A6.4-SB007-AA-A08

Draft Standard

Article 6.4 mechanism accreditation

Version 01.0

United Nations
Framework Convention on
Climate Change

COVER NOTE

1. Procedural background

1. The Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA), at its third session, adopted rules, modalities and procedures (RMPs) for the mechanism established by Article 6, paragraph 4, of the Paris Agreement (Article 6.4 mechanism) [1] and requested the Supervisory Body to review the accreditation standards and procedures of the clean development mechanism (CDM) with a view to applying them with revisions, as appropriate, for the Article 6.4 mechanism by the end of 2023.[2]

2. The Supervisory Body, at its fourth meeting (SB 004), considered the concept note "Development of Article 6.4 mechanism accreditation standards and procedures (version 01.0)"[3] and provided the feedback to be taken into account in the next iteration of the concept note for consideration by the Supervisory Body at SB 005.[4]

3. The Supervisory Body, at SB 005, considered the concept note "Development of Article 6.4 mechanism accreditation standards and procedures" (version 02.0)[5] and requested the secretariat to prepare draft accreditation standards and procedures for the Article 6.4 mechanism based on the recommendations contained in the concept note considered at SB 005 for consideration by the Supervisory Body at SB 007, taking into account the feedback provided.[6]

2. Purpose

4. The purpose of this document is to present a draft Article 6.4 mechanism accreditation standard (hereinafter referred to as the draft accreditation standard).

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[1] Decision 3/CMA.3, annex. Available at: https://unfccc.int/sites/default/files/resource/cma2021_10_add1_adv.pdf#page=25.

[2] Decision 3/CMA.3, paragraph 5(d).

[3] As contained in document A6.4-SB004-AA-A07. Available at: https://unfccc.int/sites/default/files/resource/a64-sb004-aa-a07.pdf.

[4] See paragraph 18 of the document A6.4-SB004, Meeting report: Fourth meeting of the Article 6.4 mechanism Supervisory Body. Available at: https://unfccc.int/sites/default/files/resource/a64-sb004.pdf.

[5] As contained in document A6.4-SB005-AA-A04. Available at: https://unfccc.int/sites/default/files/resource/a64-sb005-aa-a04_.pdf.

[6] See paragraph 14 of the document A6.4-SB005, Meeting report: Fifth meeting of the Article 6.4 mechanism Supervisory Body. Available at: https://unfccc.int/sites/default/files/resource/a64-sb005.pdf.

3. Key issues and proposed solutions

5. In accordance with the guidance of the Supervisory Body referred to in paragraph 3 above, the majority of the requirements in the CDM accreditation standard (version 7.0) can be transposed to the Article 6.4 mechanism accreditation standard with revisions to, or additions of, a number of provisions. These additions and revisions are listed as below:

    (a) The additions are as follows:

        (i) Principles of the risk-based approach specified in the ISO 17029:2019 are adapted to the Article 6.4 mechanism to cover the risks arising from validation and verification/certification functions (paragraph 9 of the draft accreditation standard). This is aimed to reduce the transaction costs for DOEs;

        (ii) Liability provision contained in the ISO 17029:2019 is adapted to the Article 6.4 mechanism to cover the related risks that could arise to a designated operational entity (DOE) to various geographic areas where it would operate (paragraph 19 and footnotes 10 and 11 of the draft accreditation standard);

        (iii) Additional competence requirements are included, taking into account the relevant provisions of the RMPs, including, among others, validation and verification/certification of the environmental and social impacts as part of the sustainable development tool for the Article 6.4 mechanism and compliance with Article 6.4 mechanism methodological requirements, including removals, are included (paragraph 82 and items (a), (e), (f), (g) and table note (1) of table of appendix 3 to the draft accreditation standard);

    (b) The revisions are as follows:

        (i) Provisions on group of activities and technical knowledge required in both sectoral scopes 14 “afforestation and reforestation (A/R)” and 16 “carbon capture and storage of CO_2 in geological formations (CCSC)” are in placeholder (table of appendix 2 to the draft accreditation standard), considering that:

            a. Group of activities and technical knowledge specific to removal activities and CCSC are to be elaborated after the guidance on removals and CCSC is provided by the CMA and the Supervisory Body;

            b. Risks related to putting these two sectoral scopes in placeholder are limited since there is no CDM CCSC project and the Supervisory Body, at SB 005, decided to postpone developing provisions specific to the transition of CDM A/R activities;[7]

        (ii) Provisions related to internal audit planning and scheduling, and independence of an internal auditor, contained in the ISO 17029:2019, are

[7] See paragraph 8 of the Meeting report: Fifth meeting of the Article 6.4 mechanism Supervisory Body. Available at: https://unfccc.int/sites/default/files/resource/a64-sb005.pdf.

included to strengthen the internal audit process (paragraphs 151 and 152 of the draft accreditation standard);

(iii) Provisions for a DOE to analyse which records can be categorized as permanent and which records can be disposed of after a defined retention period are included (paragraph 146 of the draft accreditation standard);

(iv) Provisions relating to central office, outsourced entities and external resources are included to clarify responsibilities among them (paragraph 8(d) and footnotes 22 and 24 of the draft accreditation standard);

(v) Provisions on signing of a contract between a DOE and its client are included to clarify the payment arrangement (footnote 25 of the draft accreditation standard);

(vi) Provisions relating to a questionnaire approach as a means to collect feedback from a DOE's clients are included (footnote 28 of the draft accreditation standard);

(vii) Provisions on the type and level of detail of information related to management personnel, accredited functions and complaint and appeal handling processes to be made public by a DOE are included (paragraphs 24, 114, 164 and 170 of the draft accreditation standard);

(viii) Provisions on how to conduct an impartiality analysis are included (footnote 14 of the draft accreditation standard);

(ix) Provisions on the process for handling judicial processes are included (paragraphs 13 and 14 of the draft accreditation standard).

4. Impacts

6. The Article 6.4 mechanism accreditation standard, together with the Article 6.4 mechanism accreditation procedure, will form the regulatory basis for the operationalization of the Article 6.4 mechanism accreditation process.

5. Subsequent work and timelines

7. Once the Supervisory Body adopts an Article 6.4 mechanism accreditation standard, the secretariat will:

(a) Develop forms related to the Article 6.4 mechanism accreditation standard;

(b) Once methodological requirements for activities involving removals and CCSC under the Article 6.4 mechanism and related guidance are provided by the CMA and the Supervisory Body, revise the sectoral scopes as contained in appendix 2 to the draft accreditation standard which broadly cover Article 6.4 mechanism activities, based on any possible new sectoral scopes and operational efficiency of those proposed sectoral scopes gained from the experiences of actual implementations and present it to the Supervisory Body for consideration at a future meeting in 2024.

6. Recommendations to the Supervisory Body

8. The secretariat recommends that the Supervisory Body:

   (a) Adopt an Article 6.4 mechanism accreditation standard based on its draft contained in this document, and agree to make it effective as from 1 January 2024;

   (b) Request the secretariat to prepare the accreditation-related documents as per paragraph 7 above.

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1. Introduction

1.1. Background

1. The Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA), at its third session, adopted rules, modalities and procedures (RMPs) for the mechanism established by Article 6, paragraph 4, of the Paris Agreement (the Article 6.4 mechanism).[1] In accordance with the RMPs, a proposed or registered Article 6.4 mechanism activity (A6.4 activity) as well as monitored greenhouse gas (GHG) emission reductions or net GHG removals achieved by an A6.4 activity shall be independently assessed by a designated operational entity (DOE) against the requirements set out in the RMPs in order for the activity to be registered or renewed under the Article 6.4 mechanism, or Article 6, paragraph 4 emission reductions (A6.4ERs) to be issued.[2]

2. Pursuant to the RMPs, the Supervisory Body is responsible for the accreditation of operational entities as DOEs and the establishment of the requirements and process necessary to operate the accreditation.[3] The CMA, at its third session, requested the Supervisory Body to review the accreditation standards and procedures of the clean development mechanism (CDM) with a view to applying them with revisions, as appropriate, for the Article 6.4 mechanism by the end of 2023, and expeditiously accredit operational entities as DOEs.[4]

1.2. Objectives

3. The objectives of this standard are to:

   (a) Provide a clear and common understanding of the Article 6.4 mechanism accreditation requirements;

   (b) Contribute to the accreditation of competent and impartial operational entities.[5]

2. Scope, applicability, and entry into force

2.1. Scope and applicability

4. This standard sets out the requirements applicable to applicant entities (AEs) to become accredited and DOEs to remain accredited.

[1] Decision 3/CMA.3, annex. Available at: https://unfccc.int/sites/default/files/resource/cma2021_10_add1_adv.pdf#page=25.

[2] RMPs, paragraphs 46, 51, 57.

[3] RMPs, paragraph 24(a)(i).

[4] Decision 3/CMA.3, paragraph 5(d)–(e).

[5] In this standard, the term “operational entity” includes both applicant entity (AE) and designated operational entity (DOE).

2.2. Entry into force

5. Version 01.0 of this standard is effective as of 1 January 2024.

3. Normative reference

6. The following documents are indispensable for the application of this standard:

   (a) "Article 6.4 mechanism accreditation procedure";

   (b) "Article 6.4 mechanism validation and verification standard for projects (hereinafter referred to as VVS-P" and "Article 6.4 mechanism validation and verification standard for programmes of activities (hereinafter referred to as VVS-PoA)";

   (c) "Procedure on performance monitoring of designated operational entities" (hereinafter referred to as the DOE performance monitoring procedure).

4. Definitions and principle

4.1. General terms

7. The following general terms apply in this standard:

   (a) "Shall" is used to indicate requirements to be followed;

   (b) "Should" is used to indicate that among several possibilities, one course of action is recommended as particularly suitable;

   (c) "May" is used to indicate what is permitted.

4.2. Article 6.4 mechanism terms

8. In addition to the definitions contained in the "Article 6.4 mechanism accreditation procedure", the following Article 6.4 mechanism terms apply in this standard:

   (a) Appeal – a request made by a client for a formal review of a decision taken by a DOE in respect of its validation and/or verification/certification activities;

   (b) Article 6.4 mechanism accreditation – formal recognition by the Supervisory Body of an operational entity's institutional capacity, competence and impartiality to appropriately perform validation and/or verification/certification functions in accordance with the Article 6.4 mechanism rules and requirements;

   (c) Article 6.4 mechanism accreditation requirement – a requirement adopted by the CMA or the Supervisory Body and with which an operational entity shall comply to become and remain accredited;[6]

[6] The Article 6.4 mechanism accreditation requirements are mainly contained in this standard. However, there may be some contained in CMA and/or Supervisory Body decisions and not yet reflected in this standard if they have been adopted after the adoption of the latest version of this standard. Such requirements will be reflected in the next revision of this standard.

