Designing Accreditation and Verification Systems

A GUIDE TO ENSURING CREDIBILITY FOR CARBON PRICING INSTRUMENTS

pmr | PARTNERSHIP FOR MARKET READINESS

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Overview

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Definitions

Accreditation
The formal recognition by an authoritative body of the competence of an organisation and/or individuals to work to specified standards and awarding a status or qualification to perform a particular activity. In the context of this guide the term accreditation is reserved for approvals **under the ISO process** guided by the International Accreditation Forum and delivered by recognised accreditation bodies. All other processes are referred to as 'Approval'.

Approval
Different types of recognition processes that are used to grant a verifier the necessary confirmation that it meets the requirement to carry out verification and is entitled to do so for a specific programme. The different types of recognition processes are indicated in part C.

Assessor
A person assigned by a verifier oversight body, individually or as part of a team, to perform the assessment of the verifier and its personnel.

Assurance
A formal declaration following examination of evidence intended to give confidence to the users of reported GHG data and information. The level of assurance intended is determined as part of the scope of work or in the CPI rules.

Auditor
An individual (natural person) conducting the validation or verification work (as opposed to a legal person or organisation – see verifier/ verification body).

Calibration
In measurement technology and metrology, this is the comparison of measurement values delivered by a device under test with those of a calibration standard of known accuracy.

Maintenance and calibration of measurement instruments is key to reducing the level of uncertainty in the primary data used for GHG emissions calculations.

Control risks
These are risks that any quality assurance and/or quality control processes that have been implemented to mitigate identified inherent risks are not functioning effectively (that is, are absent, not being implemented, or have broken down) and risks of misstatements are therefore not detected and/or prevented by the obligated entity.

Downstream entities
Entities that are regulated at the point of combustion where emissions are released in the atmosphere.

Fiscal
Relating to government revenue, taxes, or other controlled financial matters. For example, 'fiscal metering' is quality controlled metering used for invoicing of fuels, such as gas oil and gas. The control process is usually part of legislation for 'national metrological control'.

Inherent risks
These are risks of misstatements that are inherent to an element of the accounting data flow under consideration without taking into consideration the effect of any quality assurance or quality control processes that might be in place to mitigate them. The accounting data flow covers all elements and steps from the generation of primary data (for example, at a meter or laboratory sample) through all stages of information consolidation and manipulation (for example, databases or spreadsheets) through to final output reporting.

Lead assessor
A person who is given the overall responsibility for the assessment of the verifier and its personnel (see also Assessor).

Lead auditor
An auditor in charge of directing and supervising the verification team who is responsible for performing and reporting on the verification of an obligated entity's report.

Legal system
The legal regime of a country consisting of several legal instruments: a constitution, primary legislation (statutes) enacted by the legislative body established by the constitution, secondary (implementing) legislation (bylaws) made by a person or bodies authorised by the primary legislation to do so, customs applied by the courts on the basis of traditional practices, and principles or practices of civil, common, Roman, or other code of law.

Level of assurance
The degree of confidence the intended user may require (or may place) on the GHG statement based on historical information.

Materiality
The concept that individual or the aggregation of misstatements are significant enough to

potentially affect the GHG statement and influence the way that intended users take decisions based on the data. The concept is used when designing validation/verification and sampling plans and in evaluating the verifier's conclusions resulting from the verification/validation work in order to determine the nature of the opinion to be provided.

Midstream entities
Entities that are regulated at the point of refinement (distributers or electricity generators).

Misstatements
Errors, omissions, and misrepresentations in the data reported by the obligated entity.

Monitoring Plan
A plan which outlines how an obligated entity should monitor and report its emissions or emission reductions. This plan usually contains monitoring boundaries, quantification methodologies and data collection, and quality assurance procedures.

Obligated Entity
The entity, organisation, facility, project developer, or person that is required by the CPI legislation to participate or comply with regulatory monitoring and reporting obligations.

Oversight Body
The entity that is recognised by the relevant CPI as responsible for ongoing monitoring of performance of verifiers (and individual auditors, as relevant), ensuring that they maintain their competence, impartiality, and quality of delivery of verification activities. This might include initial approval of verifiers and auditors.

Project Design Document
A document that outlines the essential technical and organisation aspects of a project activity. It describes the project activity, the approved baseline methodology applied to the project activity, and the approved monitoring methodology applied to the implemented project. This document is submitted to the CPI approved validator for validation against the crediting CPI's relevant baseline and monitoring methodologies. For CDM the validator is a 'designated operational entity'.

Programme of Activities
The coordinated implementation of a policy, measure or goal that leads to emission reduction under the CDM (or other CPI if specified in the rules), often combining dispersed activities or emission sources (instead of one central project site).

