Gold Standard
for the Global Goals

METHODOLOGY STANDARD
GS4GG PAA MS400-04

REQUIREMENTS FOR BASELINE DETERMINATION IN METHODOLOGIES

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SUMMARY

This document details the criteria for establishing baselines within methodologies endorsed by the Gold Standard for Global Goals (GS4GG), thereby ensuring alignment with the Procedure for development, revision, and clarification of methodologies and methodological tools – Gold Standard for the Global Goals.

This document specifically:

- Provides comprehensive requirements, definitions, principles, and general requirements for methodologies related to baselines.
- Outlines approaches for setting baselines below "business as usual" and includes the concept of "downward adjustment"
- Sets overarching requirements and guidance for baseline determination.
- Aligns with the Gold Standard's Methodology Requirements.
- Provides details on implementing general approaches for baseline setting and downward adjustment.
- Establishes application guidelines for baseline approaches at various aggregation levels.
- Ensures alignment with the Paris Agreement's long-term temperature goal.
- Defines the downward adjustment process for consistency with paragraph 33 of the A6.4 RMP.

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1| SCOPE AND ENTRY INTO FORCE

1.1 | Scope

1.1.1 | This methodology standard outlines the requirements for setting the crediting baseline in methodologies developed under Gold Standard for Global Goals (GS4GG). It ensures alignment with GS4GG core principles, GS4GG Methodology Development requirements, and the foundational requirements of the Paris Agreement.

1.1.2 | It specifies the criteria that methodologies shall meet for approval under GS4GG, including:

a. Identifying the baseline scenario and determining baseline emissions and/or removals.

b. Establishing standardised baselines for sector-specific applications at an appropriate level of aggregation.

1.1.3 | This standard expands on the general requirements described in the "Procedure for Development, Revision, and Clarification of Methodologies and Methodological Tools" specifically referring to Chapter V B - Methodologies, Paragraphs 33-39 of the Article 6.4 RMPs of the Paris Agreement.

1.1.4 | This standard shall be applied by methodology developers in developing methodologies and by the GS4GG Secretariat, the Methodological Expert Group (MEG), and the Technical Advisory Committee (TAC) in assessing and approving GS4GG methodologies. This standard is not intended for direct application in the preparation of Project Design Documents (PDDs) or monitoring reports, unless explicitly required by the applied methodology.

1.2 | Entry into force

1.2.1 | This document comes into force on the date of publication.

2| DEFINITIONS

2.1.1 | In addition to the terms and definitions listed in GS4GG Glossary, the following definitions apply for this standard.

Table 1. Terms and Definitions

Term	Definition
Activity Developer/ Project developer	Leading individual or entity that is responsible for the development of a Project Activity that is seeking, or has achieved, Certification by the Gold Standard.
Applicability conditions	Conditions that specify contexts, configurations and cases in which methodologies can be applied to proposed activities while ensuring environmental integrity.

Baseline geographical reference area	The geographical area assessed for setting the crediting baseline.
Best available technology (BAT)	The practice or technology in a given scope (e.g. sector and baseline geographical area) that: a. Provides a similar output as the proposed activity; b. Represents an economically feasible and environmentally sound course of action; c. Is available in the baseline geographical area, meaning accessible off the shelf, or via a tendering or direct contracting process, or by direct implementation by an end user within the boundary of potential activities; and d. Results in the lowest emissions or largest removals per unit of output among all practices and/or technologies that fulfil the conditions a to c.
Best performing comparable activities	The activities that provide outputs within a top segment of performance in terms of greenhouse gas (GHG) emissions or removals per unit of output, considering all activities that provide similar outputs in a baseline geographical reference area.
Business as usual (BAU)	A Plausible reference benchmark or scenario for GHG emissions or removals prior to or in the absence of the implementation of the proposed activity. It may be a scenario, emission or removal level, or an emissions or removals intensity.
Crediting Baseline	A reference emission or removals level, against which the volume of emission reductions or net removals achieved by the activity is quantified.
Legal requirements	Laws, statutes, regulations, court orders, decrees, consent agreements, executive orders, permitting conditions or any other legally binding mandates, noting that regulatory environments may vary.
Level of aggregation	The extent to which consolidation of information from any parts or units to form a collective whole is undertaken.
Level of service	The quality, reliability and scale of an output provided by an activity and/or in the baseline scenario.
Output	Each good or service[1] provided by the activity and/or in the baseline scenario (for example, efficient appliance, electricity, cooking energy, municipal waste management,

[1] For example, electricity, cooking energy, municipal waste management, and so forth.

	and so forth), as specified in the methodology.
Policies	All national or sub-national policies that are applicable to the relevant activity and its alternatives, including: policies and legal requirements; subsidies and incentives (e.g., incentives from carbon pricing schemes such as emission trading schemes or from guarantees of origin); taxes and tax breaks; fees; performance standards; or other specified instruments or means of implementation. This shall also include any specific national or sub-national targets for the sector or the type of activity, as long as these are supported by policy frameworks for implementation, but not general goals (e.g., a national emissions target) that are not specific to the sector or type of activity.
Pool of users	For activities related to outputs, the pool of users consists of the user(s) supplied with the outputs by the activity.
Remaining lifetime	The period during which an equipment would continue operating and/or a certain practice would remain in place without undergoing major repair or overhaul as specified in the methodology, given limitations such as technical lifetime, economic lifetime, legal requirements, policies, or any other factor which would lead to the discontinuation of the use of the equipment and/or practice.
Sector	A segment of a national economy that delivers defined output(s) (e.g. municipal waste management, household cooking energy, electricity, residential, cooling, freight transportation)
Standardized baseline	A standardisation developed on a subnational, national, or group-of-Parties basis rather than on activity-specific basis to facilitate the determination of the baseline, calculation of GHG emission reductions or removals and/or the determination of additionality, while ensuring environmental integrity within the scope of the standardised baseline.[2]

2.1.2 | The document employs specific terms to indicate varying levels of requirements and possibilities: "shall" for mandatory provisions, "should" for recommendations, "may" for options or permissions, and "can" for multiple possible options. These terms are consistently used throughout the

[2] Based on the definition provided in A6.4-STAN-METH-001, para. 63. Available at: https://unfccc.int/sites/default/files/resource/A6.4-STAN-METH-001.pdf

document to clearly differentiate between requirements, recommendations, and possibilities.

3| NORMATIVE REFERENCE

3.1.1 | This methodology standard refers to the latest approved versions of the following documents:

3.1.1.1. GS4GG Standards and Tools

a. Procedure for Development, Revision, and Clarification of Methodologies and Methodological Tools
b. Methodology Standard - Requirements for additionality demonstration
c. Methodology Standard - Requirements for Methodology Development
d. GS4GG Tool: Downward Adjustment Factor (DAF) Determination (GS4GG PAA MT400-05)

3.1.1.2. Paris Agreement Crediting Mechanism (PACM)/Article 6.4

a. Setting the baseline in mechanism methodologies (A6.4-STAN-METH-004) Version 01.0

4| APPLICABILITY

4.1.1 | This standard applies to all methodologies and methodological tools submitted for GS4GG approval and may undergo periodic amendments for further refinement. For simplicity, only the term methodology is used in this standard.

4.1.2 | The standard is primarily applicable to methodologies for activities undertaken at the project level, including Programmes of Activities (PoAs). The standard applies to both emission reductions and net removals. It may be amended in the future to cover other scales (e.g., policies, sectoral approaches).

4.1.3 | **Application to GS4GG and PACM Methodologies**

4.1.3.1. **GS4GG Methodologies:** All methodologies developed specifically under the GS4GG shall adhere to the requirements outlined in this document, including the specific approaches for downward adjustment (Section 9.2 |) and conservative BAU determination (Section 10|).

4.1.3.2. **PACM (Article 6.4) Methodologies:** Methodologies approved under the UNFCCC Article 6.4 Mechanism (PACM) and approved by GS4GG shall follow the requirements stipulated in the approved PACM methodology and the A6.4 Standard for Setting the baseline in mechanism methodologies, unless otherwise confirmed by the methodology approval. Where PACM methodologies are applied, the specific procedures defined within the PACM framework shall apply (summarized in Sections 9.3 |and 10|).

4.1.4 | The methodology developer shall apply the most recent version of this document available when submitting the methodology draft for review and approval, following the procedure outlined in Procedure for Development, Revision, and Clarification of Methodologies and Methodological Tools.