(d) Central office – An office of the AE/DOE where the top management for the validation and verification/certification functions is mainly located and as specified by the AE/DOE;

(e) Client – an activity participant or coordinating/managing entity to which a DOE provides a validation or verification/certification service through a contract;

(f) Competence – ability to apply knowledge and skills in order to perform validation and/or verification/certification activities in accordance with all Article 6.4 mechanism rules and requirements;

(g) Complaint – formal expression of dissatisfaction, made verbally, electronically or in writing, regarding the performance of a DOE or its outsourced entities in relation to its validation or verification/certification functions, from any source including but not limited to clients, activity participants, the general public or its representatives, government bodies and non-governmental organization;

(h) Corrective action – action to eliminate the cause of a detected non-conformity in order to prevent its recurrence;

(i) Designated operational entity (DOE) – an entity designated by the CMA, based on the recommendation by the Supervisory Body, as qualified to perform validation and/or verification/certification functions;

(j) Dispute – disagreement between a DOE and its client regarding the DOE's recommendation and/or opinions/decisions made at various stages in the course of its validation and/or verification/certification activities;

(k) Knowledge – the theoretical and/or practical understanding of a subject;

(l) Non-conformity – non-fulfillment of an Article 6.4 mechanism accreditation requirement;

(m) Outsourced entities – other legal entities to which the DOE outsources some of the validation and verification/certification functions;

(n) Preventive action – action to prevent the occurrence of non-conformity(ies) and improve the effectiveness of a process;

(o) Related body – an organization and/or body related to a DOE on the basis of including but not limited to common ownership and/or governance, personnel, shared resources, finances, contracts, marketing and payment of commission or other inducements for bringing in business or the referral of new clients;

(p) Root-cause analysis – method, approach or process for identifying the original reasons, sources, causes and/or contributing factors that initiate, trigger or generate non-conformities;

(q) Sectoral scope – group of activities and processes sharing similar sources of greenhouse gas (GHG) emissions or removals;

(r) Skill – Carrying out in practice;

(s) Technical area – a subsector of a sectoral scope defined based on the nature of technical processes, applicable methodologies, monitoring requirements and/or environmental impacts;

(t) Technical expert – a qualified person who provides specific technical, methodological and sectoral knowledge and/or expertise in a validation or verification/certification team or a technical review team;

(u) Technical review – an assessment of a validation or verification/certification opinion and report conducted independently from the validation or verification/certification team that prepared the opinion and report in order to ensure that the validation or verification/certification has been conducted in accordance with all applicable Article 6.4 mechanism validation or verification/certification requirements;

(v) Technical reviewer – a qualified person appointed to conduct the technical review in a technical review team;

(w) Technical review team – one or more persons conducting a technical review;

(x) Validation or verification/certification personnel – persons performing validation activities (validator, team leader, technical expert and technical reviewer) or verification/certification activities (verifier, team leader, technical expert and technical reviewer);

(y) Validation or verification/certification team – one or more persons conducting a validation or verification/certification;

(z) Validation or verification/certification team leader – a qualified person appointed to direct and supervise a validation or verification/certification team conducting a validation or verification/certification;

(aa) Validator or verifier – a qualified person appointed to conduct a validation or verification/certification in a validation or verification/certification team.

4.3. Principle of risk-based approach

9. A DOE should take into account the risks associated with providing competent, consistent and impartial validation and/or verification/certification. Risks may include, but are not limited to, those associated with:[7]

(a) The objectives of the validation/verification and the VVS-P and VVS-PoA requirements;

(b) Competence, consistency and real as well as perceived impartiality;

(c) Legal, regulatory and liability issues;

(d) The client organization where validation and/or verification/certification is being carried out and its management system, operating environment, geographic location, among other factors;

[7] ISO/IEC 17029:2019.

(e) The susceptibility of any parameter included in the claim to generate a material misstatement, even if there is a control system implemented;

(f) The level of assurance to be achieved in the verification/certification process and the corresponding evidence-gathering used in the validation and/or verification/certification process;

(g) Risk control and opportunities for improvement.

5. Sectoral scopes of accreditation

10. To conduct the validation and/or verification/certification of an Article 6.4 mechanism project activity (A6.4 project) or programme of activities (A6.4 PoA) and issue a validation and/or verification/certification opinion and report, a DOE shall be accredited in the sectoral scope(s) of the methodology(ies) applied by the A6.4 project or PoA. The sectoral scopes as contained in the appendix 2 to this standard are to be further revised once Article 6.4 mechanism methodological requirements including removals and related all the methodologies are approved by the CMA and the Supervisory Body.

6. Legal status and matters

11. A DOE shall be an entity registered under applicable national or international law so that it can function legally, enter into contracts, make decisions independently and may be sued in its own name.

12. A DOE shall not have any pending judicial process for malpractice, fraud and/or other activity incompatible with functions as a DOE.

13. A DOE shall establish, document, implement and maintain a procedure for handling of judicial processes.

14. The procedure referred to in paragraph 12 shall include the following:

(a) The designation of personnel responsible for handling of judicial processes;

(b) The process for handling of the judicial case, including gathering and verifying all necessary information for deciding what actions are to be taken in response to it;

(c) Ensuring that appropriate corrections and corrective actions are taken, if needed;

(d) Prompt reporting the subject matter of a judicial process pending or instituted against the AE/DOE to the UNFCCC secretariat, if the matter is such that it is incompatible with its function as a DOE.

15. A DOE shall maintain a record of all the judicial processes pending against it as well as information of any judicial cases held in the past.

16. If the subject matter of a judicial process pending or instituted against the AE/DOE is such that it is incompatible with its functions as a DOE, the AE/DOE shall promptly report the matter to the UNFCCC secretariat.

7. Finance and liability

7.1. Financial stability

17. A DOE shall demonstrate that it has the financial resources and stability required for its validation and/or verification/certification functions through:

    (a) Evidence of financial resources including the previous three years' financial statements for companies existing for more than three years (e.g. balance sheets, profit and loss accounts);[8] or any other relevant evidence such as shareholder commitment for newly established companies; and

    (b) Business plan or workplan or equivalent financial plan for the next three years.

18. A DOE shall have a process for regularly monitoring its income and expenditure to determine the financial stability and resources required for its validation and/or verification/certification functions.

7.2. Liability

19. A DOE shall demonstrate that it has analysed, identified and evaluated the nature, scale and impact of all potential risks arising from its validation and/or verification/certification functions and has adequate arrangements to cover the identified risks arising from its activities in validation and/or verification/certification and the geographic areas it operates.[9]

20. The means to cover potential risks shall be:[10]

    (a) Liability insurance; and/or

    (b) Financial resource reserves, such as bank savings and/or short/long-term liquidities.[11]

[8] In this context, financial statements audited by a related body may not be considered as "externally audited financial statements".

[9] ISO/IEC 17029:2019.

[10] The liabilities arising from the potential risks may include a range of issues under the DOE's responsbility that might adversely impact the clients, such as the following: (a) mistakes in the validation and/or verification/certification which result in incorrect validation opinion and/or verified amount of Article 6.4 emission reductions; (b) delay of the validation and/or verification/certification timeline required in the contract signed; (c) rejection of the request for registration and/or request for issuance made by the Supervisory Body; and (d) suspension or withdrawal of accreditation status of the DOE resulting in prohibition on the part of the DOE to finalize and issue any on-going validation and/or verification opinions and reports.

[11] Calculation of the level of liability insurance and/or financial resource reserves may include a range of risk assessment approaches, such as the following: (a) failure modes and effects analysis approach (i.e. a product of the probability of issue, the ability to detect issue, and the impact of issue); (b) the risk matrix approach (i.e. a product of the impact of issue and its frequency); and (c) the risk factor approach (i.e. a product of the risk factor and the expected turnver of the DOE's business).

8. Entity's management

8.1. Management structure

21. A DOE shall have a management structure that has overall responsibility for the performance and implementation of the entity's functions, including quality assurance procedures and final decision-making on validations and/or verifications/certifications.

22. A DOE shall document its structure, showing lines of authority, responsibilities and allocation of functions stemming from the top management. It shall include the management personnel, validation and verification/certification personnel, other personnel involved in Article 6.4 mechanism activities and any operational or supervisory committees.

23. A DOE shall document the names, qualifications, experience and terms of reference of the top management personnel and other management personnel responsible for the AE/DOE's validation and/or verification/certification functions.

24. A DOE shall establish, document, implement and maintain a procedure for the allocation of responsibility within the organization. A DOE shall make such procedure and information on names of management personnel and their corresponding responsibilities publicly available.

8.2. Management functions

25. A DOE's management shall manage all validation and/or verification/certification resources and activities and:

    (a) Determine the human resource requirements;

    (b) Evaluate and demonstrate competence of personnel, qualify them, and select members of technical review teams;

    (c) Approve contract reviews;

    (d) Maintain the competence of its validation and/or verification/certification personnel;

    (e) Supervise the implementation of validation and/or verification/certification procedures;

    (f) Make a final decision on validation and/or verification/certification opinions and reports;

    (g) Manage all activities related to the safeguarding of the impartiality of AE/DOE functions;

    (h) Establish, implement and maintain a quality management system.

26. A DOE's top management shall have overall authority and responsibility for the following functions:

    (a) Formulation and development of policy matters relating to the operations of the AE/DOE;

(b) Establishment of a quality management system in line with policies formulated;

(c) Documentation of policies and procedures and their implementation;

(d) Supervision and monitoring of implementation of policies and procedures;

(e) Supervision of finances, administrative matters and dealing with contractual matters and arrangements;

(f) Final decisions on validation and/or verification/certification activities;

(g) Decisions relating to disputes and complaints;

(h) Provision of adequate and competent human resources for validation and/or verification/certification functions.

27. A DOE shall establish, document, implement and maintain a procedure for the appointment, terms of reference and operation of any operational or supervisory committees that are involved in its policymaking or operational functions of validation and/or verification/certification activities.

9. Safeguarding impartiality

9.1. General

28. The DOE shall ensure its integrity at all times in its validation and verification/certification activities and shall work in a credible, independent, non-discriminatory and transparent manner.

29. The DOE shall act impartially and avoid any conflict of interest that may compromise its ability to make impartial decisions.

30. The DOE shall ensure that there are no constraints that might influence its judgement or endanger its independence of judgement in relation to its validation and/or verification/certification activities, inter alia, by having sufficient human resources, either through internal or external resources, and financial resources and stability.

31. If the DOE is part of a larger organization, it shall ensure that no conflict of interest exists between its validation and/or verification/certification functions and the functions of other parts of the organization.

32. If the DOE has related bodies, the DOE shall ensure that no conflict of interest exists between its validation and/or verification/certification functions and the functions of the related bodies.

33. The DOE shall ensure that it and its personnel (internal and external) have no relationship[12] that creates threats to its impartiality.

[12] A relationship that threatens the impartiality of the AE/DOE can be based on the following but not limited to ownership, governance, management, personnel, shared resources, finances, contracts, marketing and payment of a sales commission or other inducement for the referral of new clients.

9.2. Safeguarding impartiality at the policy level

34. The DOE shall establish, document and implement a policy on safeguarding impartiality, demonstrating its understanding of the possible influence that can be exerted on it as an organization and/or on its personnel when performing its validation and/or verification/certification functions, and stressing its commitment to fully address this issue.

35. The DOE shall ensure that its policy on safeguarding impartiality is understood and implemented at all levels of the organization.

