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Article 6.4 mechanism accreditation

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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.

2.2. Entry into force

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

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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] 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).

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]

   (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;

[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.

(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-fulfilment 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 throughout the accreditation term. 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;

(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.

[7] ISO/IEC 17029:2019.

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: (a) once Article 6.4 mechanism methodological requirements including removals and related all the methodologies are approved by the CMA and the Supervisory Body; and (b) based on any possible new sectoral scopes and operational efficiency of those proposed sectoral scopes gained from the experiences of actual implementations.

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 establish, document, implement and maintain a procedure for handling of judicial processes and maintain a record of all the judicial processes pending against it as well as information of any judicial cases held in the past.

13. The procedure referred to in paragraph 12 above 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.

14. 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 as paragraph 13(d) above, the AE/DOE shall promptly report the matter to the UNFCCC secretariat within 30 days.

15. Upon receipt of such report, the secretariat shall report the same to the Supervisory Body within seven days for its consideration. Based on severity of the judicial case, the Supervisory Body will decide whether to place the DOE under-observation/suspension/withdrawal of accreditation as per the provisions defined under Article 6.4 mechanism accreditation procedure.

7. Finance and liability

7.1. Financial stability

16. A DOE shall demonstrate to the Supervisory Body throughout the accreditation term 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.

17. A DOE shall demonstrate to the Supervisory Body throughout the accreditation term that it has a process for regularly monitoring, at least annually, its income and expenditure to determine the financial stability and resources required for its validation and/or verification/certification functions.

7.2. Liability

18. A DOE shall demonstrate to the Supervisory Body throughout the accreditation term 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, at least annually, and has arrangements as referred to in the paragraph 19 below to cover the identified risks arising from its activities in validation and/or verification/certification and the geographic areas it operates.[9]

19. The arrangements 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 responsibility 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 turnover of the DOE's business).

8. Entity’s management

8.1. Management structure

20. 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.

21. 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.

22. 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.

23. A DOE shall establish, document, implement and maintain a procedure for the allocation of responsibility within the organization.

8.2. Management functions

24. A DOE shall ensure and demonstrate to the Supervisory Body throughout the accreditation term that its management personnel responsible for the DOE’s validation and/or verification/certification functions are competent to carry out the functions. A DOE’s management shall manage all validation and/or verification/certification resources and activities and:

    (a) Determine the human resource requirements;

    (b) Evaluate 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.

25. A DOE shall ensure and demonstrate to the Supervisory Body throughout the accreditation term that its top management personnel responsible for the DOE’s validation

and/or verification/certification functions are competent to carry out the functions. 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) Documentation of policies and procedures and their implementation;

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

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

(e) Decisions relating to disputes and complaints.

26. 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

27. 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.

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

29. 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.

9.2. Safeguarding impartiality at the policy level

30. 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.

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

32. 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.

9.3. Safeguarding impartiality at the organization level

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

34. 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).

35. 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[12] with a balanced representation of each of them;

(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 fulfil 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.

[12] 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.

36. 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 within seven days. 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 within seven days.

37. The DOE shall enable the Supervisory Body, 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

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

39. The DOE shall ensure that the procedure referred to in paragraph 38 above requires it to carry out a conflict of interest analysis at least annually 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.[13]

40. The conflict-of-interest analysis shall include, but not be limited to, the following risks:[14]

(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;

(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.

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

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

[13] 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).

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

(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.

42. 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

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

44. The DOE shall ensure that procedure referred to in paragraph 43 above describes 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.