5| GENERAL PRINCIPLES

5.1.1 | The establishment of crediting baselines is guided by the below principles, ensuring that the methodologies for identifying the baseline scenario and determining baseline emissions/ removals are robust and transparent – in general guided by the core principles of fairness, reliability, conservativeness, and pragmatism. These principles shall collectively be the basis for, and guide to, the development and approval of methodologies, including the formulation of standardized baselines:

a. **Accuracy:** Bias and uncertainties in both quantitative and non-quantitative information shall be reduced as far as is practical.
b. **Below business as usual:** The determined crediting baseline shall be below a conservatively determined BAU emissions level.
c. **Completeness**: All relevant information to support the baseline setting shall be included.
d. **Conservativeness:** In the context of baseline setting, conservativeness is the use of data, parameters, assumptions, and methods to ensure that baseline emissions are not overestimated, and baseline removals are not underestimated. Only credible sources shall be used that are appropriate to the context of the type of activity
e. **Consistency:** The application of methods ensures consistent results across similar circumstances.
f. **Encourage ambition over time**: Crediting baselines shall decrease over time to encourage ambition of activities.
g. **Real**: The results of activities represent actual tonnes of GHG emission reductions or net removals derived from credible methods for estimating mitigation outcomes.
h. **Relevance:** Data, parameters, assumptions, and methods used for setting the crediting baseline shall not be misleading and only verifiable data and parameters that may have an impact on the outcome of setting the crediting baseline shall be included.
i. **Transparency:** Sufficient and appropriate information shall be disclosed to allow intended users to make decisions with reasonable confidence. Transparency relates to clearly stating all data, parameters, assumptions and methods applied; referencing background material; stating documentation changes and stating and justifying all data, parameters, methods and assumptions made such that the outcomes can be reproduced.

6| GENERAL REQUIREMENTS

6.1 | General requirements for quantification

6.1.1 | GS4GG methodologies shall satisfy the general requirements for methodologies included in Appendix 1 of this standard.

6.2 | Description for pre-activity scenario

6.2.1 | GS4GG methodologies shall require Activity developers to describe the pre-activity scenario in the Project Design Document (PDD). The pre-activity scenario refers to the circumstances immediately prior to the implementation of the proposed activity. This description shall encompass:

a. The existing conditions directly at the implementation site (the default approach);
b. The conditions expected in the absence of policies that utilize this mechanism as an implementation instrument; or
c. For distributed technologies serving households, communities, or small and medium enterprises, the prevailing conditions for delivering the activity's output within the baseline geographical reference area.

6.3 | Data requirements for baseline setting and quantification

6.3.1 | The accurate setting of baselines and the subsequent quantification of emissions and/or removals within the context of activities are contingent upon rigorous data management. The methodologies shall establish clear and comprehensive requirements for data acquisition and utilization. The key data requirements are as follows:

6.3.1.1. **Specification of Data Elements:** The methodologies shall mandate precisely the delineation of the underlying assumptions, operational parameters, data sources, and influential factors employed in both the determination of the baseline scenario and the quantification of baseline emissions and/or removals. Furthermore, the methodologies shall specify the requisite standards for data quality, including considerations of its vintage (age), availability, and overall credibility.

6.3.1.2. **Appropriate Data Sourcing:** Methodologies shall require data to be sourced from the most appropriate data source. This may include proprietary data held by activity developers or publicly accessible information provided by third parties. The selection of data sources shall prioritize credibility and contextual suitability for the specific activity type. Credibility shall be assessed based on the vintage, accreditation of the source (where applicable), peer-review status, and official status (e.g., government or recognized international body statistics). Pertinent third-party data sources may include, but are not limited to, publications from the Intergovernmental Panel on Climate Change (IPCC), peer-reviewed

scientific literature, results from tests conducted by accredited entities in accordance with recognized standards, and official reports or statistics issued by governmental bodies, multilateral organizations, or relevant industry and sector-specific associations.

6.3.1.3. **Transparency and Justification of Data:** The methodologies shall mandate that activity developers and developers of standardized baselines to provide a transparent enumeration and detailed description of all data sources utilized. This necessitates a thorough justification concerning the vintage, relevance, accuracy, and conservativeness of the chosen data. All data employed shall be explicitly referenced and cited. In cases where specific values, analytical approaches, or data sources are exclusively applicable to predefined scopes (e.g., particular geographical regions or economic sectors), the respective methodologies or standardized baselines shall clearly articulate the precise scope of applicability for such elements.

6.3.1.4. **Transparent Determination and Uncertainty Consideration:** The baseline scenario and the associated baseline emissions and/or removals shall be determined in a transparent manner. The methodologies are also required to systematically account for the inherent uncertainty associated with both the establishment of the baseline scenario and the quantification of emissions and/or removals. This consideration shall align with relevant IPCC guidelines and encompass all contributing factors to uncertainty, including assumptions made, equations or models employed, and parameters or measurements utilized. While a comprehensive consideration of uncertainty is expected, the focus may be judiciously limited to those causes of uncertainty most pertinent to the specific activity (e.g., the uncertainty associated with minor baseline emission sources may not warrant extensive consideration). Expert judgment may serve as a valid approach in the quantification of uncertainties, alongside other methodologies prescribed by relevant IPCC guidelines.

6.3.1.5. **Approaches to Addressing Uncertainty:** Diverse approaches may be employed to effectively address uncertainty.

a. Scenario Uncertainty: In situations where uncertainty exists in the selection of the baseline scenario, the most conservative plausible scenario shall be chosen.

b. Quantification Uncertainty: For determining baseline emissions and/or removals, uncertainty shall be addressed using one of the following approaches, as specified in the methodology:

i. Parameter-Level Assessment (Preferred for GS4GG): Applying conservativeness factors or statistical adjustments (e.g., using the lower or upper bound of a confidence interval) directly to individual parameters used in the baseline calculation. The degree of conservativeness applied shall be inversely proportional to the demonstrated data quality and certainty. Methodologies shall incentivize robust

MRV by allowing less stringent conservativeness factors only when uncertainty is demonstrably low.

ii. Overall Baseline Assessment: Quantifying the overall uncertainty of the baseline emissions/removals (e.g., using error propagation) and applying a downward adjustment based on this quantification. This approach is typically used in PACM methodologies.

6.4 | Standardisation of Baselines

6.4.1 | The standardisation of baseline scenarios and crediting baselines within methodologies is highly encouraged to mitigate the risk of selection bias inherent in project-specific approaches, which could otherwise lead to an overestimation of baseline emissions or an underestimation of baseline removals. Such standardization may be achieved through the application of the Best Available Technology (BAT) or ambitious benchmark approaches to baseline setting, or alternatively, through the judicious use of default values which may be derived from existing actual or historical emissions data.

6.5 | Justification of Methodological Choices and Assumptions

6.5.1 | The methodology developer shall provide a thorough justification for all methodological choices and assumptions made in the process of determining both the baseline scenario and the crediting baseline.

7| APPROACHES TO SETTING THE CREDITING BASELINE

7.1 | Summary of the step-wise approach to determining the crediting baseline

7.1.1 | The methodologies shall specify the procedure for determining the crediting baseline, in accordance with the step-wise approach in figure 1 and described below.

7.2 | Step 1: Selection of one of the baseline approaches

7.2.1 | The methodologies shall specify which of the baseline approaches, as articulated in paragraph 36 of the Rules, Modalities and Procedures (RMPs), is selected for determining the crediting baseline for the activity. It is permissible for methodologies to apply distinct baseline approaches to different components of a single activity. For example, in an activity involving the capture of landfill gas and its subsequent utilization for energy generation, one baseline approach may be applied to the gas capture component, while a separate approach is employed for the energy generation component. The chosen approach shall rigorously satisfy the applicability conditions detailed in Section 8| of this document. Furthermore, the methodology developer shall consider the guidance

provided in Section 8|regarding the suitability of various approaches under diverse circumstances and shall provide a comprehensive justification for the appropriateness of the selected approach from options (i) to (iii) of paragraph 36 of the RMPs.