36. The DOE shall ensure its impartiality at the policy level, inter alia, by:

    (a) Having the top management's commitment to safeguarding impartiality in the DOE's validation and/or verification/certification functions as evidenced through a defined institutional structure and impartiality policy and procedures, appropriate implementation of such policy and procedures and operation and conduct of its activities;

    (b) Having a statement that describes its understanding of the necessity of impartiality in validation and/or verification/certification functions, how it manages conflict of interest and how it ensures the objectivity of validation and/or verification/certification functions;

    (c) Taking action to respond to any threats to its impartiality arising from the actions of other parts of the organization, persons outside of the organization, outsourced entities, related bodies or other bodies or organizations;

    (d) Maintaining a professional environment and culture in the organization that supports behaviour of all personnel that is consistent with impartiality.

37. The DOE shall make publicly available its policy for safeguarding impartiality. The DOE should put this policy on its website.

9.3. Safeguarding impartiality at the organization level

38. A DOE shall have a documented structure that safeguards impartiality of its operations.

39. The DOE shall have a committee that safeguards the DOE's impartiality in its validation and/or verification/certification functions and ensures that the policy on safeguarding impartiality and related procedures and other systems are effectively implemented (an impartiality committee).

40. The impartiality committee shall:

    (a) Be independent from all validation and verification/certification operations of the DOE and shall report directly to the DOE's top management;

    (b) Have in its composition the participation of key interested parties[13] with a balanced representation of each of them;

[13] The participation of key interested parties in an independent committee may include representatives from academic organizations, civil society, industry associations, and local/provincial/national government entities.

(c) Have a chairman who shall be a person independent from and external to the DOE;

(d) Have documented terms of reference. This committee shall meet regularly, at least once a year, and a complete record of its proceedings shall be maintained;

(e) Approve the conflict of interest analysis and the mitigation measures described in section 9.4 below as well as monitor and review the implementation of the systems to safeguard the DOE's impartiality (conflict of interest analysis, procedures and mitigation strategies and actions);

(f) Have access to all validation and/or verification/certification files or records and be able to review them, if needed. This committee need not intervene in or review each validation or verification/certification activity, but may need to review them in order to fulfill its mandate;

(g) Prepare an annual synthesis report of its activities, which shall be included in the DOE's annual report to the Supervisory Body to be submitted in accordance with the Article 6.4 mechanism accreditation procedure.

41. In cases where the impartiality committee identifies issues through the monitoring or review of the implementation of the DOE's systems to safeguard impartiality, it shall report the instance to the DOE's top management. If the top management does not follow the advice of the impartiality committee, this committee shall have the right to report the instance to the Supervisory Body through the UNFCCC secretariat.

42. The DOE shall enable an Article 6.4 mechanism assessment team, upon request, to observe meetings of the impartiality committee, as part of the DOE's accreditation process.

9.4. Safeguarding impartiality at the operational level

9.4.1. Analysis of threats against impartiality

43. The DOE shall establish, document, implement and maintain a procedure for analysing potential threats against impartiality.

44. The procedure referred to in paragraph 43 above shall require the DOE to carry out a conflict of interest analysis at least once a year and whenever a significant change occurs in the DOE activities, such as changes in the organizational structure or of the legal status and mergers with or acquisitions of other organizations.[14]

45. The conflict of interest analysis shall include, but not be limited to, the following risks:[15]

(a) Source of revenue – risks from a client paying for the validation or verification/certification work. This risk is significant when the DOE has numerous contracts with the same client;

[14] Conflict of interest analysis may include a range of risk assessment approaches, such as: (a) failure modes and effects analysis approach (i.e. a product of the probability of threat against impartiality, the ability to detect threat, and the impact of threat); and (b) the risk matrix approach (i.e. a product of the impact of threat and its frequency).

[15] Annex B to ISO 14065:2007(E).

(b) Self-interest – risks from a person or an organization acting in its own interest; for example, financial self-interest;

(c) Self-review – risks from a person or an organization reviewing its own work; for example, assessing the Article 6.4 mechanism validation or verification/certification activities of a client to whom the DOE or its related bodies provided consultancy would be a self-review risk;

(d) Familiarity (or trust) – risks from a person or an organization being too familiar with or trusting of another person instead of seeking validation or verification/certification evidence;

(e) Intimidation – risks from a person or an organization having a perception of being coerced openly or secretly, such as a risk to be replaced or reported to a supervisor.

46. In the conflict of interest analysis, the following activities of the DOE or its related bodies, but not limited to these activities, shall be considered as threats to impartiality:

(a) Identification, development and/or financing of A6.4 project activities and PoAs;

(b) Consultancy related to A6.4 projects and PoAs;

(c) Providing training on A6.4 projects and PoAs and other related topics;

(d) Marketing and tie-up promotion with Article 6.4 mechanism consultancy/financing organizations;

(e) Offering/payment of commissions or other inducements for promotion or new business;

(f) Laboratory testing and calibration for A6.4 projects and PoAs;

(g) Use of personnel for the validation and/or verification/certification of an A6.4 project or PoA who were previously associated with the Article 6.4 mechanism activity participants in their personal capacity or otherwise for any activity – for example, development, consultancy or training;

(h) Other organizational considerations such as performance targets in financial terms or in terms of a specific number of A6.4 projects and PoAs to be validated and/or verified/certified during a period of time.

47. While carrying out the conflict of interest analysis, the DOE shall:

(a) Evaluate sources of income and assess whether financial or other commercial factors compromise impartiality;

(b) Identify and document its actual/proposed involvement in Article 6.4 mechanism activities other than validation and/or verification/certification and carry out and document an analysis of actual and potential risks to impartiality;

(c) Identify and document all related bodies and identify actual/potential risks to impartiality, including potential conflicts arising from any such relationships;

(d) Disclose and document, in a transparent and comprehensive manner, the following information, as a minimum: the general types of activities carried out by the DOE, its parent organization, outsourced entities, related bodies, and personnel. The disclosure and documentation shall be detailed for all organizations and personnel listed above with regard to activities related to A6.4 projects and PoAs, including development, financing, consultation and training;

(e) Clearly define the functions of its related bodies and their relationships with the DOE when describing its organizational structure. This should cover all relationships, such as:

(i) Relationships based on common ownership and governance, personnel;

(ii) Shared resources, finances and contracts;

(iii) Marketing and payment of commission or other inducement for bringing in business or the referral of new clients.

9.4.2. Mitigation of threats against impartiality

48. The DOE shall establish, document, implement and maintain a procedure for the mitigation of threats against its impartiality.

49. The procedure referred to in paragraph 48 above shall describe which mitigation strategies and actions are to be taken and how they will be implemented, and shall include the review of the mitigation strategies and actions whenever a change in the conflict of interest analysis has occurred. The mitigation actions may be through, inter alia:

(a) Prohibitions – certain defined activities shall not be carried out;

(b) Restrictions – certain defined activities may be carried out, but in a restricted manner with clearly defined control points to ensure mitigation;

(c) Disclosures.

50. The procedure referred to in paragraph 48 above shall ensure the following, at a minimum:

(a) The DOE shall not conduct both the validation and verification/certification of an A6.4 project or PoA except in the situations allowed by the Validation and verification standard;

(b) The DOE shall not conduct the validation and/or verification/certification of an A6.4 project or PoA if the DOE, a parent organization, an outsourced entity or a related body has been engaged in any function that has been identified as a threat to impartiality, such as those listed in paragraph 46 above, relating to the A6.4 project or PoA;

(c) The DOE and the entities to which the DOE has outsourced one or more functions shall not have any direct relationship with the DOE's clients and the activity participants of the A6.4 projects or PoAs under validation and/or verification/certification other than validation and/or verification/certification activities and third-party conformity assessments;

(d) The DOE shall not outsource any function to an entity that is engaged in the development, consultancy or financing of any A6.4 project or PoA;

(e) The DOE shall not use for the verification/certification of an A6.4 project or PoA any personnel who were involved in the validation team of such A6.4 project or PoA, except in the cases in which a DOE is allowed to conduct both the validation and verification/certification in accordance with item (a) above;

(f) The DOE shall not use validation or verification/certification personnel, internal or external, in the validation or verification/certification of an A6.4 project or PoA if:

(i) They, or the organization that employs them, have been involved in the development, consultancy or financing of this A6.4 project or PoA; or

(ii) They have had any professional relationships, other than a third-party conformity assessment, with the activity participants of this A6.4 project or PoA within the last two years;

(g) The DOE's activities shall not be marketed or offered as linked with the activities of an organization that provides services in respect of development, financial assistance and consultancy for A6.4 projects or PoAs. The DOE shall not state or imply that the validation and/or verification/certification of an A6.4 project or PoA would be simpler, easier, faster or less expensive if a specified consultancy/financing organization is used;

(h) The DOE shall require its personnel, internal and external, to reveal any potential conflict of interest known to them. The DOE shall use this information as input to identifying threats to impartiality raised by the activities of such personnel or by the organizations that employ them, and shall not use such personnel, internal or external, unless any potential conflict of interests has been addressed and the measures taken to address these potential conflicts have been documented and implemented. If, during the course of a validation and/or verification/certification, such instances become known, the personnel concerned shall be removed from the validation and/or verification/certification immediately;

(i) The DOE shall require its personnel, internal and external, to report any situation of influence or pressure from activity participants that may threaten their independence in the course of the validation and/or verification/certification of Article 6.4 project activities or PoAs. Based on such report, the DOE shall take appropriate actions to ensure its independence in its validation and/or verification/certification activities;

(j) The conditions in the DOE's contracts with activity participants shall not link their payments to the DOE to the nature of the validation or verification opinion. Payments may, however, be linked to the timing of the various stages of the validation or verification/certification;

(k) The DOE's personnel involved in validation and/or verification/certification activities shall be bound by the DOE's impartiality policy and act impartially in their work through contractual or employment conditions and assignment conditions for each validation and/or verification/certification;

(l) The DOE's personnel involved in validation and/or verification/certification activities shall not provide, while conducting the validation or verification/certification of an A6.4 project or PoA, any advice, consultancy or recommendation to the activity participants on how to address any deficiencies that may be identified in the validation or verification/certification.

9.5. Review of effectiveness

51. The DOE shall analyse and review, at least once a year, all data and information relevant to impartiality, such as the conflict of interest analysis, the mitigation strategies and actions undertaken, any non-conformity raised with regard to impartiality, and the corrective actions implemented to correct the non-conformities.

52. Based on the data/information referred to above, the DOE shall carry out, once a year, an analysis of the process to safeguard impartiality and a review of its effectiveness.

53. The recommendations of actions resulting from the review of the process of safeguarding impartiality shall be reported to the DOE's top management. The DOE shall keep a record of this review.

10. Human resources and competence

10.1. Sufficiency of human resources

10.1.1. General

54. A DOE shall establish, document, implement and maintain a procedure for determining human resources having the competence prescribed in sections 10.2 and 10.3 below in order to perform its validation and/or verification/certification functions.

55. A DOE shall have sufficient resources with the necessary competence relating to the type, range and volume of estimated/planned workload for each technical area in which the DOE intends to operate or operates, within all sectoral scopes in which the DOE has applied for accreditation or has been accredited.

