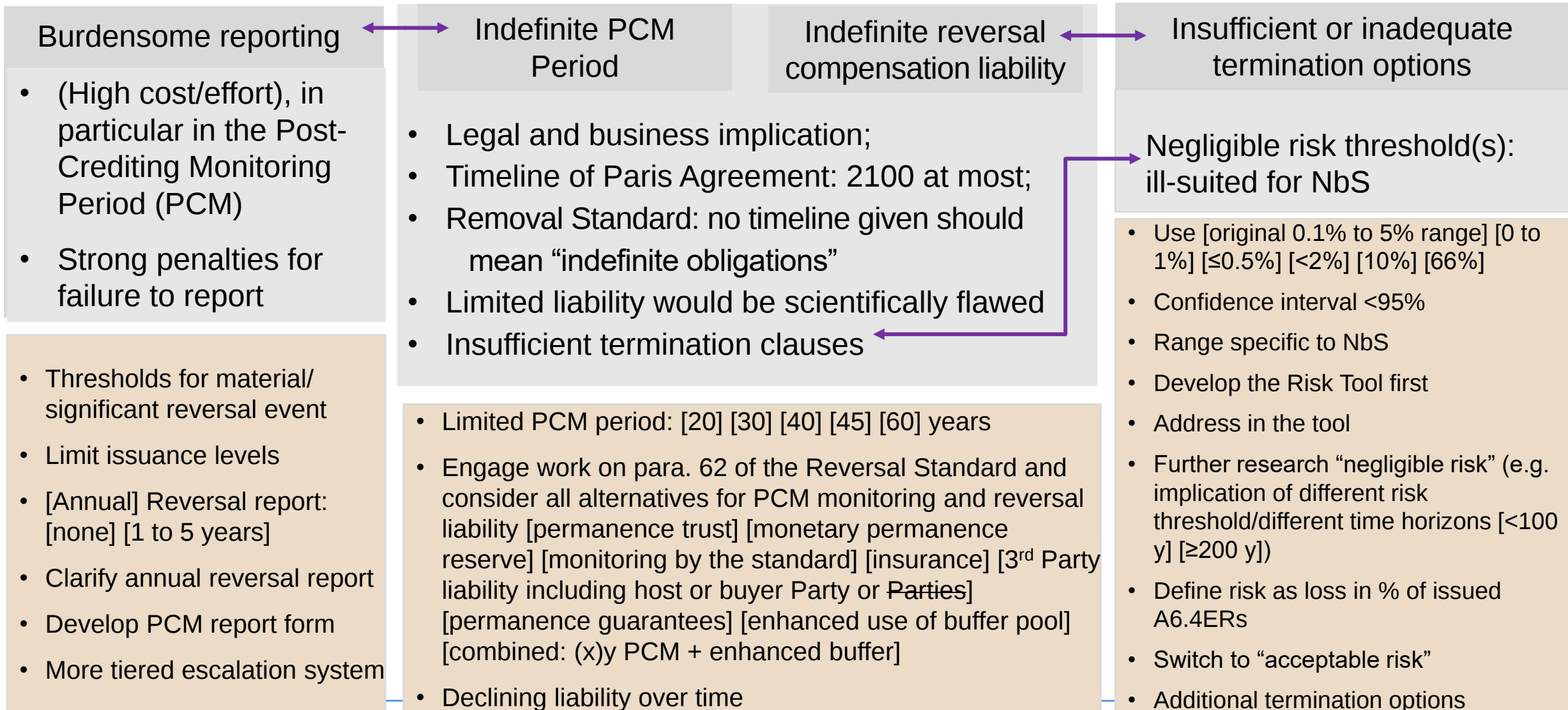
A specific call for input was open from 10 to 24 September 2025

- 70 submissions on this standard were received (among which 10 from Parties); Letters from parties included in the compilation.
- A number of submissions were similar or identical to other submissions

Number of comments	Section commented
68	Cover Note
83	Appendix 1
103	Appendix 2
57	General Comments



Inputs received: Views expressed on the impracticability for Nature-based Solutions (NbS)