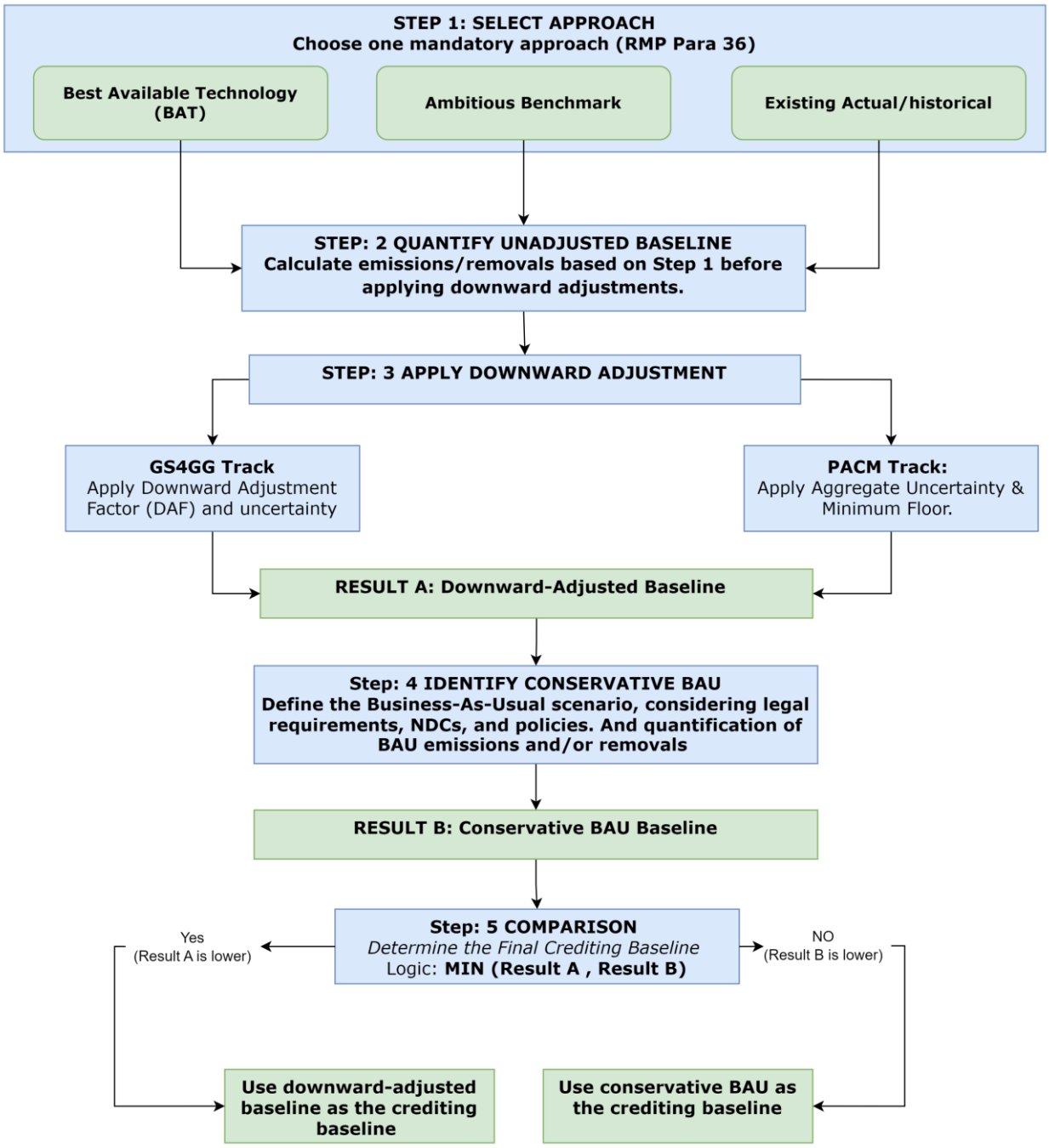

Figure 1. Baseline Determination Steps

7.3 | Step 2: Application of the Selected Baseline Approach Prior to Downward Adjustment

7.3.1 | The methodologies shall explicitly define the methodology by which the chosen approach is applied to determine the baseline scenario and quantify

the associated baseline emissions and/or removals, prior to any subsequent downward adjustments.

7.3.2 | The methodologies shall define and substantiate, or mandate that activity developer define and substantiate, the baseline geographical reference area, considering the primary baseline sources or sinks. This reference area may encompass global, regional, national, sub-national, or site-specific scopes. An activity type that supplies a globally traded commodity (e.g., aluminium) to an international user base may necessitate the consideration of global conditions when establishing the crediting baseline. Conversely, certain activity types may exert influence on baseline emissions exclusively within a highly constrained geographical scope, or even at a singular site.[3]

7.3.3 | To determine the baseline scenario, the methodology shall either:

a. explicitly specify and justify the baseline scenario; or
b. include a systematic, stepwise procedure for how activity developer or host countries shall determine the baseline scenario.

7.3.4 | The procedures and methodological approaches referenced in paragraph above shall conform to the requirements delineated in Section 8| of this standard.

7.3.5 | The methodologies may employ discrete approaches to demonstrate additionality and ascertain the baseline scenario, or they may utilise a combined approach that concurrently achieves both objectives, contingent upon the selected methodology. Specifically, the application of Best Available Technology (BAT) or an ambitious benchmark may facilitate the simultaneous determination of the baseline scenario and the implementation of "performance-based approaches" in demonstrating additionality (refer to the Methodology Standard: Requirements for additionality Demonstration). In instances where a combined approach is adopted, both this standard and the Methodology Standard: Requirements for additionality Demonstration shall apply.

7.3.6 | The methodologies shall specify the methods for quantifying baseline emissions and/or removals. The methodology shall also stipulate the potential baseline scenarios to which their quantification methods are applicable. The methodological approaches shall adhere to the requirements set forth in Section 8| of this standard.

7.3.7 | Under all three approaches delineated in paragraph 36 of the RMPs, mechanism methodologies shall determine whether any temporal trends in emissions, removals, or emission/removal intensity (i.e., per unit of output) should be integrated into the baseline quantification. Such trends may arise from factors such as technological advancements over time or the influence of specific policies. This integration is essential if such trends are projected

[3] For example, in the case of switching to a low-emission energy source or feedstock in a specific plant, only site-specific conditions may need to be considered when setting the crediting baseline.

to exert a material impact on the emissions, removals, or emission/removal intensity within the baseline scenario. Where such trends are deemed relevant, methodologies may account for them by establishing a baseline that exhibits a decline over time or by setting the baseline at a sufficiently ambitious level to adequately address these evolving trends.

7.4 | Step 3: Application of the Downward Adjustment

7.4.1 | The methodologies shall specify the precise method for determining the downward adjustment, encompassing both its quantification and the subsequent quantification of the resultant downward-adjusted baseline. The approach depends on the methodology type, as detailed in Section 9|:

7.4.1.1. **GS4GG Methodologies:** Shall apply the downward adjustment Factor (DAF) approach for ambition accounting (Section 9.2 |).

7.4.1.2. **PACM Methodologies:** Shall apply the downward adjustment procedures as stipulated in the A6.4 Standard (Section 9.3 |).

7.4.2 | Where baseline approaches from RMP paragraph 36 (i) or (ii) have been selected, exemptions from the downward adjustment may be applicable under specific circumstances, subject to the provisions outlined in Section 9.2 |. Should such exemptions be proposed, the methodology developer is required to provide appropriate justification.

7.4.3 | The procedures and methodological approaches for determining the downward adjustment shall conform to the requirements stipulated in Section 9|.

7.4.4 | The downward-adjusted baseline shall be calculated as the baseline emissions and/or removals determined in Step 2, subsequently reduced by the quantified downward adjustment in accordance with the requirements of Section 9|. It is to be noted that for both emissions and removals baselines, the downward adjustment is subtracted, with removals assigned a negative value and emissions a positive value or any alternative approach that achieve the same objective.

7.5 | Step 4: Identification of a Conservative Business-As-Usual Baseline

7.5.1 | In this step, methodologies shall specify the method for determining a conservative business-as-usual (BAU) baseline. This includes the definition of the BAU scenario and the quantification of the emissions and/or removals projected to occur within that BAU scenario. The methodological approaches employed shall adhere to the requirements set forth in Section 10|.

7.6 | Step 5: Comparison of the Downward-Adjusted Baseline and the Conservative Business-As-Usual Baseline

7.6.1 | In this final step, methodologies shall mandate activity developers to conduct a comparison between the downward-adjusted baseline and the

conservative BAU baseline. Furthermore, the methodologies shall specify the procedures and methodological approaches for selecting the ultimate crediting baseline, in accordance with the requirements detailed in Section 11|.

7.7 | Application of the baseline approaches at different level of aggregation

7.7.1 | The baseline scenario, or the parameters utilized to quantify the crediting baseline for emissions and/or removals (e.g., baseline emission factors), may be applied at various levels of aggregation and by different entities:

7.7.1.1. **Methodology developer:** The methodology developer may determine the baseline scenario or parameters for quantifying baseline emissions and/or removals for all, or a defined subset of, proposed activities eligible under the methodology. For instance, methodology may establish the baseline scenario as the consumption of power from the electric grid and, accordingly, provide methods for determining the grid emission factor to quantify baseline emissions. The methodology developer shall provide documented evidence and justifications within the methodology to substantiate the applicability of the scenario and/or parameters to the relevant activities. The methodology may then formally state that these aspects are considered applicable to the relevant activities, provided that the specified applicability criteria or conditions within the methodology are satisfied. Regular revision of the methodology may be necessary to incorporate updated underlying analyses. Therefore, methodology developer shall specify the duration of the proposed methodology's validity (e.g., three years). In cases where the application of standardization is mandatory, this shall be explicitly stated within the methodology.

7.7.1.2. **Activity developer:** The methodology developer may specify within the methodology the procedures for how the baseline scenario shall be determined and/or how baseline emissions and/or removals shall be quantified by each individual activity applying the methodology. This procedure shall then be rigorously applied by each proposed activity. For example, a methodology might provide a method for each activity to quantify existing actual or historical emissions and a corresponding downward adjustment factor.