56. The management personnel of a DOE shall be internal resources.[16]

57. For functions other than management functions, a DOE may fulfil the requirement for sufficient resources by:

(a) Using internal resources;

(b) Using external individuals, as defined in paragraphs 62–64 below; and/or

(c) Outsourcing, as defined in paragraphs 66–71 below.

58. A DOE shall evaluate, at least annually, the sufficiency of resources required to perform its validation and/or verification/certification functions, taking into account the necessary competence related to the technical area(s), geographical locations of A6.4 projects and PoAs, past performance of its validation and/or verification/certification functions, and

[16] Internal resources require direct employment by the AE/DOE as an employee. The physical location of such personnel is inconsequential.

expected volume of its validation and/or verification/certification activities for the future. The DOE shall document the evaluation conducted and its results.

59. The validation and verification/certification personnel, irrespective of whether they are internal or external resources, shall be under the responsibility[17] of a member of the DOE's management.

60. In each sectoral scope for which a DOE has applied for accreditation or has been accredited, and in each technical area in which the DOE intends to operate or operates, the DOE shall have:

    (a) At least one person qualified in the technical area who will participate in the validation or verification/certification team (validator, verifier, team leader or technical expert);

    (b) At least one person qualified in the technical area who will participate in the technical review team (technical reviewer or technical expert).

61. The DOE shall have personnel in accordance with paragraph 60 above for at least one technical area as defined in Appendix 2 within each sectoral scope for which it has applied for accreditation or has been accredited.[18]

10.1.2. Use of external individuals

62. A DOE may use external individuals,[19] who may be self-employed, part of a one-person company or employed by any other company, as validators, verifiers, technical experts, team leaders and technical reviewers, to supplement its internal resources, as provided for in paragraph 57(b) above. In such cases, the DOE shall establish, document, implement and maintain a procedure for engaging external individuals.[20]

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[17] Responsibility in this context does not refer to control of human resources in term of employment, but to the control of validation and verification activities.

[18] The requirement to "have personnel" may be satisfied by access to technical experts, provided the following are met: (a) the technical experts are qualified by the DOE, as per, inter alia, paragraph 64 of this standard; (b) the credentials of the technical experts are available (e.g. curricula vitae, records), as per, inter alia, paragraph 98(c) of this standard; (c) written consent from the technical experts that they are available whenever there is a specific validation or verification activity has been received; (d) the DOE has a contract with the technical experts prior to undertaking a specific validation or verification activity, as per, inter alia, paragraph 63(a) of this standard; (e) the technical experts demonstrate competence and are monitored as per sections 10.3.1 and 10.3.2, respectively, of this standard; and (f) the technical experts comply with all other requirements of this standard. The accreditation assessments of compliance with section 10.3.1 of this standard will, inter alia, assess the procedures/systems in place and the personnel evaluation records for demonstration of competence, including for persons who are available on call and are not employees of the DOE.

[19] The use of external individuals, as described in paragraphs 62–64, does not constitute outsourcing as described in paragraphs 66–71.

[20] An external individual operates as a regular member of a validation or verification/certification team or technical review team, under the supervision of the AE/DOE. A one-person team may be constituted using an external individual.

63. The procedure referred to in paragraph 62 above shall require that:

    (a) The DOE has:

        (i) A contract with the external individual if the person is self-employed or part of a one-person company; or

        (ii) A contract with the external individual or a three-party contract with the external individual and the company that employs her/him if the person is employed by a company;

    (b) The DOE takes full responsibility for any work carried out by an external individual, and obtains from the external individual a written agreement that he/she shall comply with all of the DOE's applicable policies and procedures, including on confidentiality and impartiality/independence. The agreement shall explicitly require the external individual to notify the DOE of any existing or prior association with any activity participants of the A6.4 project or PoA that he/she may be assigned to validate or verify/certify as well as actual or potential involvement in identification, development or financing of A6.4 projects or PoAs;

    (c) The external individual is familiar with the DOE's procedures for validation or verification/certification functions and has access to an up-to-date set of documented procedures giving relevant instructions and information on the Article 6.4 mechanism activities.

64. Requirements with respect to competence, evaluation and qualification, monitoring of performance, maintenance of competence, training, and personnel records, as defined in sections 10.2.3–10.2.5 below and 10.3.1–10.3.3 below, shall also apply to external individuals.

10.1.3. Recruitment

65. A DOE shall establish, document, implement and maintain a procedure for the recruitment of personnel so as to ensure they meet the competence requirements in this standard.

10.1.4. Outsourcing

66. If a DOE outsources one or more functions to an outsourced entity, the DOE shall establish, document, implement and maintain a procedure for outsourcing.[21]

67. The DOE shall outsource functions only to legal entities that comply with applicable national laws.

68. The procedure referred to in paragraph 66 above shall require the DOE to:

    (a) Take full responsibility for all activities outsourced to outsourced entities;

[21] Outsourcing, as described in paragraphs 66–71, does not constitute the use of external individuals as described in paragraphs 62–64.

(b) Have a contract with any outsourced entity, ensuring that the outsourced entity and its personnel:

(i) Perform validation and/or verification/certification activities, as applicable, in accordance with all applicable Article 6.4 mechanism rules and requirements;

(ii) Comply with all applicable requirements in this standard and those of the DOE's own policies and procedures, including, but not limited to, the provisions related to impartiality and confidentiality.

69. A DOE may outsource functions to outsourced entities in accordance with Appendix 1 below.[22]

70. If a DOE outsources one or more functions referred to in Appendix 1 below, the DOE shall ensure that the outsourced entity does not further outsource this function.

71. If the outsourced entity conducts a contract review, the DOE shall ensure that the entity has access to all necessary information, including the information required to conduct the impartiality analysis in accordance with paragraph 119(c) below.

10.2. Competence requirements

10.2.1. Initial competence analysis

72. A DOE shall establish, document, implement and maintain a procedure for determining the required competence related to its validation and/or verification/certification functions.

73. A DOE shall conduct and document an initial competence analysis to determine the required competence related to its validation and/or verification/certification functions, in each sectoral scope for which the DOE has applied for accreditation or has been accredited, and for each technical area in which it intends to operate or operates.

74. The initial competence analysis shall provide competence criteria for the following DOE functions:

(a) Management personnel responsible for the DOE's validation and/or verification/certification functions;

(b) Validation and verification/certification personnel.

75. The DOE's competence criteria shall meet, at a minimum, the competence requirements prescribed in paragraphs 77–96 below.

76. A DOE shall evaluate, at least once every two years, the adequacy of its competence criteria, taking into account the performance of validation and/or verification/certification functions.

[22] Validator/verifier services can be availed from an outsourced entity without assigning any management functions, such that if the outsourced entity is providing only validators/verifiers and all validators/verifiers are approved and nominated from the central office and all records are available in the central office, this situation does not fall under outsourcing since no function has been assigned to the outsourced entity.

10.2.2. Competence for management functions

77. The DOE shall ensure and demonstrate that its management personnel responsible for the DOE's validation and/or verification/certification functions are competent to carry out the functions referred to in paragraph 25 above.

78. The DOE shall ensure and demonstrate that its top management personnel responsible for the DOE's validation and/or verification/certification functions are competent to carry out the functions referred to in paragraph 26 above.

10.2.3. Competence for validation or verification/certification teams

10.2.3.1. General

79. A validation or verification/certification team, whether it is composed of one or more persons, shall collectively have all knowledge and skills required in paragraphs 80–96 below, and the ability to apply such knowledge and skills to conduct a validation or verification/certification.

10.2.3.2. Validation and verification/certification team knowledge and skills

80. A validation or verification/certification team shall collectively have the knowledge of all applicable Article 6.4 mechanism rules and requirements, as contained in CMA decisions and the Supervisory Body's decisions, including those contained in the validation and verification standards and the activity standards.

81. A validation or verification/certification team shall collectively have the skills to communicate effectively with the DOE's client, either through personal knowledge of the client's language or through an interpreter/translator.

82. A validation or verification/certification team shall collectively have the following knowledge relevant to the A6.4 project or PoA to be validated or verified/certified:

    (a) Technical and methodological aspects, including:

        (i) The technical processes and technologies, and project design, including the technical area(s) relevant to the A6.4 project or PoA;

        (ii) The Article 6.4 mechanism baseline and monitoring methodology(ies) applied, including the baseline scenario, project boundary, project scenario, calculation of GHG emission reductions or removals, environmental impact and monitoring requirements, measurement techniques, calibration and uncertainty in the measurement of the applicable parameters, and impact of failure of monitoring equipment on the measurement of emission reductions;

        (iii) Environmental and social impacts as part of the sustainable development tool;

    (b) Regional aspects and relevant national policies and legislations, including macro policy evaluation and authorization of the host country(ies) of the A6.4 project or PoA.

83. A validation or verification/certification team shall include personnel qualified in the technical area(s) of the A6.4 project or PoA to be validated or verified/certified, as referred to in paragraph 104 below.

10.2.3.3. Validation team knowledge and skills

84. A validation team shall collectively have the knowledge prescribed in the following knowledge areas and defined in Appendix 3 below:

    (a) Additionality assessment and baseline establishment;

    (b) GHG accounting and monitoring.

85. For the validation of an A6.4 project or PoA applying an Article 6.4 mechanism baseline and monitoring methodology allowing or requiring the use of surveys and sampling, the validation team shall collectively have the knowledge of surveys and sampling, as defined in Appendix 3 below.

86. A validation team shall collectively have the skills to assess the compliance of proposed A6.4 projects and PoAs against all applicable requirements.

87. For an A6.4 project under sectoral scope 16, a validation team shall include personnel who are qualified and permitted to practice law in the host Party of that A6.4 project. The validation team shall also include expertise in environmental, health and safety, and financial matters.

10.2.3.4. Verification/certification team knowledge and skills

88. A verification/certification team shall collectively have the knowledge of:

    (a) Quality or environmental management systems (e.g. ISO 9001 and 14001);

    (b) GHG accounting and monitoring, as defined in Appendix 3 below.

89. For the verification/certification of an A6.4 project or PoA applying an Article 6.4 mechanism baseline and monitoring methodology allowing or requiring the use of surveys and sampling, the verification/certification team shall collectively have the knowledge of surveys and sampling, as defined in Appendix 3 below.

90. For the verification/certification of an A6.4 project or PoA undergoing post-registration changes, the verification/certification team shall collectively have the knowledge of additionality assessment and baseline establishment, as defined in Appendix 2 below.

91. A verification/certification team shall collectively have the skills to assess the compliance of implemented A6.4 projects and PoAs and consequent monitored emission reductions or removals against all applicable requirements.

10.2.3.5. Validator or verifier auditing knowledge and skills

92. A validator or verifier shall have auditing knowledge and skills, including:

    (a) Data, information and system auditing techniques and methodologies;

    (b) Risk assessment techniques and methodologies;

(c) Data and information sampling techniques and methodologies;

(d) Application of the concepts of materiality and level of assurance;

(e) Collection of information through effective interviewing, listening, observing and reviewing documents, records and data;

(f) Verification of the accuracy of collected information, and evaluation of the sufficiency and appropriateness of gathered evidence to support validation or verification/certification findings and conclusions;

(g) Preparation of validation or verification/certification opinions and reports.