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- **Current draft deemed to be aligned with compensation of long-live GHGs (e.g. CO₂)**
 - Recommendation to retain current approach
 - Offsetting claims cannot be justified with units that only ensure temporary removals
- **Comments related to Reporting:**
 - Burdensome obligations and consequences (call for tiered consequences or enhanced grace periods)
 - To further elaborate on clear consequences for incomplete report submissions
- **Termination of post-crediting monitoring and reversal liability**
 - Call for including more options
 - Call for including independent review or verification of termination actions in addition to completeness checks
 - Only credits with $\leq$ reversal risk for remediation



- **Alternative approaches for reversal-related monitoring and reporting as in A1-S5 (e.g., for cookstove projects)**
 - Retain the current draft
 - Do not provide any exemption
 - Provide full exemption
- **Comments related to future work**
 - Implementation of Risk Tool & Operationalization of work on para. 62 of the Removal Standard
 - Large-scale activities (incl. jurisdictional scale)
- **Materiality threshold**
 - Expanding its applicability (incl. avoided deforestation)
 - Against simplifications granting flexibility to land-sector projects



Summary of the different views - inputs received from submitters

- **Specific on Nature-based Solutions (NbS)**
 - NbS important; Set separate rules for NbS
 - Do not agree that the draft prevents NbS
 - Safeguards against temporary removals
- **CfPI Perceptions:**
 - Inputs were not sufficiently taken into account and/or incorporated
 - Support for how inputs 'not-aligned with the Removals Standard' were addressed
 - Appreciation for public call for 1st and 2nd call for public and webinar
- **Reject or Delay the approval decision**
 - To consider the full package with Risk Tool and work on para. 62 of the Removal Standard
 - To research the implications of different thresholds for negligible risk (in particular for NbS)
 - Conduct additional consultation (incl. with experts), dialogues, workshops and research
 - No provision should be placed at the methodology level



Summary of the different views - inputs received from submitters

- **Miscellaneous topics:**

- Requesting increased guidance on distinguishing avoidable/unavoidable reversals
- Make all decisions public when applying the related standard/procedures
- Re-introduce section on the management of the buffer pool account / stress testing
- Require replenishment units to have better/lower risk rating
- Consider the case of entities which cease to exist (e.g. bankruptcy)
- Apply SOP / OMGE after units for the buffer pool are deducted (Option 2)
- Comments directed to the v01.0 of the Reversals Standard

All public inputs are publicly available at: <https://unfccc.int/calls-for-input/SBM018>



- To consider the range of values proposed for defining a negligible risk of reversal, specify a single value to be adopted for the definition of a negligible risk of reversal, and adopt the draft standard “Addressing non-permanence and reversals in mechanism methodologies”;
- Confirm the approach implemented in section 6.6 and 6.7 of the draft standard is appropriate that mitigation contribution A6.4ERs are to be forwarded to the Reversal Risk Buffer Pool Account without effecting a first transfer and that the forwarding of authorised A6.4ERs is to be effected as a first transfer, consistent with the approach for OMGE and SOP;



- Agree on the “Elements for inclusion in relevant regulatory documents” included in Appendix 2 and request the secretariat, in consultation with the MEP, to incorporate these elements into a draft revision of:
 - the “Standard: Article 6.4 activity standard for projects” (A6.4-STAN-AC-002),
 - the “Standard: validation and verification standard for projects (A6.4-STAN-AC-003)”
 - the “Procedure: Article 6.4 activity cycle procedure for projects” (A6.4-PROC-AC-002), and
 - the “Procedure: Article 6.4 mechanism registry” (A6.4-PROC-REGS-001),for consideration by the Supervisory Body at a future meeting;
- Request the secretariat to develop a simplified template for monitoring reports for the post-crediting monitoring period.



Subsequent work and timelines

- Secretariat to develop a simplified template for monitoring reports for the post-crediting monitoring period;
- MEP to continue working on the mandates to develop a reversal risk assessment tool;
- MEP to work on a concept note on options for the implementation of paragraph 62 of the “Standard: Requirements for activities involving removals under the Article 6.4 mechanism;
 - Impact: Possible amendments of this standard
- In the future: amendment to the standard to address large-scale crediting programmes (including potentially at jurisdictional level)



Tool: Reversal risk assessment including:

- (a) Whether upper limits are needed in respect of the risk rating (overall) or specific risk factors (within the tool), including options and science-based rationales for upper limit(s);
- (b) Risk rating that constitutes a negligible risk;
- (c) Any further categorization of risk; and
- (d) How remediation measures are taken into account in the risk assessment tool.