7.7.1.3. **Host countries:** The methodology developer shall specify within the methodology which approaches, parameters, or conditions may or shall be demonstrated through the submission of a proposed standardized baseline by host countries. This may encompass standardisation related to baseline setting, baseline quantification, or additionality demonstration. Standardization could also pertain exclusively to a specific parameter, such as the grid emission factor or the fraction of non-renewable biomass. Where the application of the standardized baseline is mandatory, this shall be explicitly stated within the standardised baseline document.

8| APPLICATION OF BASELINE APPROACHES FROM PARAGRAPH 36 OF RMPs

8.1 | General requirement

8.1.1 | This section sets out how the approaches for setting the baseline referred to in paragraph 36 of the RMP shall be implemented in methodologies. The section complements the requirements set out in Step 2 of Section 7|.

8.2 | Best available technology (BAT) approach

8.2.1 | **Applicability**

8.2.1.1. Methodologies may determine the baseline using this approach where the following applies

a. The emissions or removals per output are determined primarily by the technology(ies) or practice(s) used in the activity; and

b. Best available technology (BAT) can be determined with the available data.

8.2.1.2. This approach may be particularly suitable where:

a. An activity consists of a single technology or practice, or a clearly defined set of technologies/practices providing a similar service (e.g., substitution/installation of new equipment such as clean cooking activities); and/or

b. The activity and alternative technologies and/or practices provide reasonably homogeneous outputs (i.e., they produce similar outputs for the pool of users).

8.2.1.3. If the proposed methodology falls within the scope of the sector or activity type identified by the host party to apply BAT as default approach, then only BAT is applicable.

8.2.2 | **Level of aggregation at which best available technology is determined**

8.2.2.1. Methodologies shall determine, or provide a procedure for activity participants to determine, the applicability of the BAT baseline, including:

a. Geographic scope;

b. Technologies and/or practices for which it is applicable; and

c. Validity over time.

8.2.2.2. The BAT approach may be applied at different levels and by different entities in line with the description in Section 7.2 | above, including by methodology developer, the activity developer, or by host Parties. Next to such bottom-up approaches, the Secretariat may determine a BAT baseline following a top-down process. BATs determined by these entities shall have the following geographic scopes:

a. Secretariat: global, or a narrower scope set during the determination of the BAT;
b. Host Party: the national boundaries of the Party, or a sub-national scope within the national boundaries;
c. Methodology: the appropriate geographical area as determined in the methodology, or a narrower scope specified in the methodology for a subset of the potential users;
d. Methodology developer: the location of the corresponding activity, or as otherwise specified in the procedure of the methodology.

8.2.3 | **Determination of the BAT baseline scenario**

8.2.3.1. The baseline scenario based on BAT shall be identified as follows:

a. An approved BAT as determined by the Secretariat or by host Parties; or
b. A BAT specifically prescribed by the methodology or ascertained by the activity developer in accordance with a procedure outlined within the methodology.

8.2.3.2. When evaluating whether a technology and/or practice represents an economically feasible course of action, methodologies shall assess whether the technology and/or practice is typically capable of yielding sufficient returns to adequately cover both investment and operational and maintenance costs.

8.2.3.3. For technologies and/or practices deployed within households, the methodology shall precisely define "economically viable course of action" based on the specific type of activity and the distinctive characteristics of the users. This definition may be predicated upon the commonly encountered costs associated with the technology and/or practice, and shall be substantiated by an investment analysis that applies financial parameters accurately reflecting access to finance by households, in a manner that precludes overestimation of financial barriers, alongside other pertinent considerations.

8.2.3.4. When assessing whether a technology and/or practice constitutes an environmentally sound course of action, methodologies shall determine if the technology and/or practice conforms to applicable laws and regulations concerning environmental protection within the relevant geographical area and strives to reasonably minimize environmental harm.[4]

8.2.3.5. Methodologies shall explicitly specify the appropriate baseline geographic reference area for determining the BAT, or alternatively, provide principles and requirements that activity developers shall rigorously apply to establish this area with comprehensive justification.

[4] As assessed on a methodology basis or further defined by the Secretariat

8.2.3.6. The definition of BAT stipulates that the technology and/or practice "is available in the baseline geographical area, meaning accessible off the shelf, or via a tendering or direct contracting process, or by direct implementation by an end user within the boundary of potential activities." Methodologies shall consider that when the activity type is greenfield and has the potential to displace the implementation of new capacity, then availability pertains not solely to the specific activity developer, but extends to any entities that may implement similar technologies and/or practices. Conversely, when the activity type is implemented within existing installations, the availability may be confined to those technologies and/or practices accessible to the activity developers.

8.2.3.7. When the BAT is specified within the methodology or determined by the activity developers in adherence to the procedure detailed in the methodology, the BAT shall be ascertained by diligently applying at least the following sequential steps:

a. Define the technology(ies) and/or practice(s) employed in activity, their respective output(s), target users, sector, and, where pertinent, market penetration.
b. Identify the available technologies and/or practices (and their combinations), consistent with the definitions within this standard, capable of supplying the pool of users within the baseline geographical reference area, at a scale commensurate with implementation at a level analogous to the activity.
c. Identify which of these available technologies are environmentally sound.
d. Identify which of the environmentally sound technologies are also economically viable.
e. Define the emissions or removals intensity of each of the remaining technologies identified in step (d) above as tonnes of carbon dioxide equivalent (tCO_2-eq) per unit of output, based on the average conditions of the technology in the baseline geographical reference area.
f. Identify the remaining technology from step (e) above with the best emissions or removals intensity (i.e., lowest emissions or largest removals per unit of output). This particular technology constitutes the BAT, and its emission or removals intensity forms the foundational basis for the baseline.

8.2.4 | **Determination of Baseline Emissions or Removals**

8.2.4.1. The methodology shall define the procedures to quantify the baseline emissions and/or removals. When the baseline scenario is established using BAT, the quantification of the baseline emissions and/or removals shall also be derived using the emissions or removals intensity (as tCO_2-eq per unit of output) of the identified BAT. However, approaches distinct

from BAT may be utilized to ascertain other parameters requisite for the quantification of baseline emissions and/or removals.

8.2.4.2. The BAT may necessitate regular revision to update the underlying analysis. Consequently, the methodology developer shall specify the duration of the proposed methodology's validity.[5]

8.3 | Ambitious benchmark approach

8.3.1 | Applicability

8.3.1.1. Methodologies are permitted to determine the baseline using this approach where reliable data pertaining to best-performing comparable activities, which yield similar outputs, is available and facilitates a conservative and reliable estimation of the baseline.

8.3.1.2. This approach may be particularly efficacious in scenarios characterized by:

a. A sector exhibiting homogeneous outputs, specifically where similar outputs are provided with a consistent level of service for the collective pool of users; and/or

b. Emissions or removals per unit of output that are contingent upon a multiplicity of factors, encompassing, inter alia, technology and/or operational practices, fuels, feedstocks, and local circumstances such as prevailing climatic conditions.

8.3.2 | Determination of the baseline scenario and baseline emissions or removals

8.3.2.1. The baseline scenario based on an ambitious benchmark shall be identified as the average emissions or removals level of the best performing comparable activities providing similar outputs in a defined scope in similar social, economic, environmental, and technological circumstances. Methodologies shall further delineate this approach and provide substantive justification for the methodological selections made, including the precise specification of criteria for the similarity of circumstances.

8.3.2.2. Methodologies shall either directly establish the ambitious benchmark, or alternatively, define a comprehensive procedure that activity developers are required to apply for setting the crediting baseline based on an ambitious benchmark, considering the following sequential steps[6]:

a. Define and provide justification for the appropriate baseline geographical reference area pertinent to the specific type of technology and/or practice.

[5] In case the validity of a BAT expires, users of the methodology may propose a request for revision to update the underlying analysis and validity

[6] Methodologies may propose alternative approaches towards determining an ambitious benchmark

b. Identify all technologies and/or practices (e.g., types of industrial plants, types of household units, as applicable to the activity type) that are providing similar output within the baseline geographical reference area under analogous social, economic, environmental, and technological circumstances[7].

c. Specify which comparable activities (e.g., individual installations or units such as industrial plants, households) within the baseline geographical reference area shall be incorporated into the analysis, taking into account the type and characteristics of the activity. For instance, if the activity involves the installation of greenfield plants, then only recently constructed installations shall be included in the analysis. For brownfield activities (e.g., energy efficiency improvements), existing installations may be considered, contingent upon the prevailing circumstances. Similarly, only activities of a commensurate scale (e.g., plants exceeding a certain threshold) or situated within specific locations (e.g., exclusively households in rural areas) may be taken into account, depending on the context of the activity. Should an activity supersede existing installations while concurrently expanding capacity, comparable activities shall encompass installations, or combinations thereof, capable of furnishing the identical level of service as the activity.

d. Select a suitable indicator for precisely determining the performance of the comparable activities (e.g., tonnes of CO_2 equivalent per unit of output, energy efficiency of appliances).

e. Determine the appropriate time period for which available performance data for all identified technologies and/or practices shall be included. In certain instances, a one-year period may suffice. In cases where performance exhibits significant variability across calendar years (e.g., attributable to disparities in climatic conditions such as precipitation), an appropriate multi-year period (e.g., three years) shall be selected. The chosen period shall be suitably conservative and duly justified.

f. Collect recent performance data for the comparable activities of the identified technologies and/or practices within the baseline geographical reference area.

g. Prepare a comprehensive performance distribution curve, utilizing the selected indicator such as tonnes of CO_2 equivalent per unit of output, for the aggregate amount of output provided by the comparable activities in the baseline geographical reference area.