10.2.3.6. Team leader knowledge and skills

93. A validation or verification/certification team leader shall:

(a) Meet the requirements in paragraph 92 above;

(b) Have the following knowledge and skills and the ability to apply them to perform validation or verification/certification activities:

(i) Planning and making effective use of human resources and managing validation or verification teams;

(ii) Planning and organizing work effectively and performing it within the agreed time schedule, prioritizing and focusing on matters of significance;

(iii) Representing the validation or verification/certification team in communications with the DOE's clients;

(iv) Understanding the validation or verification/certification process, and leading the team to reach conclusions on all aspects of the validation or verification/certification and to complete the validation or verification/certification opinion and report;

(v) Preventing and resolving conflicts.

10.2.4. Competence for technical experts

94. A technical expert shall have specific knowledge and/or skills in technical, methodological and/or sectoral aspects, and demonstrable ability to apply such knowledge and skills.

10.2.5. Competence for technical review teams

95. A technical review team, whether it is composed of one or more persons, shall collectively have all knowledge and skills required in paragraphs 80–92 and 94 above and the ability to apply such knowledge and skills, to conduct a technical review.

96. A technical reviewer shall meet the requirements prescribed in paragraph 92 above.

10.3. Management of human resources and competence

10.3.1. Demonstration of competence and qualification of personnel

97. A DOE shall establish, document, implement and maintain a procedure for evaluating its validation and/or verification/certification personnel, for demonstrating that they have appropriate competence and meet applicable requirements, and for qualifying and authorizing them before they perform validation and/or verification/certification activities.

98. The procedure referred to in paragraph 97 above shall:

    (a) Include the consideration of the competence criteria, as determined in paragraphs 72–76 above, and the competence requirements in this standard;

    (b) Address the qualifications of personnel:

        (i) For all functions in validation and/or verification/certification activities, i.e. validator, verifier, team leader, technical expert and technical reviewer;

        (ii) In all technical areas in which the DOE intends to operate or operates, within all sectoral scopes for which the DOE has applied for accreditation or has been accredited;

    (c) Ensure that records of the evaluation–demonstration–qualification–authorization process are retained.

99. The DOE shall evaluate and demonstrate competence of its personnel through the following methods, generating objective records of how competence was evaluated under each method:

    (a) Review of personnel records, mentoring or training; and

    (b) An examination.

100. The review of personnel records shall include, but is not limited to, the review of curricula vitae detailing work experience and education.

101. Mentoring activities shall be specific to the relevant function and/or technical area and shall cover the entire spectrum of responsibilities of the relevant function and/or technical area.

102. Training programmes shall be designed so as to cover the required knowledge and skills in accordance with paragraphs 104–105 below and shall comply with the requirements contained in paragraphs 111–112 below.

103. An examination shall consist of real or mock validations and/or verifications/certifications and/or any other examination necessary to demonstrate competence in accordance with paragraphs 104–105 below.[23]

104. To be qualified in a technical area, a person shall meet, as a minimum, the technical knowledge requirements applicable to the technical area as prescribed in Appendix 2 below.

105. To be qualified in a function, a person shall meet the applicable requirements as prescribed in sections 10.2.3.5, 10.2.3.6, 10.2.4 and 10.2.5 above.

10.3.2. Monitoring of performance and ensuring competence

10.3.2.1. Continuous monitoring and maintenance of competence

106. A DOE shall establish, document, implement and maintain a procedure for monitoring the performance of its validation and/or verification/certification personnel to ensure appropriate performance and that their competence is maintained.

107. The performance monitoring process shall include:

(a) For personnel qualified by an examination that does not consist of a real validation and/or verification/certification, an on-the-job performance evaluation of the first validation or verification/certification conducted after the qualification of the person in order to confirm his/her competence;

(b) For all personnel, subsequent continuous on-the-job performance evaluation.

108. A DOE shall ensure the maintenance and update of competence of its validation and verification/certification personnel to keep up with newly introduced or revised Article 6.4 mechanism rules and requirements, and shall take into account technological changes related to A6.4 projects and PoAs.

109. The performance monitoring process should include three main steps:

(a) Establishing the evaluation criteria (qualitative and/or quantitative);

(b) Selecting the appropriate evaluation method; typical methods include review of validation/verification reports, on-site observation, interview and/or feedback from stakeholders;

(c) Conducting the evaluation.

110. The monitoring methods and frequency should depend on the type, range and volume of work performed by different personnel and the level of importance of their activities.

[23] The “examination” may include a range of evaluation methods, such as conducting interviews, evaluating past performance in validation or verification/certification activities, on-the-job observation of performance, and written examinations, against competence criteria determined for each evaluation method. Some general guidance on evaluation methods is available in ISO 17021-2015, Annex B, and ISO 14066-2011, Annex B, which may be referred to by DOEs, if needed. If someone is evaluated in a real or mock validation or verification/certification, no other examination may be necessary.

10.3.2.2. Training

111. A DOE shall establish, document, implement and maintain a procedure for providing training to those personnel:

(a) Who are not yet qualified to perform validation and/or verification/certification activities, and require prior training to ensure that they have appropriate competence before being qualified;

(b) Who are already qualified to perform validation and/or verification/certification activities, in order to ensure maintenance of competence.

112. The DOE shall:

(a) Identify training needs, taking into account the outcomes of the evaluation–qualification process, the performance monitoring in actual validation and/or verification/certification activities and new technical and regulatory needs;

(b) Evaluate the effectiveness of training provided;

(c) Maintain records pertaining to the trainings provided, including qualification of the trainer(s), content, modalities and duration.

10.3.3. Personnel records

113. A DOE shall maintain up-to-date personnel records of management and administrative personnel and the validation and/or verification/certification personnel, including those external to the DOE. These records shall include relevant documentation related to recruitment, evaluations, qualifications, performance monitoring, training, experience, affiliations, professional status, and any consultancy services that the personnel have provided.

11. Information management

11.1. Information to be made available in the public domain

114. A DOE shall maintain publicly available information related to accredited sectoral scopes, locations of the central office and other offices or outsourced entities declared in the “A6.4-DOO-FORM” and a list of all A6.4 projects and PoAs for which it has conducted the validation or verification/certification.

11.2. Confidentiality

115. A DOE shall establish, document, implement and maintain a policy and mechanism to safeguard the confidentiality of information obtained or created during the course of validation and/or verification/certification functions, except where provisions in CMA decisions require them to be made publicly available.

116. The personnel engaged by a DOE shall also be bound by these confidentiality requirements, and the DOE shall have a mechanism to ensure compliance, such as by obtaining signed confidentiality agreements.

117. A DOE shall not disclose any information about the activity participants who are involved in the A6.4 projects and PoAs for which the DOE provided validation or verification/certification services, that is not required to be made publicly available to a third party without the activity participant's prior written consent. The DOE should inform the activity participant before releasing confidential information to a third party, if required by law.

12. Validation and verification/certification process

12.1. Contract review

118. A DOE shall establish, document, implement and maintain a procedure for reviewing contracts with clients for the provision of validation and verification/certification services.

119. Before submitting a proposal/quotation to a potential client and entering into a contract for the validation or verification/certification of an A6.4 project or PoA, a DOE shall conduct a contract review and ensure that:

(a) It is accredited in the sectoral scope(s) of the A6.4 project or PoA to be validated or verified/certified;

(b) It has sufficient human resources, internal or external, with the required competence to undertake the validation or verification/certification;

(c) It has no impartiality issues with the conduct of the validation or verification/certification, and all impartiality requirements contained in section 9 above are met;

(d) Considerations such as location(s) of the client's operations, time required to complete the validation or verification/certification and any other issues influencing the validation or verification/certification (e.g. language, safety conditions) have been taken into account.

120. In order to confirm the elements described in paragraph 119 above, the DOE shall obtain or have access to the following information:[24]

(a) The draft project or programme design document of the A6.4 project or PoA to be validated or verified/certified that defines the project boundaries and sites included in the assessment, the nature of the data needed for validation or verification/certification, and the Article 6.4 mechanism baseline and monitoring methodology(ies) applied;

(b) Information about the activity participants and/or coordinating/managing entity, the host Party and its designated national authority;

[24] If the information is obtained by or accessed from the personnel located in the DOE's non-central offices, then these offices from respective countries hiring such personnel who conduct such function shall be declared as the outsourced entities via the A6.4-DOO-FORM even if final decisions are taken in the central office. However, there is no need to declare the DOE's non-central office as an outsourced entity if this office quotes for an Article 6.4 mechanism activity or PoA and the DOE shows such records being done in its central office.

(c) Information about persons or organizations engaged in the identification, development, consultancy and financing of the A6.4 project activity or PoA;

(d) Scope of the validation or verification/certification;

(e) Contract period and liability conditions.

121. Before entering into a contract with an activity participant for the validation or verification/certification of an A6.4 project or PoA, the DOE shall approve the contract review conducted in accordance with paragraph 119 above.

122. A DOE shall have a legally enforceable contract with the client for the provision of validation and verifications/certification services and such contract shall be in the name of the DOE.[25]

123. For each validation or verification/certification conducted, a DOE shall document and maintain records of the complete details of the contract review process (conduct and approval of contract reviews), including the justification for the decision to undertake the validation or verification/certification and the contract.

12.2. Selection of the validation or verification/certification personnel

124. A DOE shall establish, document, implement and maintain a procedure for the selection of members of validation and verification/certification teams and members of technical review teams.

125. For each validation or verification/certification to be conducted, the DOE shall ensure, in addition to compliance with team competence requirements, that:

(a) At least one member of the validation or verification/certification team is qualified in the technical area(s) of the A6.4 project or PoA to be validated or verified/certified;

(b) At least one member of the technical review team is qualified in the technical area(s) of the A6.4 project or PoA to be validated or verified/certified.

126. For each validation or verification/certification to be conducted, the DOE shall ensure that:

(a) Each member of the validation or verification/certification team and each member of the technical review team informs the DOE, prior to accepting the assignment, about any known existing, former or envisaged link to the A6.4 project or PoA to be validated or verified;

(b) All members of the validation or verification/certification team and all members of the technical review team have no conflict of interest with respect to the A6.4 project or PoA to be validated or verified, and meet all impartiality requirements contained in section 9 above.

[25] If a DOE has two types of contracts for validation or verification/certification of a particular A6.4 project or PoA (i.e. one covering the technical aspect and one covering the payment arrangement), it is adequate that the requirements under paragraph 120 of this standard be met by the contract covering the technical aspect.

127. A DOE shall have formal rules and/or contractual conditions to ensure that each member of the validation or verification/certification team and each member of the technical review team acts in an impartial and independent manner.

128. In selecting members of a validation or verification/certification team, the DOE shall consider and document the following aspects:

(a) Complexity of the A6.4 project or PoA;

(b) Risks associated with the project activity or PoA;

(c) Technological and regulatory aspects;

(d) Size and location of the facility;

(e) Type and amount of field work necessary for the validation or verification/certification process.

129. In advance of the validation/verification, the DOE shall provide the Article 6.4 mechanism activity participants the names and tasks of the validation/verification team members and sufficient background information to allow the Article 6.4 mechanism activity participants to object to the appointment of any particular member(s), with sufficient justification, and for the DOE to reconstitute the team in response to any valid objection.