Tentative structure of the “Tool: Reversal risk assessment”,

- (i) Procedure for the reversal risk assessment;
- (ii) Procedure for calculating reversal risk mitigation;
- (iii) Procedure for determining an activity’s combined reversal risk rating; and
- (iv) Procedure for producing an activity’s contribution to the buffer pool.





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Additional information:

a) *IPCC guidance provides the following uncertainty scales:*

Table 1. Likelihood Scale	
Term*	Likelihood of the Outcome
<i>Virtually certain</i>	99-100% probability
<i>Very likely</i>	90-100% probability
<i>Likely</i>	66-100% probability
<i>About as likely as not</i>	33 to 66% probability
<i>Unlikely</i>	0-33% probability
<i>Very unlikely</i>	0-10% probability
<i>Exceptionally unlikely</i>	0-1% probability





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Menu:

- 1. Post-crediting monitoring horizons and rationales**
- 2. Negligible risk & time horizon for negligible risk**
- 3. Concept note para 62 Removal Standard – additional remediation options**



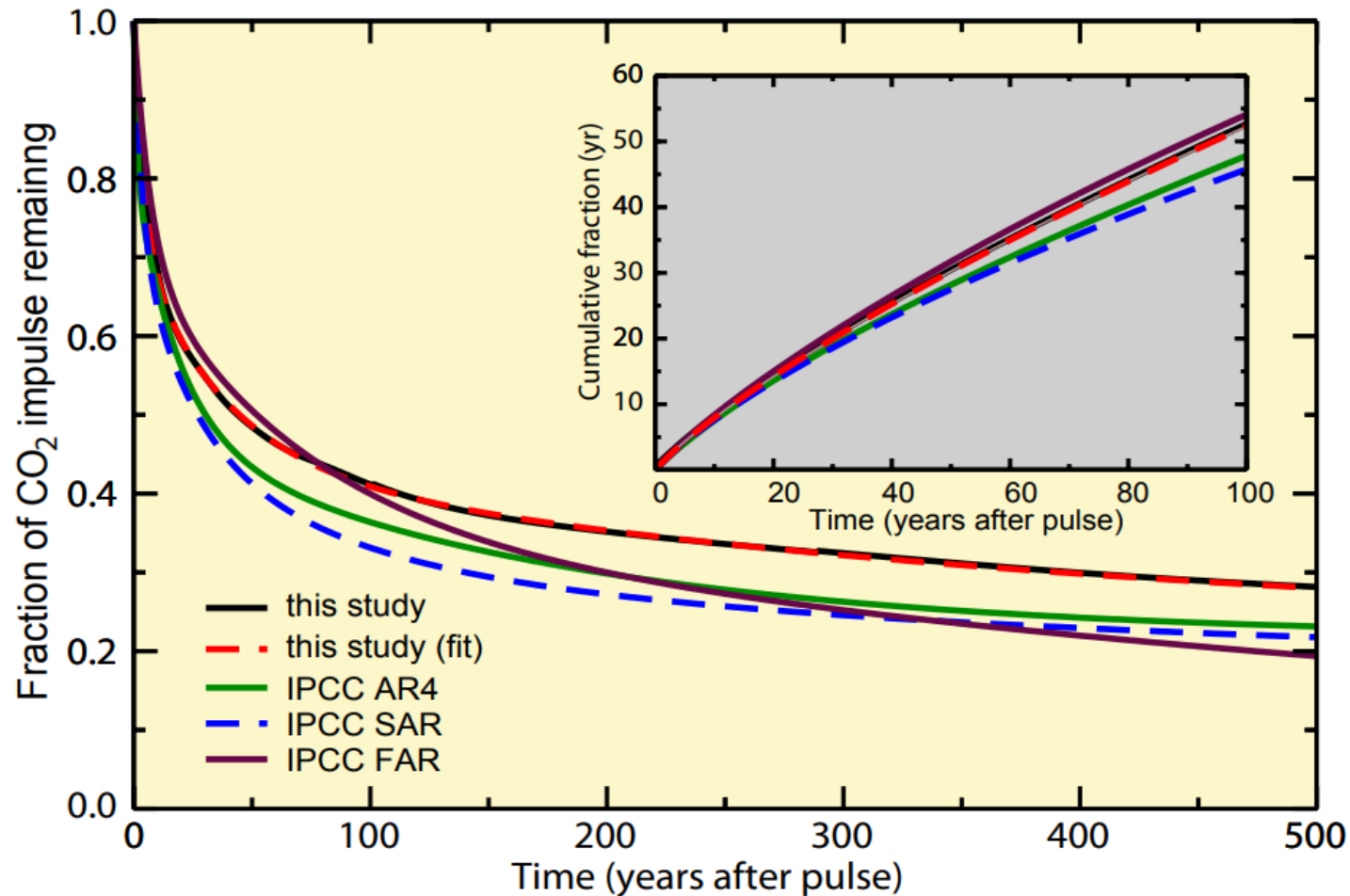
Post-crediting monitoring horizons & rationales