45. The DOE shall ensure that procedure referred to in paragraph 43 above provides the following, at a minimum:

    (a) The DOE shall not conduct both the validation and verification/certification of an A6.4 project or PoA:

        (i) Except in the situations allowed by the Validation and verification standard;

        (ii) 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 41 above, relating to the A6.4 projects or PoAs;

    (b) 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;

    (c) 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;

    (d) 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;

    (e) The DOE shall ensure that its activities are not 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;

(f) 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 identify 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;

(g) 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;

(h) The DOE shall ensure that the conditions in its contracts with activity participants does 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;

(i) The DOE shall ensure that the personnel involved in validation and/or verification/certification activities are 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;

(j) The DOE shall ensure that the personnel involved in validation and/or verification/certification activities do 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;

(k) The DOE shall ensure that it's operation and its personnel (internal and external) have no relationship[15] with the related body of the DOE that creates threats to its impartiality;

(l) The DOE shall ensure that 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.

9.5. Review of effectiveness

46. The DOE shall analyse and review, at least annually, 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.

[15] 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.

47. Based on the data/information referred to in paragraph 46 above, the DOE shall carry out, at least annually, an analysis of the process to safeguard impartiality and a review of its effectiveness.

48. 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

49. 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.

50. 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.

51. The DOE shall ensure that the management personnel are internal resources.[16]

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

    (a) Using internal resources; and/or

    (b) Outsourcing, as defined in paragraphs 57–65 below.

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

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

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

[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.

55. 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 the following personnel as defined in Appendix 2:[18]

    (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).

10.1.2. Recruitment

56. 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.

10.1.3. Outsourcing

10.1.3.1. Outsourcing to an entity

57. If a DOE outsources one or more functions to an outsourced entity, the DOE shall establish, document, implement and maintain a procedure for outsourcing.[19]

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

59. The procedure referred to in paragraph 57 above shall require the DOE to:

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

    (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.

[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 65 of this standard; (b) the credentials of the technical experts are available (e.g. curricula vitae, records), as per, inter alia, paragraph 73(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 64(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] Outsourcing to an entity, as described in paragraphs 57–62, does not constitute the use of external individuals as described in paragraphs 63–65.

60. A DOE may outsource functions to outsourced entities in accordance with Appendix 1 below.[20]

61. 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.

62. 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 90(c) below.

10.1.3.2. Outsourcing to an external individual

63. A DOE may use external individuals,[21] 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 52(b) above. In such cases, the DOE shall establish, document, implement and maintain a procedure for engaging external individuals.[22]

64. The procedure referred to in paragraph 63 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 they 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 they 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.

[20] 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.

[21] The use of external individuals, as described in paragraphs 63–65, does not constitute outsourcing to an entity as described in paragraphs 57–62.

[22] 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.

65. Requirements with respect to competence, evaluation and qualification, monitoring of performance, maintenance of competence, training, and personnel records, as defined in sections 10.2.2 below and 10.3.1–10.3.3 below, shall also apply to external individuals.

10.2. Competence requirements

10.2.1. Initial competence analysis

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

67. 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.

68. A DOE shall ensure that the initial competence analysis provides 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.

69. A DOE shall ensure that the competence criteria meet, at a minimum, the competence requirements prescribed in paragraphs 24–25 above and 71 below.

70. 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.

10.2.2. Competence for validation or verification/certification teams

71. A DOE shall ensure that the validation or verification/certification team, validator or verifier, team leader, technical expert and technical review team, whether it is composed of one or more persons, collectively have all knowledge and skills as required in the table 1 of Appendix 3 below, and the ability to apply such knowledge and skills to conduct a validation or verification/certification.

10.3. Management of human resources and competence

10.3.1. Demonstration of competence and qualification of personnel

72. 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.

73. A DOE shall ensure that the procedure referred to in paragraph 72 above :

    (a) Includes the consideration of the competence criteria, as determined in paragraphs 66–70 above, and the competence requirements in this standard;

(b) Addresses 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) Ensures that records of the evaluation–demonstration–qualification–authorization process are retained.

74. A DOE shall evaluate and demonstrate competence of its personnel to the Supervisory Body through the following methods, generating objective records of how competence was evaluated under each method:

(a) Review of personnel records[23], mentoring or training;[24] and

(b) An examination.[25]

75. To be qualified in a technical area, a DOE shall ensure that the person meets, as a minimum, the technical knowledge requirements applicable to the technical area as prescribed in Appendix 2 below.