[7] For example, for cement for building construction applications, the technologies are those being applied for building construction with similar structural capabilities, e.g., other cement production for concrete-based construction, wood-frame construction, steel-frame construction, masonry. For another example, metal-alloy production, the technologies are those being applied for the same metal-alloy production.

h. Specify the methodology for defining the group of best-performing comparable activities, which shall be bounded at a maximum by the 20th percentile of the distribution curve or lower (e.g., 10th percentile, 5th percentile), and provide justification for the selected percentile.

i. Calculate the weighted average performance (by output) of all the best-performing comparable activities, encompassing those at and beyond the selected percentile, utilizing the chosen indicator such as tonnes of CO_2 equivalent per unit of output.

8.3.2.3. The value ascertained in sub-bullet (h) shall constitute the ambitious benchmark and shall form the fundamental basis for quantifying the baseline emissions and/or removals.

8.3.2.4. Methodologies shall define the precise methods for the quantification of the ambitious benchmark baseline. When the baseline scenario is established using an ambitious benchmark, the baseline emissions and/or removals shall also be derived using this benchmark. Nevertheless, other parameters requisite for quantifying baseline emissions and/or removals may be derived through alternative approaches (for example, an ambitious benchmark for the energy efficiency of comparable activities may be combined with a default value for the specific GHG intensity per unit of energy).

8.3.2.5. When the ambitious benchmark is determined by activity developer through the application of a procedure defined in a methodology, the methodology shall explicitly specify the permissible types of data sources that may be utilized by activity developers. The methodology should endeavor to ensure that the data is of both high quality and recent vintage, preferably not exceeding three years prior to the year in which the PDD is submitted for global stakeholder consultation.

8.4 | Existing actual or historical emissions approach

8.4.1 | **Applicability**

8.4.1.1. Methodologies may ascertain the baseline using this approach when limited data availability pertains to the emissions or removals performance of comparable activities within the sector.

8.4.1.2. This approach may prove particularly suitable in contexts where:

a. Emissions or removals per unit of output are demonstrably dependent on factors that are highly activity- or site-specific; and/or

b. Sectoral data indicates strongly heterogeneous circumstances.

8.4.1.3. In instances where an activity replaces specific equipment utilized in the pre-project scenario that could have continued operation, a baseline scenario determined via this approach shall remain valid, at maximum, only until the conclusion of the reasonably expected remaining lifetime of the aforementioned pre-activity equipment.

8.4.2 | **Baseline Scenario Selection**

8.4.2.1. The baseline scenario may be identified based on existing actual or historical emissions.

8.4.2.2. The methodology shall either specify a predetermined baseline scenario or furnish a procedure for activity developers to determine the baseline scenario. Potential baseline scenarios may include:

a. The continuation of the pre-activity scenario up to a defined point in time (e.g., until a prospective retrofit would have occurred);
b. A dynamic baseline scenario over time (e.g., if a gradual divergence from the pre-activity scenario is observed);
c. The retrofit or replacement of equipment that was employed in the pre-activity scenario;
d. The implementation of the activity at a later point in time.

8.4.3 | Methods for Quantification of Baseline Emissions and/or Removals

8.4.3.1. The methodology shall define the methods for quantifying the baseline emissions and/or removals as tonnes of carbon dioxide equivalent (tCO_2-eq) or the baseline emissions or removals intensity as tCO2-eq per unit of output. This determination shall be consistent with the identified baseline scenario. The baseline may be derived using the following general methods:

a. **Site-specific historical data**: When this method is employed, the methodology shall address critical considerations such as the minimum number of historical years to include, year-on-year variability, any discernible trends in the historical data, and the necessity of incorporating factors to account for performance improvements that may occur in the baseline scenario over time.
b. **Control group**: When this method is utilized, the methodology shall establish stringent requirements pertaining to the selection of the control group; shared characteristics between the activity and control groups, including location, pre-activity and project technologies and/or practices, and socio-economic circumstances; and statistical tests to ascertain similarity between the control and activity group.
c. **Model**: When this method is applied, the methodology shall address the selection, calibration, capabilities, credibility, and conservativeness of the models employed.
d. **Default factors**: When this method is used, the methodology shall specify the source of the default factors utilized and ensure their relevance and conservativeness.

9| DETERMINATION OF THE DOWNWARD ADJUSTMENT

9.1 | Encouraging Ambition and Downward Adjustment

9.1.1 | Methodologies shall actively promote ambition through the establishment of crediting baselines positioned below Business-As-Usual (BAU) and by progressively augmenting the ambition of these crediting baselines over time. Consequently, methodologies shall incorporate factors or quantitative methods for downward adjustment that are appropriate to the specific sector, activity type, and scale of the activity. These factors or quantitative methods shall be grounded in clear and objective criteria and shall effect a downward adjustment that unequivocally ensures the selected baseline remains below BAU and fosters increased ambition over time.

9.2 | Downward adjustment for GS4GG Methodologies

9.2.1 | GS4GG methodologies shall address the requirements for conservativeness (addressing uncertainty) and ambition (ensuring below BAU over time) through distinct mechanisms.

9.2.1.1. **Addressing Uncertainty:** Uncertainty shall be addressed through the application of conservativeness, primarily at the parameter level as required in Section 6.3 |. GS4GG methodologies shall ensure that conservative estimates, discount factors, or default values are applied to individual parameters. The aggregated uncertainty calculation approach described in Section 9.3.1 |is generally not required for GS4GG methodologies if parameter-level conservativeness is robustly applied and justified.

9.2.1.2. **Encouraging Ambition (Downward Adjustment Factor - DAF)** To encourage ambition over time and align baselines with national climate trajectories, GS4GG methodologies shall apply a Downward Adjustment Factor (DAF).

a. **Determination:** The DAF shall be determined using the GS4GG Tool: Downward Adjustment Factor (DAF) Determination (GS4GG PAA MT400-05).

b. **Application:** The DAF is applied as a fixed coefficient for a defined Application Period (e.g., 2026-2030). Methodologies shall specify how the DAF is applied to the baseline emissions and/or removals (after uncertainty has been addressed per 6.3), following the procedures and equations in the DAF Tool.

c. **Increasing Ambition Over Time:** The requirement for increasing ambition over time is operationalised through the periodic update of the DAF coefficients for subsequent Application Periods following NDC cycle (e.g. 2030-2035), as defined in the DAF Tool.

9.3 | Downward Adjustment for PACM Methodologies (A6.4 Approach)

9.3.1 | PACM methodologies shall apply the downward adjustment procedures as stipulated in the A6.4 Standard (A6.4-STAN-METH-004, Section 7), summarized below.

9.3.2 | **DA in the calendar year of the start date of the first crediting period**

9.3.2.1. For baselines determined based on BAT or an ambitious benchmark, no downward adjustment shall apply in the calendar year of the start date of the first crediting period.