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Fraction of CO₂ impulse remaining over time



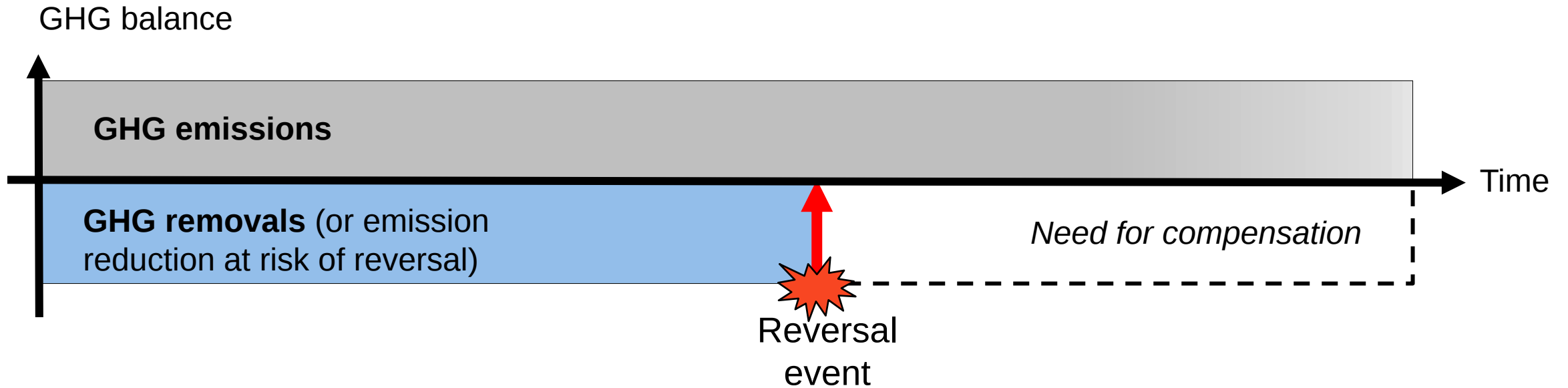
Source: Joos et al. (2013, p. 2815)