76. To be qualified in a function, a DOE shall ensure that the validator or verifier, team leader, technical expert and technical reviewer meets the applicable requirements as prescribed in the table 1 of Appendix 3 below.

10.3.2. Monitoring of performance and ensuring competence

10.3.2.1. Continuous monitoring and maintenance of competence

77. 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.

78. A DOE shall ensure that the performance monitoring process includes:

(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

[23] A DOE shall ensure that the review of personnel records includes, but not limited to, the review of curricula vitae detailing work experience and education.

[24] A DOE shall ensure that the mentoring activities are specific to the relevant function and/or technical area and cover the entire spectrum of responsibilities of the relevant function and/or technical area.

[25] A DOE shall ensure that 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 75-76 below. 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.

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.

79. 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.

80. A DOE shall ensure that 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.

81. A DOE shall ensure that 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.

10.3.2.2. Training

82. 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.

83. 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

84. 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

85. A DOE shall maintain publicly available information required as below on its website throughout the accreditation term:

(a) Information related to accredited sectoral scopes, locations of the central office and other offices or outsourced entities declared in the “A6.4-DOO-FORM”;

(b) A list of all A6.4 projects and PoAs for which it has conducted the validation or verification/certification;

(c) The procedure on allocation of responsibilities within the organization established referred to in the paragraph 23 above and information on names of management personnel and their corresponding responsibilities publicly available;

(d) The policy for safeguarding impartiality referred to in paragraph 30 above;

(e) The complaint handling procedure referred to in paragraph 133 below 133 belowand the contact person involved in handling complaints;

(f) The appeals handling procedure referred to in paragraph 138 below and the contact person involved in handling appeals.

11.2. Confidentiality

86. 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.

87. A DOE shall ensure that the personnel engaged 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.

88. 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

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

90. 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.

91. In order to confirm the elements described in paragraph 90 above, the DOE shall obtain or have access to the following information:[26]

    (a) Information related to the sustainable development tool including the Article 6.4 Sustainable Development form and outcome of the local stakeholder consultation;

    (b) 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;

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

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

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

    (f) Contract period and liability conditions.

92. 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 90 above.

[26] 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.

93. 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.[27]

94. 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

95. 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.

96. For each validation or verification/certification to be conducted, the DOE shall ensure, in addition to compliance with team competence requirements, compliance with the requirements as specified under paragraph 55 above as well.

97. 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. Also, a DOE shall ensure that 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.

98. 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.

99. 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.

[27] 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 93 of this standard be met by the contract covering the technical aspect.

12.3. Validation and verification/certification

100. 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.

101. A DOE shall ensure that the procedure referred to in paragraph 100 above includes that:

(a) The DOE conducts a validation or verification/certification in accordance with its established procedure referred to in paragraph 100 above;

(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;[28]

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

12.4. Technical reviews

102. 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.

103. A DOE shall ensure that prior to the issuance of a final validation or verification/certification opinion and report, the appointed technical review team conducts 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

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

105. A DOE shall ensure that validation or verification/certification opinion and report are 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.

106. A DOE shall ensure that the final validation and verification/certification opinion and report are approved and issued by a member of the DOE's management.

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

13. Quality management system

13.1. General

107. 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.

108. 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

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

110. 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

111. 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

112. 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 checklists, 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.

113. A DOE shall ensure that the procedure referred to in paragraph 112 above 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

114. 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.

115. A DOE shall ensure that records of original observations, derived data and sufficient information used to follow an audit trail are maintained to demonstrate compliance with the Article 6.4 mechanism accreditation requirements.

116. A DOE shall ensure that records are 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.

117. A DOE shall ensure that the record control procedure is 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

118. 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.

119. 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

120. 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.