9.3.2.2. For baselines determined based on existing actual or historical emissions, the downward adjustment in the calendar year of the start of the first crediting period shall be determined following the below:

a. Determine the uncertainty at the lower bound of the uncertainty interval relative to the central estimate of the ex-ante quantified unadjusted net baseline emissions and/or removals at 95% confidence level during the first crediting period ($UNC_{BEact/hist,CP1}$). The determination of the uncertainty shall consider all causes of uncertainty as per Conservativeness and uncertainty' section in APPENDIX 1.

b. Determine the downward adjusted baseline emissions and/or removals based on uncertainty for the calendar year of the start date of the first crediting period ($BE_{adj,UNC,y}$), as follows[8];

$$BE_{adj,UNC,y} = BE_{Act/Hist,y} \times \left(1 - UNC_{BEact/hist,CP1}\right) \qquad \text{Equation 1}$$

Where

$BE_{adj,UNC,y}$	=	Downward adjusted baseline emissions and/or removals based on uncertainty in year y
$BE_{Act/Hist,y}$	=	Unadjusted existing actual or historical net baseline emissions and/or removals in year y
$UNC_{BEact/hist,CP1}$	=	Uncertainty at the lower bound of the uncertainty interval relative to the central estimate of the ex-ante quantified unadjusted net baseline emissions and/or removals during the first crediting period (fraction)
y	=	Calendar year of the start date of the first crediting period

[8] Where, for the uncertainty of a central value, the absolute upper bound is a positive number and the absolute lower bound a negative number, or vice-versa, further guidance will be developed.

c. Determine the minimum downward adjusted baseline emissions and/or removals for the calendar year of the start date of the first crediting period ($BE_{adj,min,y}$), as follows:

$$BE_{adj,min,y} = BE_{Act/Hist,y} - \left(BE_{Act/Hist,y} - AE_y\right) \times 0.1 \qquad \text{Equation 2}$$

Where

$BE_{adj,min,y}$	=	Minimum downward adjusted baseline emissions and/or removals in year y.
$BE_{Act/Hist,y}$	=	Unadjusted existing actual or historical net baseline emissions and/or removals in year y
AE_y	=	Ex-ante estimated activity emissions and/or removals in year y
y	=	Calendar year of the start date of the first crediting period

d. Compare the downward adjusted baseline emissions and/or removals based on uncertainty ($BE_{adj,UNC,y}$) and the minimum downward adjusted baseline emissions and/or removals ($BE_{adj,min,y}$) and select the lower as the downward adjusted baseline;

$$BE_{adj,y} = MIN(BE_{adj,min,y}, BE_{adj,UNC,y}) \qquad \text{Equation 3}$$

Where

$BE_{adj,y}$	=	Downward adjusted baseline emissions and/or removals in year y.
y	=	Calendar year of the start date of the first crediting period

9.4 | Downward adjustment in subsequent years (A6.4 approach)

9.4.1 | For all three baseline approaches enumerated in paragraph 36 of the RMPs (i.e., Best Available Technology (BAT), ambitious benchmark, and existing actual or historical emissions), a downward adjustment shall be applied in all calendar years following the commencement date of the first crediting period, unless an explicit exemption is approved by the Secretariat under specific circumstances.

9.4.2 | Such exemptions shall be exclusively applicable to baselines predicated upon BAT or ambitious benchmarks. Economic viability may serve as a pertinent consideration for granting exemptions; for instance, where the implementation of a downward adjustment could result in the calculation of zero emission reductions or net removals.

9.4.3 | The downward adjustment implemented in subsequent years shall progressively increase over time to continually encourage ambition and ensure that the baseline remains demonstrably below BAU.

9.4.4 | For baselines determined based on existing actual or historical emissions, the initial point for the increasing downward adjustment over time shall be the downward adjustment established in the calendar year corresponding to the commencement date of the first crediting period, as delineated in section 9.3. For baselines determined based on BAT or an ambitious benchmark, the downward adjustment shall incrementally increase from a value of zero applied in the calendar year of the first crediting period's commencement date.

9.4.5 | The increase in downward adjustments over time shall be operationalized either as an annual change or as a stepwise change implemented no less frequently than every three years. An increase in the downward adjustment shall be applied commencing on 1 January of a calendar year. The first increase shall be applied in the calendar year immediately following the calendar year of the first crediting period's start date.

9.4.6 | Methodologies shall explicitly specify the factors or quantitative methods designated for calculating the downward adjustment for subsequent calendar years of the crediting period and articulate how the increase over time is operationalized. The determination of the downward adjustment may be predicated upon the following principles and considerations:

a. **Consideration of economic viability of the mitigation technologies and/or practices:** The quantitative methods and factors could incorporate the economic viability of the relevant mitigation activities. This consideration holds particular relevance for critical mitigation activities, large-scale transformation and decarbonization technologies, and negative emission approaches. The quantitative methods and factors could consequently yield relatively lower downward adjustments for these technologies and approaches, as well as other critical technologies in nascent stages of innovation and diffusion, in comparison with technologies and/or practices that are more closely approaching economic viability.

b. **Setting incentives for the adoption of less GHG intensive technologies and/or practices:** The factors and quantitative methods could result in a relatively higher downward adjustment for more GHG-intensive technologies and/or practices and a comparatively lower downward adjustment for less GHG-intensive technologies and/or practices.[9]

c. **Consideration of established long-term pathways:** Pre-existing long-term pathways for emissions, technologies, and/or practices adopted by Parties, groups of Parties, and/or international industry associations could inform the downward adjustment. This could imply that certain sectors, regions, or Parties might experience greater annual increases to the downward adjustment compared with others.

[9] For example, the downward adjustment may be higher for Activities flaring landfill gas than for activities using the landfill gas as fuel;

d. **Consideration of concept of sufficiency:** Drawing upon the work on sufficiency presented in IPCC AR6 WGIII, Chapter 9, the factors and quantitative methods could result in a relatively higher downward adjustment for activities implemented within a context of high resource consumption patterns and a comparatively lower downward adjustment for lower resource consumption patterns.[10]

e. **Consideration of suppressed demand:** The quantitative methods and factors could result in a relatively lower downward adjustment for sectors or regions where demand is suppressed.

9.4.7 | The annual increase in the downward adjustment shall correspond to at least 1% of the baseline emissions in the calendar year of the start date of the first crediting period. A pro-rata approach may be used to apply this minimum value to periods other than a full calendar year.

10| DETERMINATION OF A CONSERVATIVE BUSINESS-AS-USUAL BASELINE

10.1 | General Requirements

10.1.1 |Methodologies shall include provisions to demonstrate that the downward adjusted baseline is below Business-As-Usual (BAU). For that purpose, methodologies shall require the identification of a conservative BAU scenario that would occur in the absence of the Activity and provide a method for the quantification of the corresponding BAU emissions and/or removals in a conservative manner. The BAU also may be defined using an approved standardized baseline.

10.1.2 |The methodology developer shall consider the following alternatives for the purpose of determining the BAU scenario and justify the choice, including how it ensures conservativeness:

a. Continuation of the historical situation (pre-activity scenario);

b. Establishment of an economically viable technology and/or practice;

c. A scenario combining (a) for the remaining lifetime of the existing equipment and/or practice, followed afterwards by (b); or

d. Only when it is justified that the previous alternatives are not suitable, another relevant scenario in line with the applicable principles and requirements set out in this standard.

10.1.3 |Where several scenarios are plausible, the most conservative scenario shall be chosen as the BAU scenario.

10.1.4 |The methodology developer may consider the following approaches for estimating the BAU emissions and/or removals and shall justify the choice:

[10] For example, in the buildings sector, it may be proposed that for communities whose energy consumption was historically high, the rate of reducing emissions is higher than that for communities with historically low energy consumption

a. Where the activity is not a greenfield activity, methodologies may consider the historical emissions or emissions intensity prior to the implementation of the activity, including any trends toward improving performance, for the remaining lifetime of the existing equipment and/or practice; or
b. Where the activity is a greenfield activity, or where it operates beyond the end of the remaining lifetime of the existing equipment and/or practice, methodologies may consider the average emissions intensity of new capacity installed in the past three years, in the baseline geographical reference area, and/or in similar social, economic, environmental and technological circumstances and providing similar outputs as the activity with these criteria specified further in the methodology.

10.1.5 | In determining the BAU scenario and quantifying the BAU emissions and/or removals pursuant to paragraphs 10.1.1 to 10.1.4 above, methodologies shall identify and incorporate in the BAU:

a. Any policies that are active or scheduled to take effect within the crediting period, unless they refer to or formally integrate the carbon crediting based mechanism as an instrument for implementation. All legal requirements shall be deemed to be enforced while recognising that regulatory environments vary; and
b. Any specific national or sub-national targets for the sector or the type of activity, as long as these are supported by policy frameworks for implementation[11], but not general goals that are not specific to the sector or type of activity.

10.2 | Identification of the Conservative BAU Baseline

10.2.1 | Methodologies shall ensure that the comparison of the downward adjusted baseline with the conservative BAU baseline in section 7.6 (Step 5 in Figure 1) results in the determination of a crediting baseline that is below BAU. For this purpose, methodologies shall identify the conservative BAU baseline following one of the below options

A. Option A.

10.2.2 | **Determine Uncertainty:** Determine the uncertainty at the lower bound of the uncertainty interval relative to the central estimate of the *ex-ante* quantified BAU net baseline emissions and/or removals during the first crediting period ($UNC_{BAU,CP1,y}$). The determination of the uncertainty shall

[11] The extent to which the policy frameworks in place are sufficient to enable the achievement of the targets may be considered in determining their relevance for the BAU scenario and quantification, as well as whether they refer to or formally integrate the mechanism as an instrument for implementation.

consider all causes of uncertainty as per the 'Conservativeness and uncertainty' section in Appendix 1.