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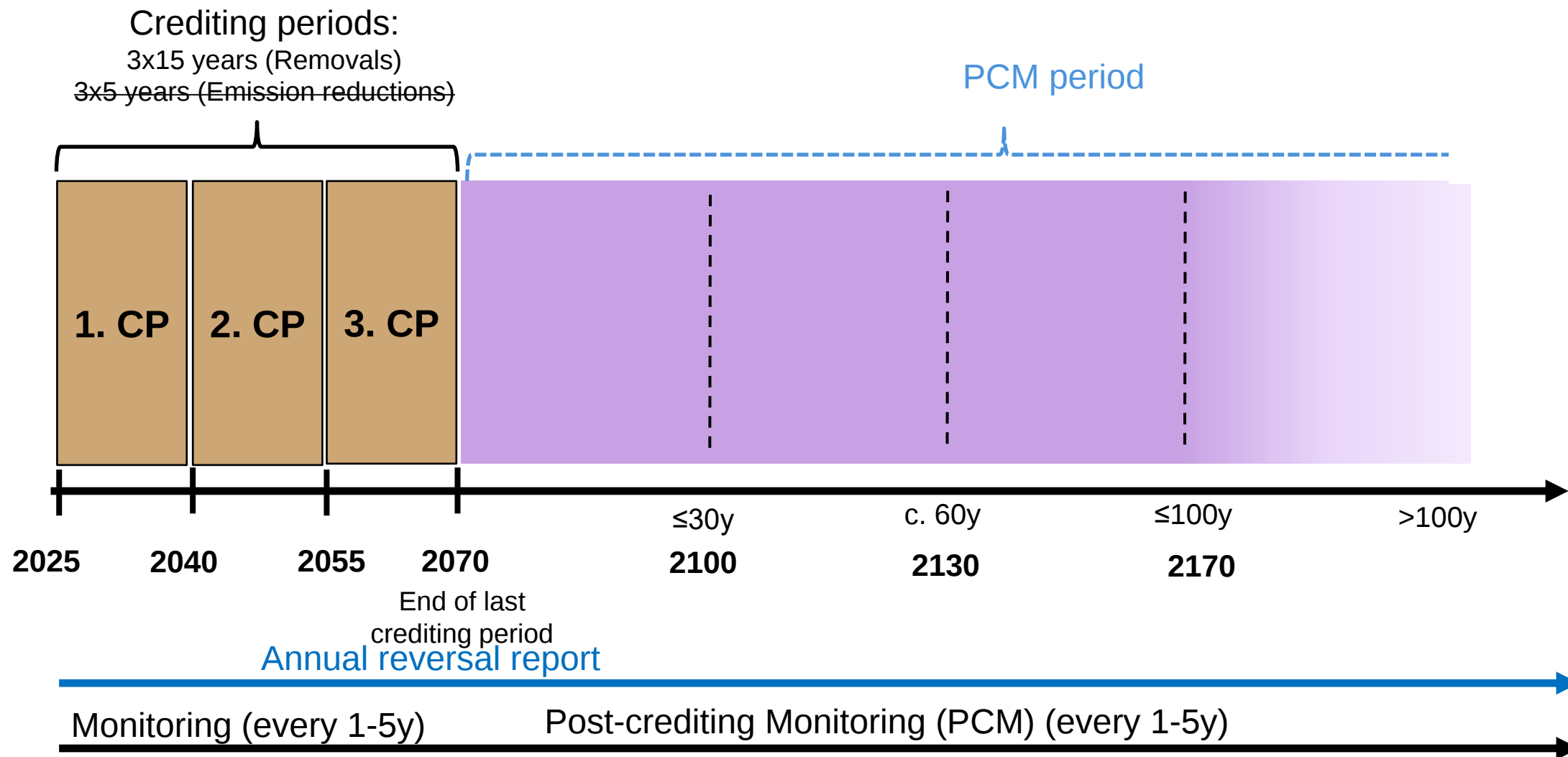
Years [x] at the expense of the atmospheric system



- GHG removals can compensate GHG emissions (fungibility)
- In case of GHG reversal (and in the absence of compensation), the balance between emissions and removals is disrupted
 - ➔ The result is at the **expense of the atmospheric system**



Monitoring and reporting in the PCM period



Two levels of reversal risks to deal with

1. During PCM

- Institutional risk
 - Walk away risk (lack of incentive to remain in charge?)
 - Bankruptcy (lack of trustee?)
- Physical risk

2. Post-PCM reversal

- Institutional risk:
 - Physical risk:
- } Who is the safety net to catch the risk after PCM?



Post-crediting monitoring horizons & rationalities

Potential options and/or combinations which could be explored for the post-crediting monitoring and reversal compensation liability

Reversal remediation and monitoring liabilities		
Current proposal: beyond 100 yrs or indefinite	Time-bound (ex. [X] yrs)	Negligible risk/ transfer to or insurance of liability from 3 rd Party
↑ Higher likelihood of LT-permanence	↑ More conducive to investments	↑ More conducive to investments ↑ Permanence (or compensation) is ensured by a 3 rd Party
↓ Not conducive to investments ↓ May exceed Paris Agreement longest timelines ↓ Bankruptcies and related events may limit permanence (<i>unless trustees are available in such a case</i>) ↓ <i>Institutional perennity</i>	↓↓ Reversal after limited PCM period is at the expense of the atmospheric system	↓ Depending on the scale of the project, may require financially robust entity ↓ Level of permanence depends on the perennity of the 3 rd Party (e.g. Parties vs. private sector)