121. 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 annually and in accordance with a predetermined schedule and procedure. A DOE shall ensure that the predetermined schedule and procedure 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.[29]

122. A DOE shall ensure that an internal audit:

(a) Addresses all Article 6.4 mechanism accreditation requirements;

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

(d) Includes 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.

[29] ISO/IEC 17029:2019.

13.6. Corrective and preventive actions

13.6.1. Corrective actions

123. 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;

(f) Feedback provided by stakeholders.

124. A DOE shall ensure that the procedure referred to in paragraph 123 above include the following:

(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;

(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.

125. 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.

126. Where the DOE has identified non-conformities related to paragraphs 123(b) and 123(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

127. 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.

128. A DOE shall ensure that preventive actions taken should be appropriate to the probable impact of the potential problems and all records for preventive actions should be maintained.

13.7. Management review

129. 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.

130. A DOE shall ensure that 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;[30]

(e) Status of corrective and preventive actions;

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

(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.

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

132. A DOE shall ensure that 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.

[30] 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.

14. Complaint, dispute and appeal processes

14.1. Complaints

133. 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.

134. A DOE shall ensure that the procedure referred to in paragraph 133 above 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

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

136. A DOE shall make the procedure referred to in paragraph 135 above available to its clients upon request or if a dispute occurs.

137. A DOE shall ensure that the dispute-handling procedure includes 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

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

139. The DOE shall ensure that the procedure referred to in paragraph 138 above includes the following:

(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.

140. 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 to an entity as defined in paragraphs 57–62 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			11-15	N/A
7	Finance and liability	Financial stability		16-17	NO
		Liability		18-19	NO
8	Entity's management	Management structure		20-23	NO
		Management functions		24-26	NO
9	Safeguarding impartiality	General		27-29	N/A
		Safeguarding impartiality at the policy level		30-32	NO
		Safeguarding impartiality at the organization level		33-37	NO
		Safeguarding impartiality at the operational level		38-45	YES*
		Review of effectiveness		46-48	NO
10	Human resources and competence	Sufficiency of human resources	General	49-55	NO
			Outsourcing to an entity	57–62	NO
			Use external individuals	63-65	YES*
		Competence requirements	Initial competence analysis	66-70	NO
			Competence for validation or verification/certification teams	71	NO
			Competence for technical experts	71 and 64(c)	NO
			Competence for technical reviewers	71	NO
		Management of human resources and competence	Demonstration of competence and qualification of personnel	72-76	NO
			Monitoring of performance and ensuring competence and training	77-83	NO

Chapter	Requirement	Function		Paragraphs	Outsourcing
			Personnel records	84	NO
11	Information management	Information to be made available in the public domain		85	NO
		Confidentiality		86–88	YES*
12	Validation and verification/certification process	Contract review	Validation/verification contract review	89–91	YES
				92–94	NO
		Selection of the validation or verification/certification personnel		95, 97–99	YES, excluding appointment of technical review teams
				96	NO
		Validation and verification/certification		100	YES
				101	NO
		Technical reviews		102–103	NO
		Issuance of final validation or verification/certification opinions and reports		104–106	NO
13	Quality management system	General		107–108	NO
		Responsibilities of top management		109–110	NO
		Article 6.4 mechanism quality manager		111	NO
		Document and record management system	Control of documents	112–113	NO
			Control of records	114–117	YES*
			Records pertaining to validation and/or verification/certification functions	118(a), 118(c)–(e) and 119	YES*
			Records pertaining to validation and/or verification/certification functions	118(b) and 118(f)–(l)	NO
		Internal audits		120–122	NO

Chapter	Requirement	Function		Paragraphs	Outsourcing
		Corrective and preventive actions		123–128	NO
		Management review		129–132	NO
14	Handling complaints, disputes and appeals	Complaints		134–133	NO
		Disputes		135–137	NO
		Appeals		138–140	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 72 above. The sectoral scopes as contained below are to be further revised: (a) once Article 6.4 mechanism methodological requirements including removals and related all the methodologies are approved by the CMA and the Supervisory Body; and (b) based on any possible new sectoral scopes and operational efficiency of those proposed sectoral scopes gained from the experiences of actual implementations.