10.2.3 | Determine the conservative BAU baseline emissions and/or removals based on uncertainty for the relevant year or period ($BAU_{cons,UNC,y}$)[12], as follows.

$$BAU_{cons,UNC,y} = BAU_y \times \left(1 - UNC_{BAU,CP1,y}\right) \quad \text{Equation 4}$$

Where

$UNC_{BAU,CP1,y}$	=	Uncertainty at the lower bound of the uncertainty interval relative to the central estimate of the *ex-ante* quantified most likely net BAU baseline emissions and/or removals during the first crediting period year y (fraction).
$BAU_{cons,UNC,y}$	=	Conservative BAU baseline emissions and/or removals adjusted for uncertainty in year *y*
BAU_y	=	Most likely net BAU baseline emissions and/or removals in year *y*
y	=	Relevant year or period (see instructions below)

10.2.4 | **Determine the Adjusted Value of the BAU Baseline:** Calculate the adjusted BAU value according to the applicable methodology track:

a. **Track 1: PACM (Article 6.4) Methodologies** determine the minimum conservative BAU baseline ($BAU_{cons,min,y}$) using the formula:

$$BAU_{cons,min,y} = BAU_y - \left(BAU_y - AE_y\right) \times 0.1 \quad \text{Equation 5a.}$$

Where

$BAU_{cons,min,y}$	=	Minimum conservative BAU baseline emissions and/or removals in year y
AE_y	=	Activity emissions and/or removals in year y
y	=	Relevant year or period (see instructions below)

b. **Track 2: GS4GG Methodologies** determine the DAF-adjusted conservative BAU baseline ($BAU_{cons,adj,y}$) using the formula:

$$BAU_{cons,adj,y} = BAU_y \times (1 - DAF) \quad \text{Equation 6b.}$$

Where

$BAU_{cons,adj,y}$	=	Adjusted BAU baseline emissions and/or removals in year y

[12] Where, for the uncertainty of a central value, the absolute upper bound of the uncertainty interval is a positive number and the absolute lower bound of the uncertainty interval a negative number, or vice- versa, further guidance will be developed.

DAF = Downward Adjustment Factor (determined via GS4GG Tool PAA MT400-05).

y = Relevant year or period

10.2.5 | **Select the Conservative BAU Baseline:** Compare the values determined in steps (i) and (ii) and select the lower value as the conservative BAU baseline $BE_{cons,y}$

a. Track 1: PACM Methodologies

$$BE_{cons,y} = min\left(BAU_{cons,min,y}, BAU_{cons,UNC,y}\right) \quad \text{Equation 7a.}$$

b. Track 2: GS4GG Methodologies

$$BE_{cons,y} = min\left(BAU_{cons,adj,y}, BAU_{cons,UNC,y}\right) \quad \text{Equation 8b}$$

10.2.6 | **Final Comparison:** The Conservative BAU Baseline ($BAU_{cons,y}$) thus determined will be compared with the Downward Adjusted Baseline (BE_{adj}) for choosing the final crediting baseline in Section 11 ($BE_{credit,y}$). If the exemption in Section 10.5 applies, $BAU_{cons,UNC,y}$ is not calculated, and $BE_{cons,y}$ defaults to $BAU_{cons,adj,y}$.

B. Option B.

10.2.7 | Propose another approach that ensures that the selected crediting baseline is below BAU, considering the minimum discount described in the method above.

10.3 | Ex-ante and Ex-post Determination

10.3.1.1. The BAU scenario and quantification of the BAU emissions and/or removals shall be determined:

a. *Ex-ante* in the PDD at the start of the first crediting period for the same duration as the crediting period of the proposed Activity, specifying the BAU emissions and/or removals for each calendar year within the crediting period; and

b. Ex post for each calendar year within the crediting period.

10.3.1.2. For the ex-post quantification of the BAU baseline emissions and/or removals, methodologies shall specify which parameters are determined *ex-ante* and remain fixed for the crediting period and which parameters are updated for each calendar year or at a different frequency.

10.3.2 | The BAU scenario shall be redetermined at each crediting period renewal and the same analysis shall be carried out.

10.4 | Inclusion of Policies and Targets:

10.4.1 | In determining the BAU scenario and quantifying the BAU emissions and/or removals, methodologies shall identify and incorporate in the BAU:

a. Any policies that are active or scheduled to take effect within the crediting period, unless they integrate carbon finance/the mechanism as an instrument for implementation. All legal requirements shall be deemed enforced.
b. Any specific national or sub-national targets for the sector or activity type, supported by policy frameworks for implementation.

10.5 | Ensuring Conservativeness

10.5.1 |For GS4GG methodologies, the BAU baseline shall be determined conservatively. This shall be achieved primarily through the rigorous application of parameter-level conservativeness (as per Section 6.3) and the selection of the most conservative plausible BAU scenario. The aggregate uncertainty deduction described in Section 10.2 (Option A, Step i) is not required if the methodology developer robustly demonstrates that parameter-level conservativeness ensures the overall BAU baseline is conservative.

10.5.2 |For PACM methodologies, the conservative BAU baseline shall be determined according to the A6.4 Standard (A6.4-STAN-METH-004, Para 77). This involves applying an aggregate uncertainty assessment to the BAU baseline quantification (e.g., applying the lower bound of the uncertainty interval at 95% confidence).

11| COMPARISON AND SELECTION OF CREDITING BASELINE

11.1 | Comparison Procedure

11.1.1 |Methodologies shall require Activity Developers to compare the downward-adjusted baseline (Step 3/Section 9) with the conservative BAU baseline (Step 4/Section 10).

11.2 | Selection Logic and Timing

11.2.1 |The procedure (Steps 1-5) shall be applied both *ex-ante* (in the PDD) and *ex-post* (in monitoring reports).

11.2.1.1. *Ex-Ante* Application (PDD): The comparison and selection shall be conducted ex-ante based on estimates.

a. If the downward-adjusted baseline is lower than the conservative BAU baseline, it shall be selected as the crediting baseline.
b. If the downward-adjusted baseline is not lower than the conservative BAU baseline, the conservative BAU baseline shall be selected as the crediting baseline (consistent with Equation 7).

11.2.1.2. *Ex-Post* Application (Monitoring Reports): The procedure shall be applied ex-post for each calendar year (y) during the crediting period using actual monitored data. The crediting baseline for year y ($BE_{credit,y}$) shall be

selected as the lower value between the downward adjusted baseline ($BE_{adj,y}$) and the conservative BAU baseline ($BE_{cons,y}$).

$$BE_{credit,y} = MIN\left(BE_{adj,y}, BE_{cons,y}\right) \quad \text{Equation 7}$$

11.2.1.3. In the ex-post application, it is not required to return to Step 3 if the BAU baseline is lower.

APPENDIX 1 - GENERAL REQUIREMENTS

A1.1 | Applicability Conditions

A1.1.1 | Methodologies shall specify the conditions under which proposed Activities may use the methodology. Applicability conditions shall clearly describe the technologies and/or practices which are eligible under a methodology as well as, if appropriate, those which are not.

A1.1.2 | Applicability conditions shall also prevent the use of the methodologies in contexts, configurations and cases for which these are not intended and under which an overestimation of emission reductions or net removals and/or perverse incentives could occur.

A1.1.3 | For each applicability condition, the methodology shall specify whether the fulfilment of the condition shall be assessed:

a. Once at the initial validation of the PDD or, where the information is not yet available, at the first verification of emission reductions or net removals; or
b. At each verification of emission reductions or net removals.

A1.2 | Definition of the project boundary

A1.2.1 | The methodology developer shall identify all emission sources, sinks or reservoirs that could be altered by Activities that are eligible under the methodology. For each identified source, sink or reservoir, the developer shall indicate whether it pertains to the baseline scenario and/or the Activity scenario. The developer shall compare the sources, sinks and reservoirs between the two scenarios in a tabular format to ensure a complete and fair comparison.

A1.2.2 | The developer shall further indicate whether each identified source, sink and reservoir is controlled, related to, or otherwise affected by the applicable Activities, in line with the definitions, and provide adequate justification. Note that some sources, sinks or reservoirs may be classified in different ways, depending on the configuration of the Activity[13]; where applicable, this should be indicated.

A1.2.3 | Based on this analysis methodologies shall define the activity boundary of the applicable Activities, including which emission sources, sinks or reservoirs and GHGs are included. The activity boundary shall be presented in table, covering both the Activity scenario and the baseline scenario.

A1.2.4 | The activity boundary shall include all emission sources, sinks or reservoirs that are identified as controlled or related. The activity boundary also may include sources, sinks or reservoirs that are identified

[13] For example, in some activities, a source of transport emissions may be controlled whereas in others it may be related.

as otherwise affected by the applicable activities.[14] Changes in anthropogenic emissions and/or removals of GHGs that occur outside the activity boundary and that are attributable to the activity shall be considered as leakage, subject to the provisions in the draft standard "Addressing leakage in methodologies".