12.3. Validation and verification/certification

130. A DOE shall establish, document, implement and maintain a procedure for performing its validation and/or verification/certification functions in accordance with the requirements specified in the CMA decisions, the Validation and verification standard, and other relevant decisions of the Supervisory Body.

131. The procedure referred to in paragraph 130 above shall ensure that:

(a) The DOE conducts a validation or verification/certification in accordance with the requirements in CMA decisions, the Validation and verification standard, the Project cycle procedure and other Supervisory Body decisions;

(b) The DOE prepares a validation or verification/certification plan, and defines and documents the task allocation among validation or verification/certification team members;

(c) For the validation or verification/certification visit to the project activity or PoA site, the following personnel, at a minimum, shall participate in the visit:

(i) The team leader;[26]

(ii) The team member(s) qualified in the technical area(s) of the A6.4 project or PoA being validated or verified/certified.

[26] In the case of site visits to multiple sites, the team leader is required to visit one or more sites, as appropriate.

12.4. Technical reviews

132. A DOE shall establish, document, implement and maintain a procedure for conducting technical reviews of final draft validation or verification/certification opinions and reports prepared by validation or verification/certification teams.

133. Prior to the issuance of a final validation or verification/certification opinion and report, the appointed technical review team shall conduct a technical review of the final draft validation or verification/certification opinion and report.

12.5. Issuance of final validation or verification/certification opinions and reports

134. A DOE shall establish, document, implement and maintain a procedure for approving and issuing final validation or verification/certification opinions and reports.

135. A validation or verification/certification opinion and report shall be approved and issued only if the technical review has established that all applicable Article 6.4 mechanism validation or verification/certification requirements have been met.

136. A final validation and verification/certification opinion and report shall be approved and issued by a member of the DOE's management.

13. Quality management system

13.1. General

137. A DOE shall establish, document, implement and maintain a quality management system for ensuring and demonstrating consistent implementation and compliance with the Article 6.4 mechanism accreditation requirements.

138. A DOE shall periodically update its quality management system, including all documents that form part of it, to reflect any changes in the Article 6.4 mechanism rules and requirements and address the outcomes of internal audits and management reviews.

13.2. Responsibilities of top management

139. The top management of a DOE shall demonstrate its commitment to the development and implementation of a quality management system in accordance with the Article 6.4 mechanism accreditation requirements.

140. The top management of a DOE shall put into place measures to ensure that the policies are understood, implemented and maintained at all levels of the organization.

13.3. Article 6.4 mechanism quality manager

141. The top management of a DOE shall appoint a member of the management as an Article 6.4 mechanism quality manager, who, regardless of other responsibilities, shall have responsibility and authority for the following:

    (a) Ensuring that the DOE's procedures for complying with Article 6.4 mechanism accreditation requirements are established, documented, implemented and maintained;

(b) Reporting to the DOE's top management on the performance of the quality management system and proposing required improvements.

13.4. Document and record management system

13.4.1. Control of documents

142. A DOE shall establish, document, implement and maintain a procedure for controlling all documents that form part of its quality management system (internally generated or from external sources), such as quality manual, procedures, instructions, forms, templates and check-lists, as well as all relevant Article 6.4 mechanism regulatory documents (standards, procedures, guidelines, clarifications, forms and other CMA and Supervisory Body decisions). The documentation can be in any form or type of medium; for instance, paper or electronic.

143. The procedure should define the controls needed for the following:

(a) Approval of documents by authorized personnel before they are issued;

(b) Re-approval of documents by personnel authorized to approve changes before they are issued;

(c) Identification of changes in documents and current revision status;

(d) Availability of authorized and applicable versions of all required documents at points of use;

(e) Prompt removal of all obsolete documents from all points of issue or use;

(f) Suitable marking of all obsolete documents retained for legal or other reasons;

(g) Identification, update and distribution of external documents.

13.4.2. Control of records

144. A DOE shall establish, document, implement and maintain a procedure for controlling the identification, collection, indexing, access, filing, storage, protection, retrieval, time retention and disposition of all its records.

145. Records of original observations, derived data and sufficient information used to follow an audit trail shall be maintained to demonstrate compliance with the Article 6.4 mechanism accreditation requirements.

146. Records shall be retained for a period of time consistent with the DOE's contractual and legal obligations and the Article 6.4 mechanism accreditation requirements. A DOE shall analyse which records can be categorized as permanent and which records can be disposed of after a retention time as defined by the DOE. All records shall be held securely and safely so as to preserve all confidential information.

147. The record control procedure should protect and back up records to prevent unauthorized access to, or amendment of, these records.

13.4.3. Records pertaining to validation and/or verification/certification functions

148. A DOE shall establish, document, implement and maintain a procedure for maintaining and managing specific records pertaining to its validation and/or verification/certification activities, including the following records:

(a) All information in respect of requests for validation and/or verification/certification and the information received from the activity participants in relation to such requests;

(b) Records pertaining to contracts, including the results of contract reviews (conduct and approval);

(c) Records pertaining to preparation and planning of validation and verification/certification activities;

(d) Records pertaining to objective evidence collected during validation and verification/certification activities;

(e) Records pertaining to findings and conclusions/opinions generated during validation and verification/certification activities;

(f) Records pertaining to validation and verification/certification opinions and reports;

(g) Records pertaining to any final decision-making;

(h) Records of complaints, disputes and appeals and their resolutions;

(i) Personnel records, including evidence of the competence of validation or verification/certification team members and technical review team members;

(j) Records of internal audits and actions taken based on the results of the audits;

(k) Records of management reviews and actions taken based on the reviews;

(l) Records pertaining to trainings provided.

149. A DOE shall securely transport or transmit specific records pertaining to its validation and/or verification/certification activities and securely maintain them in accordance with its own specified retention period.

13.5. Internal audits

150. A DOE shall establish, document, implement and maintain a procedure for conducting internal audits of its Article 6.4 mechanism validation and verification/certification functions and those of its outsourced entities in order to verify whether its quality management system is effective and ensure that its operations continue to comply with the Article 6.4 mechanism accreditation requirements and its own documented policies and procedures.

151. A DOE shall conduct an internal audit on its Article 6.4 mechanism validation and verification/certification functions and those of its outsourced entities at least once a year and in accordance with a predetermined schedule and procedure. A predetermined schedule and procedure shall include the frequency, methods, responsibilities, planning requirements and reporting which shall take into consideration the importance of the

DOE's activities concerned, changes affecting the DOE and the results of previous audits.[27]

152. An internal audit shall:

(a) Address all Article 6.4 mechanism accreditation requirements;

(b) Ensure that its internal auditors (e.g. either the DOE's own qualified personnel or an external qualified expert) do not audit their own work;

(c) Ensure adequate recording of the function audited, the audit findings and non-conformities raised;

(d) Include the verification and recording of the implementation and effectiveness of the corrections and corrective actions taken in response to the non-conformities raised in the internal audit.

13.6. Corrective and preventive actions

13.6.1. Corrective actions

153. A DOE shall establish, document, implement and maintain a procedure to identify and address non-conformities. Non-conformities may be raised as a result of the following, but not limited to:

(a) Internal audits;

(b) Unsuccessful validation or verification/certification submissions;

(c) Implementation of the DOE performance monitoring procedure;

(d) Article 6.4 mechanism accreditation assessments;

(e) Departures from the DOE's own policies and procedures; and

(f) Feedback provided by stakeholders.

154. The procedure referred to in paragraph 153 above shall ensure that:

(a) The DOE's activities and those of its outsourced entities are subject to the definition and implementation of corrective actions;

(b) Appropriate personnel are designated for the definition and implementation of the corrective actions;

(c) A root-cause analysis of the problem is carried out before defining the corrective action;

(d) The definitions of corrective actions are appropriate to the magnitude and risk of the problem;

(e) Corrective actions are implemented in a timely manner, including, if necessary, withholding of validation or verification/certification opinions and reports;

[27] ISO/IEC 17029:2019.

(f) Records of the following are maintained: corrective actions implemented; and results of documentation and implementation of any required changes in the DOE's internal systems resulting from corrective actions;

(g) Monitoring of the effectiveness of the corrective actions is undertaken.

155. Where the identified departures from the DOE's own policies and procedures cast doubts on the DOE's compliance with the Article 6.4 mechanism accreditation requirements, the DOE shall increase the frequency of internal audits.

156. Where the DOE has identified non-conformities related to paragraphs 153(b) and 153(c) above, the DOE shall carry out an analysis of its technical review process and define measures to improve its effectiveness.

13.6.2. Preventive actions

157. A DOE shall establish, document, implement and maintain a procedure for proactively identifying potential sources of non-conformities and areas for improvement and for implementing preventive actions to prevent the occurrence of non-conformities and/or improve the effectiveness of its validation and/or verification/certification activities and those performed by its outsourced entities.

158. Preventive actions taken should be appropriate to the probable impact of the potential problems. All records for preventive actions should be maintained.

13.7. Management review

159. A DOE shall conduct a management review of its Article 6.4 mechanism validation and verification/certification functions at least once a year to ensure continuing suitability and effectiveness of its quality management system, the consistent implementation of its policy and procedures, and continual compliance with the Article 6.4 mechanism accreditation requirements. Management reviews should be carried out with a predetermined schedule and procedure.

160. A management review should consider, with regard to the validation and/or verification/certification functions, the following:

(a) Follow-up actions from previous management reviews;

(b) Suitability of policies and procedures;

(c) Results of internal and external audits;

(d) Feedback from stakeholders related to the fulfilment of the Article 6.4 mechanism accreditation requirements;[28]

(e) Status of corrective and preventive actions;

(f) Results and status of quality assurance and quality control measures undertaken;

[28] A questionnaire approach may be considered as a means to collect such feedback from stakeholders. Fulfilment of the Article 6.4 mechanism accreditation requirements may include, but are not limited to, those requirements associated with the areas of competence of the DOE's staff and the impartiality and processes followed by the DOE.

(g) Fulfilment of quality objectives;

(h) Status of complaints, disputes and appeals;

(i) Recommendations for improvement;

(j) Validations or verifications/certifications rejected or placed under review by the Supervisory Body;

(k) Other relevant issues – for example, changes in the volume and scope of work, resources, competences and personnel training.

161. A DOE shall record the findings from its management reviews and the actions that arise from them.

162. The outcomes of management reviews should be actions to introduce necessary changes and make improvements to the DOE's quality management system and the DOE's validation and verification/certification functions. These actions should be indicated as measurable objectives.

14. Complaint, dispute and appeal processes

14.1. Complaints

163. A DOE shall establish, document, implement and maintain a procedure for receiving, managing, evaluating and investigating complaints, making decisions on them, and taking appropriate corrections and corrective actions.

164. A DOE shall make publicly available the procedure referred to in paragraph 163 above and the contact person involved in handling complaints.