Scope of approval
Activities for which approval of verifiers is sought. Usually these are the specific sectors or activities covered by the CPI.

Technical expert
Person who provides specific subject matter-related detailed knowledge or expertise to the assessment or verification team to support their work.

Upstream entities
Entities that are regulated under the carbon pricing mechanism at the point of supply. The entities must pay tax or submit allowances at or near the point of supply of carbon-based fuels.

Validation
Systematic, independent, and documented process for the ex ante evaluation of a product, project, programme, service, or system against agreed validation criteria. Validation **looks forward** at how obligated entities will be monitoring and reporting emissions and/or determining emission reductions.

Verifier
The legal entity/organisation approved to conduct validation and/or verification activities – sometimes called the Verification Body.[1] The verifier employs or sub-contracts the individual auditors that conduct the detailed work.

Verification
Systematic, independent, and documented process for the ex post evaluation of emissions or emission reductions against agreed verification criteria, such as a project design document, monitoring plan, and requirements in standards or legislation. Verification **looks backwards** to historical information and aims to provide assurance that a product, project, programme, service, or system has complied with specified regulations, requirements, or imposed condition(s).

Note 1 » *In some CPIs, individual lead auditors can also do the verification on their own without being part of a verification body or being a legal entity.*

Abbreviations

AER	Annual Emission Report
AO	Airline Operator
BAU	Business-as-usual
CA	Competent Authority
CCEV	Compliance Cycle Evaluation
CCOC	California Compliance Offset Credits
CDM	Clean Development Mechanism
CDP	Carbon Disclosure Project
CEMS	Continuous Emissions Monitoring System
CO2e	CO2 equivalent – the emissions from all Greenhouse Gases (GHGs) are converted to a common base expressed in CO2e using an agreed Global Warming Potential (GWP) for each gas
CoI	Conflict of Interest
CPD	Continuous Professional Development Mechanisms
CPI	Carbon Pricing Instrument
DOE	Designated Operational Entity
EA	European Co-operation for Accreditation
ETG	Emissions Trading Group
ETS	Emissions Trading System
EU ETS	EU Emissions Trading System
FAQ	Frequently Asked Questions
GHG	Greenhouse Gas
GHG RP	Greenhouse Gas Reporting Program
GWP	Global Warming Potential
IAF	International Accreditation Forum – the global forum for ISO based National Accreditation Bodies
ISAE	International Standard on Assurance Engagements
ISO	International Organisation for Standardisation – an independent, nongovernmental, international body comprising 162 national standards bodies
JI	Joint Implementation
JNR	Jurisdictional and Nested REDD+
MLA	Multilateral Agreements
MP	Monitoring Plan
M&R	Monitoring & Reporting
MRR	Monitoring and Reporting Regulation
MRV	Monitoring (or Measurement), Reporting, and Verification
MRVA	Monitoring, Reporting, Verification, and Approval
NAB	National Accreditation Body
PDD	Project Design Document
PMR	Partnership for Market Readiness
PoA	Programme of Activities
REDD	Reducing Emissions from Deforestation and Forest Degradation
RGGI	Regional Greenhouse Gas Initiative
UNFCCC	United Nations Framework Convention on Climate Change
V&A	Verification and Approval/ Accreditation[2]
VCS	Verified Carbon Standard
VCU	Verified Carbon Unit
VR	Verification Report

Note 2 » *See text on page 13*

‘Accreditation’ vs. ‘Approval’

Although the ‘A’ in the terms MRVA and V&A is often used to denote ‘accreditation’, in the context of this guidance the term ‘accreditation’ is reserved for formal ISO based accreditation through recognised accreditation bodies.

Throughout this guidance document the term ‘approval’ is used as an umbrella term to indicate different types of processes that are used to issue a formal statement to a party that it is allowed to carry out validation or verification. This can either be qualification, accreditation, certification, recognition, or registration of the party carrying out the validation or verification.

Synthesis: setting up a V&A system

Understanding the compliance framework

Carbon pricing instruments (CPIs) involve large legal and financial interests. Trust in the accuracy and integrity of the reported data is therefore a prerequisite for a well-functioning instrument. To ensure accuracy and integrity of data, a robust monitoring, reporting, and verification (MRV) system is essential. Verification is critical to enhance trust in a carbon pricing system. Where systems have large financial implications, participation is voluntary, or international exchange of units is planned, this trust is paramount for successful implementation. This guidebook aims to help regulators to better understand their options in designing a verification system tailored to their specific needs and circumstances. The guidance:

- Provides an overview of **available options** and discusses their implications on resources and credibility of the system;
- Helps to **avoid missing important elements and making common mistakes** that will increase cost of the system or reduce trust;
- Allows understanding of **trade-offs** and how systems can **develop over time**.