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.
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.

Sectoral scope	Technical area	Typical group of activities and greenhouse gas (GHG) emissions	Technical knowledge required
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.
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.

Sectoral scope	Technical area	Typical group of activities and greenhouse gas (GHG) emissions	Technical knowledge required
SS 10: Fugitive emissions from fuels (solid, oil and gas)	TA 10.1. Fugitive emissions from oil and gas	**Typical activities:** – Management of leakage, venting and flaring of natural gas and associated petroleum gas in oil and gas facilities. **Typical GHG emissions:** – CH_4 emissions from associated petroleum gas and natural gas systems. – CO2 emissions from gas flaring.	– 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; – Methane monitoring technologies; – OGMP 2.0 oil and gas reporting and mitigation framework.

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: **Afforestation and reforestation**	TA 14.1. Afforestation and reforestation	**Typical activities:** - Afforestation and reforestation projects. **Typical GHG emissions/reservoirs:** - Carbon stocks in biomass of trees, shrubs, dead wood, litter and soil carbon.	- Quantification of carbon stocks and change in carbon stocks in biomass of trees and shrubs, dead wood and litter, and soil organic carbon; - 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.

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	TA 16.1. Carbon Capture and Storage	**Typical activities:** This sectoral scope covers activities related to CO_2 capture and storage in geological reservoirs.	- Unit operations in carbon capture and storage (CCS) facilities; - Determination of the boundaries of a geological storage, storage site and storage complex, and the migration of CO_2 plumes within storage sites; - Estimation of emissions of CCS facilities through overall mass balance of all input and output source streams and through direct monitoring; - Procedures to determine emissions from leakage events and seepage.

Sectoral scope	Technical area	Typical group of activities and greenhouse gas (GHG) emissions	Technical knowledge required
SS 17: Other activities involving removals	TA 17.1. Other activities involving removals	**Typical activities:** [This sectoral scope covers processes to remove greenhouse gases from the atmosphere through anthropogenic activities and durably store them.] [This sectoral scope covers anthropogenic activities removing CO_2 from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products. It includes existing and potential anthropogenic enhancement of biological, geochemical or chemical CO_2 sinks, but excludes natural CO_2 uptake not directly caused by human activities.]	- Carbon removal processes including nature based and engineering removals; - Non-permanence and reversal risks associated with the removal processes; - Approaches for remediation of reversals such as buffer pools, insurance, replacement of credits, temporary credits; - Potential sources of leakage associated with removal activity; - Quantification and estimation of emission reductions or removals.

Appendix 3. Validation and verification/certification technical knowledge

1. A DOE shall ensure that it fulfils the requirements listed in the table 1 below for its. validation and verification/certification personnel.

Table 1. Requirements on competence, knowledge and skill required for a DOE's validation and verification/certification personnel

No.	Role	Requirements
1	Validation and verification/certification team knowledge and skills	A DOE shall ensure that validation or verification/certification team: 1) Includes personnel qualified in the technical area(s) of the A6.4 project or PoA to be validated or verified/certified and collectively has 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; 2) Collectively has the skills to communicate effectively with the DOE's client, either through personal knowledge of the client's language or through an interpreter/translator; 3) Collectively has 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 and taking into account stakeholder engagement and consultation, and any host party guidance; 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.
2	Validation team knowledge and skills	A DOE shall ensure that validation team: 1) Collectively has the knowledge prescribed in the following knowledge areas and defined in table 2 below: a) Additionality assessment and baseline establishment; b) GHG accounting and monitoring. 2) 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, collectively has the knowledge of surveys and sampling, as defined in table 2 below; 3) Collectively has the skills to assess the compliance of proposed A6.4 projects and PoAs against all applicable requirements; 4) For an A6.4 project under sectoral scope 16, includes a practicing lawyer from the host Party of that A6.4 project. The validation team shall also include expertise in environmental, health and safety, and financial matters specific to activity undertaken.