165. The procedure referred to in paragraph 163 above shall include the following:

(a) The designation of personnel responsible for handling of complaints;

(b) The process for receiving the complaint, gathering and verifying all necessary information for evaluating the validity of the complaint, investigating the complaint, and deciding what actions are to be taken in response to it;

(c) The criteria for determining the validity of complaints;

(d) Tracking and recording complaints, including actions undertaken in response to them;

(e) Ensuring that appropriate corrections and corrective actions are taken;

(f) Safeguarding the confidentiality of the complainant and subject of the complaint. This process should be subject to requirements for confidentiality as it relates to the complainant and to the subject of the complaint;

(g) Ensuring that the persons engaged in the complaint-handling process are different from those who carried out the validation or verification/certification activities;

(h) Acknowledging receipt of the complaint, and providing the complainant a progress report where feasible;

(i) Informing the complainant of the outcome of the investigation and the final notice at the end of the complaint-handling process;

(j) Maintaining a record of complaints.

14.2. Disputes

166. A DOE shall establish, document, implement and maintain a procedure for handling disputes.

167. A DOE shall make the procedure referred to in paragraph 166 above available to its clients upon request or if a dispute occurs.

168. The dispute-handling procedure should include the following:

(a) The process for receiving the dispute, gathering and verifying all necessary information for evaluating the validity of the disputes, investigating the disputes and for deciding what actions are to be taken in response to them;

(b) The criteria for determining the validity of disputes;

(c) Tracking and recording disputes, including actions undertaken in response to them;

(d) Ensuring that appropriate corrections and corrective actions are taken;

(e) Safeguarding the confidentiality of the disputes and subject of the disputes. This process should be subject to requirements for confidentiality as it relates to the disputes and to the subject of the disputes;

(f) Ensuring that the persons engaged in the dispute-handling process are different from those who carried out the validation or verification/certification activities;

(g) Acknowledging receipt of the disputes, and providing the disputant a progress report where feasible;

(h) Informing the disputant of the outcome of the investigation and the final notice at the end of the dispute-handling process;

(i) Maintaining a record of disputes.

14.3. Appeals

169. The DOE shall establish, document, maintain and implement a procedure for appeals.

170. A DOE shall make publicly available the procedure referred to in paragraph 169 above and the contact person involved in handling appeals.

171. The appeal process shall include:

(a) The establishment of an independent appeal panel responsible for the appeal process;

(b) Provisions to ensure that the persons engaged in the appeal process differ from those who conducted the validation or verification/certification, including the technical review and final decision-making;

(c) Provisions to ensure that the submission, investigation and decision on appeals do not result in any discriminatory actions against the appellant;

(d) An outline of the process for receiving, acknowledging and investigating the appeal after ascertaining its validity, ensuring that decisions take into account all the relevant information available and gathered as part of investigation;

(e) Tracking and recording appeals, including actions undertaken to resolve them;

(f) Ensuring that, if the investigation points towards a non-conformity, appropriate corrections and corrective actions are taken to eliminate the gaps in the system, especially if the investigation points towards any gaps in the system;

(g) Safeguarding the confidentiality of appellants and the subjects of the appeal. This process shall be subject to requirements for confidentiality;

(h) Providing progress reports on the appeal investigation and handling to the appellant and providing information/notice on the final decision;

(i) Ensuring that the final decision shall be made by the independent appeal panel.

172. The DOE shall inform the appellant of the independent appeal panel's decision. In cases where the appellant is not satisfied with the decision, the DOE shall inform the appellant that it has the option of making a complaint to the Supervisory Body.

Appendix 1. Functions that may be outsourced

1. The table below contains the accreditation requirements contained in this standard and provides the rules for the functions that may be outsourced as defined in paragraphs 66–71 above.

2. In the last column of the table, “YES” indicates that the function corresponding to the requirement may be outsourced, and “NO” indicates that the function shall not be outsourced. “N/A” indicates that the outsourcing is not applicable (e.g. the requirement is not a function). In cases where a requirement is for the DOE to have a documented procedure, the corresponding function that can be outsourced (if a “YES” is indicated) is that the outsourced entity shall implement the DOE’s procedure.

3. In the last column of the table, items marked with “YES” followed by a “*” indicate that the outsourcing can be undertaken exclusively in the context of the other functions that are carried out by the outsourced body.

Table. Functions that may be outsourced

Chapter	Requirement	Function		Paragraphs	Outsourcing
6	Legal status and matters			11-16	N/A
7	Finance and liability	Financial stability		17-18	NO
		Liability		19-20	NO
8	Entity's management	Management structure		21-24	NO
		Management functions		25-27	NO
9	Safeguarding impartiality	General		28-33	N/A
		Safeguarding impartiality at the policy level		34-37	NO
		Safeguarding impartiality at the organization level		38-42	NO
		Safeguarding impartiality at the operational level		43-50	YES*
		Review of effectiveness		51-53	NO
10	Human resources and competence	Sufficiency of human resources	General	54-61	NO
			Use external individuals	62-64	YES*
			Outsourcing	66–71	NO
		Competence requirements	Initial competence analysis	72-76	NO
			Competence for management functions	77-78	NO
			Competence for validation or verification/certification teams	79-93	NO
			Competence for technical experts	94 and 63(c)	NO
			Competence for technical reviewers	95-96	NO
		Management of human resources and competence	Demonstration of competence and qualification of personnel	97-105	NO
			Monitoring of performance and ensuring competence	106-112	NO

Chapter	Requirement	Function		Paragraphs	Outsourcing
			Personnel records	113	NO
11	Information management	Information to be made available in the public domain		114–113	NO
		Confidentiality		115–117	YES*
12	Validation and verification/certification process	Contract review	Validation/verification contract review	118–120	YES
				121–123	NO
		Selection of the validation or verification/certification personnel		124, 126129	YES, excluding appointment of technical review teams
				125	NO
		Validation and verification/certification		130	YES
				131	NO
		Technical reviews		132–133	NO
		Issuance of final validation or verification/certification opinions and reports		134–136	NO
13	Quality management system	General		137–138	NO
		Responsibilities of top management		139–140	NO
		Article 6.4 mechanism quality manager		141	NO
		Document and record management system	Control of documents	142–143	NO
			Control of records	144–147	YES*
			Records pertaining to validation and/or verification/certification functions	148(a), 148(c)-148(e), 149	YES*
			Records pertaining to validation and/or verification/certification functions	148(b), 148(f)-148(l)	NO
		Internal audits		150–152	NO

Chapter	Requirement	Function		Paragraphs	Outsourcing
		Corrective and preventive actions		153–158	NO
		Management review		159–162	NO
14	Handling complaints, disputes and appeals	Complaints		163–165	NO
		Disputes		166–168	NO
		Appeals		169–172	NO

Appendix 2. Sectoral scopes and sector technical knowledge

1. Introduction

1. This appendix lists and describes the sectoral scopes, the technical areas within each sectoral scope, and the technical knowledge required for each technical area.

2. Sectoral scopes and technical knowledge required

2. The following table defines the minimum technical areas and technical knowledge to be considered by a DOE to qualify its personnel in accordance with 97 above. The sectoral scopes as contained below are to be further revised once Article 6.4 mechanism methodological requirements including removals and related all the methodologies are approved by the CMA and the Supervisory Body.

Table. Sectoral scopes and required sector technical knowledge

Sectoral scope	Technical area	Typical group of activities and greenhouse gas (GHG) emissions	Technical knowledge required
SS 1: Energy industries (renewable/ non-renewable sources)	TA 1.1. Thermal energy generation	**Typical activities:** – Power and heat generation from non-renewable energy sources and biomass, including construction of new plants, capacity increases, plant retrofitting, energy efficiency and fuel switching; – District heating systems and power grids, including construction of new grids and systems, extension of existing grids and systems and interconnection of grids and systems. **Typical GHG emissions:** – CO_2 emissions from fuel combustion for power and heat generation; – Upstream emissions from fuel extraction, transport and processing.	– Methods for the evaluation of mass and energy flows in energy generation activities, such as direct monitoring, mass and energy balances and use of emission factors; – Characteristics of combustion devices, heat plants and power plants, such as installed capacity, fuel type, thermal efficiency and plant type; – Operation of electrical power grids, dispatch of power plants and evaluation of GHG emissions from power grids by means of dispatch analysis; – Methods for the evaluation of upstream GHG emissions related to fuel use, such as the use of standard GHG emission factors.

Sectoral scope	Technical area	Typical group of activities and greenhouse gas (GHG) emissions	Technical knowledge required
	TA 1.2. Renewables	**Typical activities:** – Power and heat generation from renewable energy sources, including construction of new plants, capacity increases, plant retrofitting, energy efficiency and fuel switching. **Typical GHG emissions:** – CO_2 emissions from fuel combustion for power and heat generation; – CO_2 and CH_4 emissions from renewable energy technologies.	– Methods for the evaluation of mass and energy flows in energy generation activities, such as direct monitoring, mass and energy balances and use of emission factors; – Characteristics of renewable electrical power plants, such as installed capacity, load factor, intermittency of operation, auxiliary fuel use and GHG emissions (e.g. GHG emissions from hydropower plant reservoirs, geothermal reservoirs); – Operation of electrical power grids, dispatch of power plants and evaluation of GHG emissions from power grids by means of dispatch analysis.
SS 2: Energy distribution	TA 2.1. Energy distribution	**Typical activities:** – Energy efficiency measures in power transmission and distribution. **Typical GHG emissions:** – CO_2 emissions from fuel combustion for power and heat generation.	– Energy efficiency measures in transmission and distribution power systems and evaluation of energy savings; – Energy efficiency measures involving transformers and evaluation of energy savings; – Transmission of power in AC and DC systems and associated energy losses; – Upgrading of transmission voltage in transmission and distribution power systems.

Sectoral scope	Technical area	Typical group of activities and greenhouse gas (GHG) emissions	Technical knowledge required
SS 3: Energy demand	TA 3.1. Energy demand	**Typical activities:** – Demand-side energy efficiency measures in diverse sectors, such as pumping systems, lighting systems, household appliances and buildings. **Typical GHG emission:** – CO_2 emissions from fuel combustion (commercial and non-commercial) for power and heat generation.	– Methods for the evaluation of mass and energy flows in demand-side energy use, such as direct monitoring, mass and energy balances, energy use factors and energy efficiency factors.
SS 4: Manufacturing industries	TA 4.1. Cement and lime production	**Typical activities:** – Cement production, in particular fuel switching and use of alternative raw materials. **Typical emissions:** – GHG emissions from cement production, such as those from calcination of carbonated raw materials.	– Unit operations in cement and lime production and calcination of raw materials; – Potential raw materials and fuels for the production of cement and lime, such as limestone, conventional kiln fuels, dolomite, magnesite and alternative kiln fuels; – Emissions, mass and energy balances in cement and lime production and calcination of raw materials; – Methods to determine the carbonate content of raw materials.