A1.2.5 | Methodologies may omit sources, sinks or GHGs from the activity boundary, provided that the omission leads to a more conservative quantification of emission reductions or net removals. For example, where it can be demonstrated for the range of activities that may apply the methodology that upstream emissions associated with the Article 6.4 scenario are lower than upstream emissions associated with the baseline scenario, the relevant upstream emissions may be omitted in both the Activity scenario and the baseline scenario. The methodology may also specify conditions under which certain sources, sinks, reservoirs or GHGs shall be considered or may be omitted. The developer of the methodology shall demonstrate and provide appropriate justifications for any such omissions, including that the omission is conservative for the range of Activities that may apply the methodology.

A1.2.6 | Methodologies shall require activity developers to delineate the geographical boundary of a proposed Activity. Methodologies may require activity developers to specify the location of the activity in the form of Keyhole Markup Language files or similar formats as one or more polygon(s), by specifying the coordinates of the geographic boundary using a known coordinate system or any other method to delineate the geographic boundary. The geographic boundary may cover more than one host Party. Where appropriate, the methodology may request the location of the leakage emission sources and sinks to be described as well.

A1.2.7 | Methodologies shall require demonstration that the activity, does not constrain, but aligns with the policies, options and implementation plans of the host Party with regard to the nationally determined contribution (NDC) of the host Party, its long-term low greenhouse gas emission development strategies (LT-LEDS), if it has submitted one, and the long-term temperature goal of the Paris Agreement and long-term goals of the Paris Agreement through an assessment, undertaken by the DNA of the host Party, of the activity's consistency with Decision 3/CMA.3 paragraph 40 (c) and paragraph 27 (a) as part of the host Party's approval.

A1.3 | Calculation of emission reductions or net removals

A1.3.1 | Methodologies shall include provisions to determine emission reductions or net removals separately for each calendar year. To address situations

[14] For example, for activities that provide renewable electricity to the grid and thereby affect electricity generation by power plants in the grid, the emissions from power plants in the grid may be treated as a baseline emission source within the activity boundary.

where monitoring periods cover more than one calendar year, methodologies shall specify methods to allocate the emission reductions or net removals achieved during a monitoring period to calendar years. The method of allocation shall be based on the best approximation for when the emission reductions or net removals have likely occurred. The following approaches shall be used:

a. Proportional allocation: Where this is plausible, emissions or removals in the monitoring period shall be allocated proportionally to the duration of the period in each calendar year. If annual caps or other annual values are applied in the methodology, these shall be pro-rated to periods shorter than a full calendar year;

b. Allocation based on likely expected or observed trends or patterns: Where proportional allocation is not plausible, emissions or removals in the monitored period shall be allocated based on likely expected or observed trends or patterns. For example, for an afforestation activity, growth tables for the respective species and local conditions may be used to allocate a stock change observed over a multi- year period to individual calendar years;

A1.3.2 | Methodologies shall specify whether the type of Activities covered by the methodology may generate emission reductions, net removals, or both emission reductions and net removals. Where Activities may generate both emission reductions and net removals, methodologies shall include provisions to separately determine the emission reductions and the net removals that have occurred in a monitoring period.

A1.4 | Conservativeness and uncertainty

A1.4.1 | Methodologies shall apply a conservative approach to ensure that the emission reductions or net removals from an Activity using the methodology are very unlikely to be overestimated, taking into account the overall uncertainty in quantifying the emission reductions or net removals. The implementation of conservativeness (e.g., through conservative assumptions, parameters, discounts) in determining the calculated emission reductions or net removals shall be based on the level of uncertainty (e.g., applying a larger deduction in case of higher uncertainties). All causes of uncertainty shall be considered, including uncertainty in data (e.g., measurements), parameters (e.g., representativeness of default values), assumptions (e.g., the baseline scenario), and methods (e.g., models to quantify emission reductions).

A1.5 | Attributability of emission reductions or net removals to the Activity

A1.5.1 | Methodologies shall ensure that the quantified emission reductions or net removals result from the implementation of the Activity and not from changes in exogenous factors that are not related to the implementation of the Activity. Methodologies shall therefore require approaches that

take into account and adjust for exogenous factors affecting emission reductions or net removals.

A1.6 | Potential perverse incentives

A1.6.1 | The methodology developer shall identify any potential perverse incentives for the activity developers to inflate the calculated emissions reductions or net removals. This may include cases where output levels could increase as a result of the incentive of the mechanism. Where such perverse incentives can occur, the methodology shall ensure that they are avoided.

A1.7 | Rebound effects

A1.7.1 | Mechanism methodologies shall ensure that rebound effects (i.e., an increase in the level of service as a result of the implementation of an Activity, e.g., when introducing energy-efficient appliances) are accounted for. Where applying the provisions with regard to suppressed demand, further requirements or guidance from relevant other standard(s) may be considered.

A1.8 | Avoidance of double counting

A1.8.1 | The methodology developer shall identify risks of potential double counting of the emission reductions or net removals and, where such risks are relevant and material, include provisions to avoid such double counting in the GS4GG methodology. This shall include but not be limited to:

a. Double counting due to overlapping claims between different crediting mechanism activities;
b. Double counting due to overlap with mandatory domestic mitigation schemes; and
c. Double counting due to overlap with other environmental markets or accounting frameworks.

A. Double counting due to overlapping claims between different carbon crediting activities

A1.8.2 | Double counting may occur if different carbon crediting mechanism activities claim the same emission reductions or removals. The consideration of this form of double counting shall include but not be limited to:

a. The risk of different entities claiming the emission reductions or net removals associated with the production and use of goods or services (e.g., both the producer and the consumer of a biofuel claiming the same emission reductions);
b. The risk of overlap from emission sources or carbon pools that occur upstream and downstream of the activity (e.g., an efficient cookstove activity and an avoided deforestation activity claiming the same emission reductions);

c. The risk of overlap due to implementation of activities at different aggregation levels within the same geographical area .

A1.8.3 | This risk could, for example, be addressed in GS4GG methodologies by requiring agreement between the entities that may potentially seek carbon credits for the same emission reductions or removals.

B. Double counting due to overlap with mandatory domestic mitigation schemes

A1.8.4 | Double counting may occur if an Mitigation activity reduces emissions or enhances removals that are covered by a mandatory domestic mitigation scheme (e.g. an emissions trading system). This risk could, for example, be addressed in GS4GG methodologies by:

a. Excluding activities or not issuing GS VERs for emission reductions or removals that are subject to such overlap; or

b. Requiring that measures are in place to ensure that any relevant impacts of the activity (e.g., the GHG emission reductions achieved or the kilowatt-hours of renewable electricity produced) are not counted towards the achievement of targets or obligations under the mandatory domestic mitigation scheme (e.g., by cancelling allowances from the emissions trading system before issuing carbon credits).

C. Double counting due to overlap with other environmental markets or accounting frameworks

A1.8.5 | Double counting may occur if the mitigation outcomes achieved by an activity are also claimed in other environmental markets or accounting frameworks (e.g., guarantees of origin for renewable electricity generation, green hydrogen schemes, low carbon fuel standards, etc.). Note that this only holds if mitigation outcomes (e.g., emission reductions, removal enhancements, renewable energy generation, energy efficiency improvements, etc.) are claimed in the other environmental markets or accounting frameworks, but not where other outcomes (e.g., air contaminant reductions or social impacts) are claimed.

A1.8.6 | This risk could, for example, be addressed in GS4GG methodologies by:

a. Excluding activities or not issuing GS VERs for emission reductions or removals that are subject to such overlap; or

b. Requiring that the activity does not claim the same mitigation outcomes in the relevant other environmental markets or accounting frameworks

A1.9 | Monitoring

A1.9.1 | The methodologies shall specify procedures and methods for the monitoring all data and parameters necessary to calculate the emission reductions or net removals from the activity using the methodology.

A1.9.2 | Further requirements related to monitoring may be introduced in this standard in the future.

A1.10 | Aggregation of information

A1.10.1 | Where appropriate, methodologies may consolidate information within a geographical area and a sector, to provide observations at a broader level than an individual Activity. Comparable activities can be grouped or aggregated to provide a broader picture when this does not lead to misrepresentation. Comparable activities can also be split or disaggregated, when this does not lead to misrepresentation, for example when the sector shows great heterogeneity.

A1.11 | Validity and periodic updating of methodologies

A1.11.1 | In accordance with the "Procedure: Development, revision and clarification of methodologies and methodological tools", approved methodologies and methodological tools that have been applied in projects shall be reviewed on a regular basis. The review particularly shall seek to incorporate, or substitute, sources and types of data, and update the methodological approaches and assumptions, to enhance the application of the principles and general requirements in section 4 of this standard. This may include the adoption of new measurement approaches, such as the use of remote sensing and digital technologies. Each version of a methodology shall specify until when it is valid for use, taking into account the methodological approaches, assumptions and data sources used in the methodology, as well as trends and developments in the sector. The validity shall not exceed five years.

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