No.	Role	Requirements
3	Verification/certification team knowledge and skills	A DOE shall ensure that verification/certification team: 1) Collectively has the knowledge of: a) Quality or environmental management systems (e.g. ISO 9001 and 14001); b) GHG accounting and monitoring, as defined in table 2 below. 2) 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, collectively has the knowledge of surveys and sampling, as defined in table 2 below; 3) For the verification/certification of an A6.4 project or PoA undergoing post-registration changes, collectively has the knowledge of additionality assessment and baseline establishment, as defined in Appendix 2 above; 4) Collectively has the skills to assess the compliance of implemented A6.4 projects and PoAs and consequent monitored emission reductions or removals against all applicable requirements.
4	Validator or verifier auditing knowledge and skills	A DOE shall ensure that validator or verifier has auditing knowledge and skills, including: 1) Data, information and system auditing techniques and methodologies; 2) Risk assessment techniques and methodologies; 3) Data and information sampling techniques and methodologies; 4) Application of the concepts of materiality and level of assurance; 5) Collection of information through effective interviewing, listening, observing and reviewing documents, records and data; 6) 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; 7) Preparation of validation or verification/certification opinions and reports.
5	Team leader knowledge and skills	A DOE shall ensure that validation or verification/certification team leader: 1) Meets the requirements in item 4 above; 2) Has the following knowledge and skills and the ability to apply them to perform validation or verification/certification activities: a) Planning and making effective use of human resources and managing validation or verification teams; b) Planning and organizing work effectively and performing it within the agreed time schedule, prioritizing and focusing on matters of significance; c) Representing the validation or verification/certification team in communications with the DOE's clients; d) 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; e) Preventing and resolving conflicts.
6	Competence for technical experts	A DOE shall ensure that technical expert has specific knowledge and/or skills in technical, methodological and/or sectoral aspects, and demonstrable ability to apply such knowledge and skills.
7	Competence for technical review teams	A DOE shall ensure that technical review team, whether it is composed of one or more persons, collectively has all knowledge and skills required in items 1–4 and 6 above and the ability to apply such knowledge and skills, to conduct a technical review.

2. The validation and verification technical knowledge is defined in the table 2 below.

Table 2. Validation and verification technical knowledge

No.	Knowledge area	Validation and/or verification technical knowledge
1	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.	1) Additionality assessment and baseline establishment in Article 6.4 mechanism methodologies and standardized baselines; 2) Project evaluation and investment decision theory; 3) Rules of investment analysis; 4) Uncertainty and sensitivity analysis; 5) 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; 6) 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) 7) 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.
2	Greenhouse gas (GHG) accounting and monitoring	1) GHGs eligible under the Paris Agreement; 2) Definition of project boundaries, gases and emission sources in Article 6.4 mechanism activities; 3) Use of Global Warming Potential and conversion of non-CO2 GHG to equivalent CO2 emissions; 4) Direct measurement of GHG emissions using flow meters and gas analysis; 5) Indirect evaluation of GHG emissions; 6) Use of GHG standard emission factors based on energy content and service level: a) Combustion of solid, liquid and gaseous fuels and approaches to evaluating GHG emissions from fuel combustion; b) Evaluation of GHG emissions from heat and power generation by means of GHG emission factors and quantification of energy use; c) Evaluation of power grid GHG emission factors based on power plant dispatch analysis; d) Use of mass and energy balances in the evaluation of GHG emissions; 7) Metrology and the measurement of physical properties; 8) Quality control of measurements, including the concepts of measurement range, measurement uncertainty (accuracy, precision and bias) and meter calibration; 9) Statistical treatment of data, surveys and sampling in the Article 6.4 mechanism.

Note 1: ISO 14065:2020.

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Document information

Version	*Date*	*Description*
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