[Years = x] at the expense of the atmospheric system in different PCM horizons

Time-bound >100 years (see discussions in Brunner et al, 2024; Room et al., 2025)	Time-bound ≤100, or CPs & ±60 years (see Michaelowa et al., 2025)	Time-bound 40-45 years (Z. Parisa et al, 2022)	Time-bound ≤30 years (see dif. views in Brunner et al 2024; Streck et al., 2024)
↑ Highest likelihood of LT-permanence ↑ Higher quality credits ↑ Lowest environmental cost	↑ Higher likelihood of LT-permanence ↑ Lower environmental cost ↑ More conducive to investments	↑ More conducive to investments	↑ More conducive to investments ->CO_{2storage} varies per activity ->Only valuable if any re-released CO₂ replaced with equivalent new CDR
↓ Least conducive to investments ↓ May exceed Paris Agreement timelines ↓ Bankruptcies and related events may limit permanence (<i>unless trustees are available in such a case</i>) ↓ Institutional perennity	↓ [May] exceed Paris Agreement longest timelines ↓ Bankruptcies and related events may limit permanence (<i>unless trustees are available in such a case</i>) ↓ Institutional perennity	↓ Reversal after limited PCM period is at the expense of the atmospheric system ↓ Permanence depends on the perennity of the 3rd Party and/or insurance ↓ Medium environmental cost	↓ Reversal after limited PCM period is at the expense of the atmospheric system ↓ Permanence depends on the perennity of the 3rd Party and/or insurance ↓ Higher environmental cost



Negligible risk & time horizon for negligible risk



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Time horizon for considering negligible risk – Why 100 years?

100 years: used for global warming potential

➔ **Global Warming Potential (GWP):** primary metric to compare the integrated radiative forcing of a given greenhouse gas to that of CO₂ (over a fixed time horizon).

- **GWP100** means this integration is done over **100 years**. So, for example, methane has a GWP100 of ~27–30 (IPCC AR6), meaning one tonne CH₄ warms about 27–30 times as much as one tonne CO₂ over the century following emission.
- **Carbon accounting** already commonly uses 100 years as the “**standardised equivalence**” for comparing gases

➔ A shorter time horizon: may undervalue the risk

➔ A longer time horizon: may be difficult to implement

☞ This is not to be interpreted as CO₂ will disappear after 100y



Negligible risk threshold

Wording from the Removal Standard: Negligible risk

- Implication is that a negligible share of issued A6.4ERs would be lost (i.e. reversed)
- IPCC (in uncertainty scales) defines
 - “**virtually certain**” as a **99% to 100%** likelihood
 - “**very likely**” as a **90% to 100%** likelihood
- No clear threshold on negligible risk found from the insurance world

Other wordings proposed by stakeholders: “Acceptable risk”

- More difficult to define
- Not aligned with the removal standard

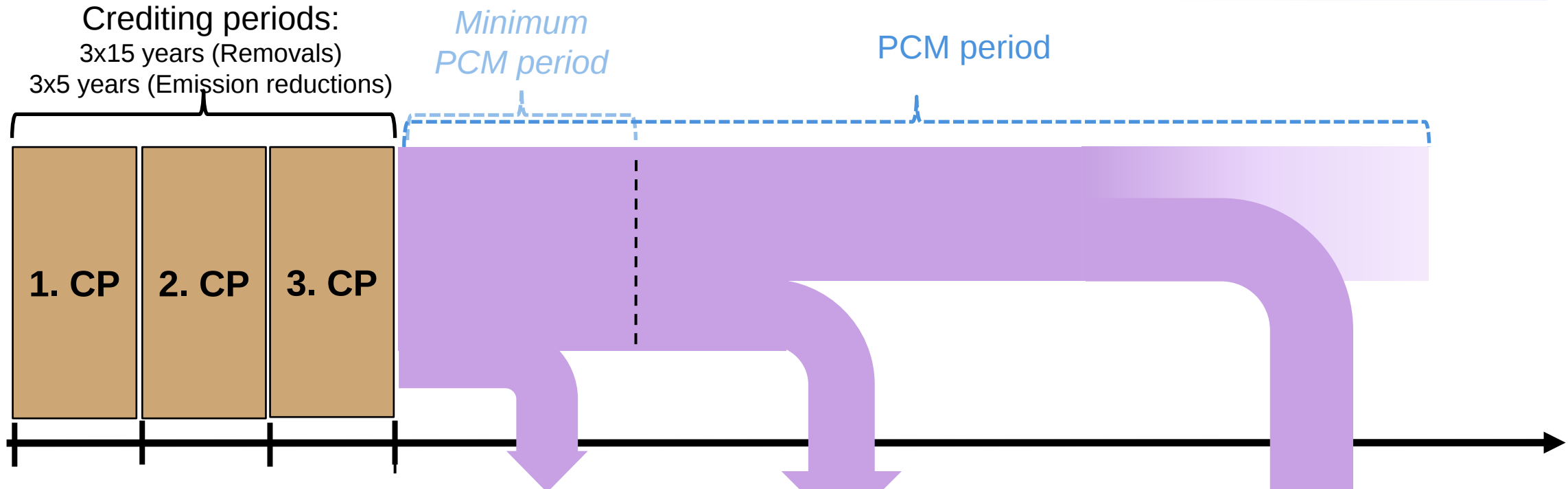
➔ Is the gross risk or the net risk considered (after measures to mitigate the risk such as buffer pool contribution and risk mitigation plan)?