Sectoral scope	Technical area	Typical group of activities and greenhouse gas (GHG) emissions	Technical knowledge required
SS 5: Chemical industry	TA 5.1. Chemical industry	**Typical activities:** – Production of chemicals, processed and manufactured materials, such as biodiesel, charcoal, upgraded biogas, ammonia, urea, CO_2-based chemicals and hydrogen. **Typical emissions:** – GHG emissions from chemical and manufacturing processes, such as transesterification, pyrolysis, carbonization, fuel reforming and gas upgrading and cleaning.	– Chemical processes, chemical reactions and stoichiometry; – Unit operations in the chemical process industry; – Emissions, mass and energy balances in chemical and manufacturing processes.
	TA 5.2. Caprolactam, nitric and adipic acid	**Typical activities:** – Management and abatement of N_2O emissions from caprolactam, nitric and adipic acid plants. **Typical GHG emissions:** – N_2O emissions from caprolactam, nitric and adipic acid plants.	– Chemical reactions, stoichiometry, mass and energy balances in caprolactam, nitric acid and adipic acid production processes; – Methods for the evaluation of GHG emission sources, in particular N_2O emissions, in caprolactam, nitric acid and adipic acid production processes; – N_2O abatement options, including primary, secondary and tertiary abatement technologies.

Sectoral scope	Technical area	Typical group of activities and greenhouse gas (GHG) emissions	Technical knowledge required
SS 6: Construction	TA 6.1. Construction	This sectoral scope covers activities related to construction of buildings, such as using less GHG-intensive construction techniques and materials. This does not cover energy efficiency in buildings. Those types of activities are covered under the new sectoral scope 3-Energy Demand. No methodology has been approved so far and the sectoral technical knowledge is only indicative.	– Construction of buildings and foundations, load-bearing structures and construction material requirements for different types of structures; – GHG emission sources, in particular CO_2 emissions, in production and transportation of construction material; – Knowledge of building and construction codes and best practices within regions to determine the baseline and baseline emissions.
SS 7: Transport	TA 7.1. Transport	**Typical activities:** – Introduction of modal shifts, fuel switches and less GHG-intensive transport modes in the transport of freight and passengers. **Typical GHG emissions:** – CO_2 emissions from fossil fuel combustion in transport activities. – CO_2 emissions from fuel combustion for power generation.	– Modelling of transport systems and establishment of service level, travel distance and baseline transport modes; – Surveys and sampling in transport projects for the determination of alternative transport scenarios; – Unintended emissions from rebound effect, induced traffic and change in occupancy rates; – Methods for the evaluation of GHG emissions from transport modes by means of the quantification of primary energy use and standard GHG emission factors for power and fuels.
SS 8: Mining/mineral production	TA 8.1. Mining/mineral production	**Typical activities:** – Management of mine methane; – Capture and use of waste gas. **Typical GHG emissions:** – CH_4 emissions from metal ore and coal mining.	– Unit operations in the mining and coal industries, such as drilling, cutting, blasting, loading, hauling, ventilation and drainage; – Emissions, mass and energy balances in mining and coal activities; – Potential uses, flaring and venting of waste streams and mine methane in the mining and coal industries.

Sectoral scope	Technical area	Typical group of activities and greenhouse gas (GHG) emissions	Technical knowledge required
SS 9: Metal production	TA 9.1. Aluminium and magnesium production	**Typical activities:** – Management of PFC emissions in aluminium production. **Typical GHG emissions:** – PFC emissions; – Emissions of SF_6 and other cover gases; – CO_2 emissions from fuel combustion for power and heat generation.	– Unit operations in metallurgy; – Emissions, mass and energy balances in metallurgy; – Evaluation of specific energy consumption of furnaces and kilns based on technical data, historical values and performance tests; – Anode effects, PFC emissions and mitigation measures to reduce PFC emissions in primary aluminium smelting facilities or use of cover gases, such as SF_6, fluorinated gases and SO_2, in magnesium casting and alloying processes.
	TA 9.2. Iron, steel and ferro-alloy production	**Typical activities:** – Management of CO_2 emissions in iron production; – Waste gas recovery and use in iron and steel production. **Typical GHG emissions:** – CO_2 emissions in iron reduction; – CO_2 emissions from fuel combustion for power and heat generation.	– Unit operations in metallurgy; – Emissions, mass and energy balances in metallurgy; – Evaluation of specific energy consumption of furnaces and kilns based on technical data, historical values and performance tests; – Energy recovery and utilization in steel, iron and ferro-alloy facilities, including blast furnace gas, coke oven gas, and converter gas.
SS 10: Fugitive emissions from fuels (solid, oil and gas)	TA 10.1. Fugitive emissions from oil and gas	**Typical activities:** – Management of associated gas and waste gas in oil and gas facilities. **Typical GHG emissions:** – CH_4 emissions from associated gas and waste gas.	– Unit operations in the oil and gas industries; – Dynamics of oil and gas reservoirs, enhanced oil recovery, gas-lifting techniques and production of associated gas; – Emissions, mass and energy balances in oil and gas operations; – Potential uses, flaring and venting of waste streams and associated gas in the oil and gas industries.

Sectoral scope	Technical area	Typical group of activities and greenhouse gas (GHG) emissions	Technical knowledge required
SS 11: Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride	TA 11.1. Emissions of fluorinated gases	**Typical activities:** – Mitigation of HFC emissions used as refrigerant and blowing agent; – Mitigation of SF_6 emissions used as insulating gas in electrical equipment; – Mitigation of fluorinated gases emissions used in semiconductor manufacturing. **Typical GHG emissions:** – Emissions of HFC, SF_6 and other fluorinated greenhouse gases.	– Applications of HFC, SF6 and other fluorinated gases in manufacturing processes; – Mitigation and abatement of fluorinated GHGs emissions; – Monitoring of fluorinated GHGs including the use of Fourier Transform Infrared Spectroscopy, Quadrupole Mass Spectrometer, mass balances and gas chromatography.
	TA 11.2. Refrigerant gas production	**Typical activities:** – Production of refrigerant gas HCFC-22. **Typical GHG emissions:** – Emissions of HFC-23.	– Unit operations in HCFC-22 production in swing and non-swing plants; – Formation of HFC-23 streams in HCFC-22 production and mitigation measures; – Use of mass balances in the evaluation of HFC-23 generation and emissions; – Monitoring of HFC streams using mass flow meters and gas chromatography.
SS 12: Solvents use	TA 12.1. Chemical industry	**Typical activities:** – Projects involving the use of solvents. **Typical GHG emissions:** – Emissions of GHG related to the use of solvents.	– Chemical processes, chemical reactions and stoichiometry; – Unit operations in the chemical process industry; – Emissions, mass and energy balances in chemical and manufacturing processes.

Sectoral scope	Technical area	Typical group of activities and greenhouse gas (GHG) emissions	Technical knowledge required
SS 13: Waste handling and disposal	TA 13.1. Solid waste and wastewater	**Typical activities:** – Solid waste disposal in landfills; – Alternative methods of solid waste management, such as gasification, incineration, recycling and production of refuse derived fuel; – Wastewater treatment systems; – Biogas management. **Typical GHG emissions:** – CH_4 emissions from the anaerobic decay of organic matter contained in solid waste and wastewater.	– Biomass decay under aerobic and anaerobic conditions and the production of biogas; – Types of solid waste and wastewater, their composition, characterization parameters and impact of composition on decay rates and GHG emissions; – Use of decay models and standard GHG emission factors in the estimation of GHG emissions from solid waste decay and solid waste disposal sites. – Alternative methods for disposal, management and treatment of waste.
	TA 13.2. Manure	**Typical activities:** – Manure management systems; – Biogas management. **Typical GHG emissions:** – CH_4 emissions from the anaerobic decay of organic matter contained in manure.	– Biomass decay under aerobic and anaerobic conditions and the production of biogas; – Types of manure, their composition, characterization parameters and impact of composition on decay rates and GHG emissions; – Types of livestock, dietary factors and their impact on manure generation; – Use of decay models and standard GHG emission factors in the estimation of GHG emissions from manure management systems.
[SS 14: Removals]	*[This placeholder for possible provisions on the sectoral scope will be developed once Article 6.4 mechanism methodological requirements including removals are provided by the CMA and the Supervisory Body.]*		

Sectoral scope	Technical area	Typical group of activities and greenhouse gas (GHG) emissions	Technical knowledge required
SS 15: Agriculture	TA 15.1. Agriculture	**Typical activities:** – Management of agricultural operations to reduce emissions; – Management of fertilizer application. **Typical GHG emissions:** – N_2O emissions from fertilizer application; – Change in carbon stocks due to agricultural operations; – CO_2 emissions from fuel combustion.	– Agricultural operations and its main GHG emission sources; – Use of fossil fuels and electricity in agricultural operations and methods to quantify their use and corresponding GHG emissions; – GHG emissions from the production and application of synthetic and organic fertilizers, urea, dolomite and limestone; – Field burning of biomass and GHG emissions; – Carbon stocks in the soil and land management practices; – GHG emissions attributable to the displacement (shift) of pre-project agricultural activities; – Definition and identification of degraded and degrading lands in the context of Article 6.4 mechanism activities.
[SS 16 Carbon capture and storage of CO_2 in geological formation]	*[This placeholder for possible provisions on the sectoral scope will be developed once Article 6.4 mechanism methodological requirements including carbon capture and storage of CO_2 in geological formation are provided by the CMA and the Supervisory Body.]*		

Appendix 3. Validation and verification technical knowledge

1. The validation and verification technical knowledge is defined in the table below.

Table. Validation and verification technical knowledge

Knowledge area	Validation and/or verification technical knowledge
Additionality assessment, selection and application of methodologies and standardized baselines applied for calculating emission reductions and removals, sustainable development tool and methodological requirements including removals.	a) Additionality assessment and baseline establishment in Article 6.4 mechanism methodologies and standardized baselines; b) Project evaluation and investment decision theory; c) Rules of investment analysis; d) Uncertainty and sensitivity analysis; e) Establishment of baseline scenarios based on various approaches, such as best available technologies, an ambitious benchmark approach, and an approach based on existing actual or historical emissions adjusted downwards; f) Data and information auditing and reporting expertise to evaluate the environmental and social impacts as part of the sustainable development information system to determine whether the client has identified, collected, analysed and reported on the data and information in different host countries necessary to establish a credible conclusion, and has systematically taken corrective actions to address any non-conformities related to requirements of the Article 6.4 mechanism sustainable development tool;(1) g) Regional aspects and relevant national policies and legislation, including macro policy evaluation and authorization of the host country(ies) of the A6.4 mechanism project activity or programme of activity.

Knowledge area	Validation and/or verification technical knowledge
Greenhouse gas (GHG) accounting and monitoring	a) GHGs eligible under the Paris Agreement; b) Definition of project boundaries, gases and emission sources in Article 6.4 mechanism activities; c) Use of Global Warming Potential and conversion of non-CO_2 GHG to equivalent CO_2 emissions; d) Direct measurement of GHG emissions using flow meters and gas analysis; e) Indirect evaluation of GHG emissions; f) Use of GHG standard emission factors based on energy content and service level: i. Combustion of solid, liquid and gaseous fuels and approaches to evaluating GHG emissions from fuel combustion; ii. Evaluation of GHG emissions from heat and power generation by means of GHG emission factors and quantification of energy use; iii. Evaluation of power grid GHG emission factors based on power plant dispatch analysis; iv. Use of mass and energy balances in the evaluation of GHG emissions; g) Metrology and the measurement of physical properties; h) Quality control of measurements, including the concepts of measurement range, measurement uncertainty (accuracy, precision and bias) and meter calibration; i) Statistical treatment of data, surveys and sampling in the Article 6.4 mechanism.

Note 1: ISO 14065:2020.

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