Table 1. Likelihood Scale	
Term*	Likelihood of the Outcome
<i>Virtually certain</i>	99-100% probability
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*IPCC (2010; 2019)



After PCM, and NR insights... What other PCM termination options are available?



Termination option 1: restating para 62 (Removals)

- Under which other conditions can 28b (from Removals) be operationalized?
- 28b can fit in: Sec. 3.2.1. of Reversals ->Remediation of potential future reversals
- > Buffer pool contribution, insurance and/or 3rd party guarantee, and justification

Termination option 2:

- [x] Negligible risk of reversal

Other termination options:

- >Next slides on CN: P62



Concept note paragraph 62 Removal Standard – additional remediation options



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Additional information: paragraph 62 of the Removal Standard:

62. The Supervisory Body will consider and implement any potential remedial actions necessary to manage risks to the robustness of the Reversal Risk Buffer Pool Account, including ongoing consideration of **measures to remediate reversals** and ensure the resilience, sufficiency, and solvency of the Reversal Risk Buffer Pool Account, and other appropriate measures and **procedures that may provide suitable alternative means to remediate reversals**, including the following:

- a) Requirements and approval procedures for the use of insurance policies, or comparable guarantee products, or third-party guarantee approved by the Supervisory Body to cover the risk that reversals occur;
- b) Procedures for establishing, managing, and using a monetary permanence reserve enabling remediation of reversals through the direct or potentially centralized purchase and cancellation of A6.4ERs with negligible or no reversal risk.



Concept Note Para 62 Removal Standard

Additional information: Paragraph 62 of the Removal Standard

➔ Is part of **section 4.6.3 Remediation of reversals**.

➔ Considered therefore to all as option of **paragraph 28 of the Removal Standard**:

28: The activity participants may request the Supervisory Body **to allow termination of the post-crediting monitoring** if they can demonstrate, by providing transparent and verifiable information, that:

- a) The **stored GHGs are at a negligible risk of reversal**; or
- b) The **potential future reversals are remediated** in accordance with the provisions of section 4.6.3 Remediation of reversals.

➔ New forms of remediation as per para. 28(b) may open new sub-options for termination



Concept Note Para 62 Removal Standard

Additional information: Options for transferring or insuring the reversal liability and monitoring obligation (selected on a voluntary basis)

Monitoring obligation	Reversal compensation	
	Liability	Insurance
Host Party Carbon standard Other 3 rd Party entity / provider	Host Party Buying Party Fund Permanence trust Monetary permanence reserve Trustee (e.g. in case of default/bankruptcy)	Insurance company / fund Monetary permanence reserve Increase use of buffer pool Party (host/buying Party/shared) “Contracted permanence” (e.g. from aggregator)

👉 Note: Post-crediting liability requires post-crediting monitoring (PCM)



Concept note para 62 Removal Standard

Options for time-bound obligation/liability combined with:

- ➔ No further measures
- ➔ Transfer of obligation/liability to 3rd party entity
 - Could be Party, non-State actor, multilateral organization, etc.
 - May potentially include revolving insurance (renewable tranches of **X years** – similar to real estate)
- ➔ Increased contributions [**in permanence trust**] [**in buffer pool**]
 - To compensate for reversals
- ➔ Reduced or gradual crediting/issuance (e.g. **X% for Y% of 100 years**)
 - Linear crediting/issuance (e.g. **50% for 50 years**)
 - Decreasing crediting/issuance (e.g. **70% for 50 years and 85% for 70 years**)



References:

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- End of the presentation