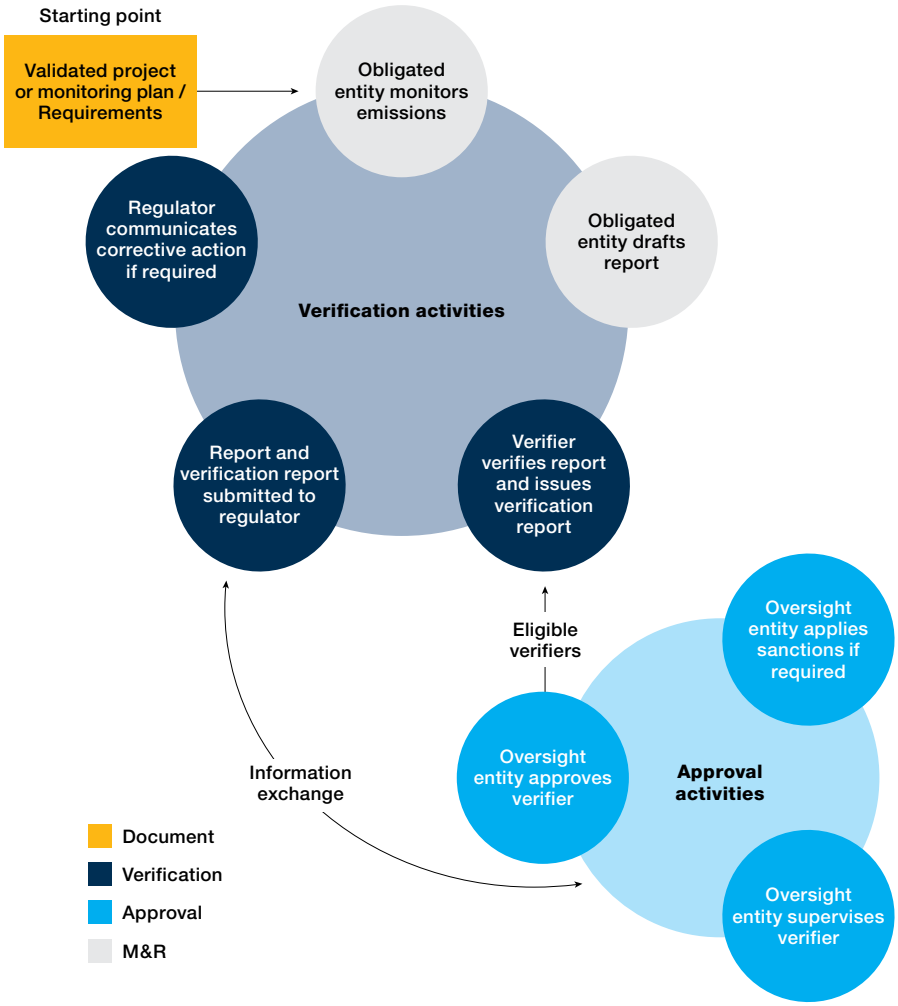
In any type of CPI, the obligated entity is required to monitor its emissions according to a plan or legal requirements. At the end of the monitoring period the monitored emissions have to be reported. **Verification** is an **independent check on the quality of these reported data** and the compliance with CPI specific requirements. **Approval**[3] is a process by which the competence of parties carrying out verification is assessed and these parties get official permission to verify emissions under a specific CPI. It is one of the checks and balances that can be put in place to ensure that the outcome of verification activities is sufficiently robust.

Verification looks backwards at the data that has been generated, collected, and monitored according to validated ('approved') plans (where applicable) and requirements over the reporting period.

After verification, the data report that is being verified together with the verification report that gives the verifier's opinion on that data report will be submitted to the regulator responsible for receiving these reports under the CPIs.

Once verifiers have been granted the approval to carry out verification activities, it is important to continue monitoring their competence in a supervision process. The more robust these processes are, the more trust the public and market participants have in the competence and independence of parties doing verification and, consequently, in the quality of the outcomes of verification and the data being used for legal and/or trading purposes.

FIGURE A. **Overall MRVA compliance framework**



Source: authors

NOTE 3 » *The 'A' in the terms MRVA and V&A is used in this guidance for the term 'approval' which is an umbrella term to indicate different types of processes that are used to issue a formal statement to a party that authorises it to carry out validation or verification. This can either be qualification, accreditation, certification, recognition, or registration of the party carrying out the validation or verification. The term 'accreditation', in the context of this guidance, is reserved for formal ISO based accreditation through recognised accreditation bodies.*

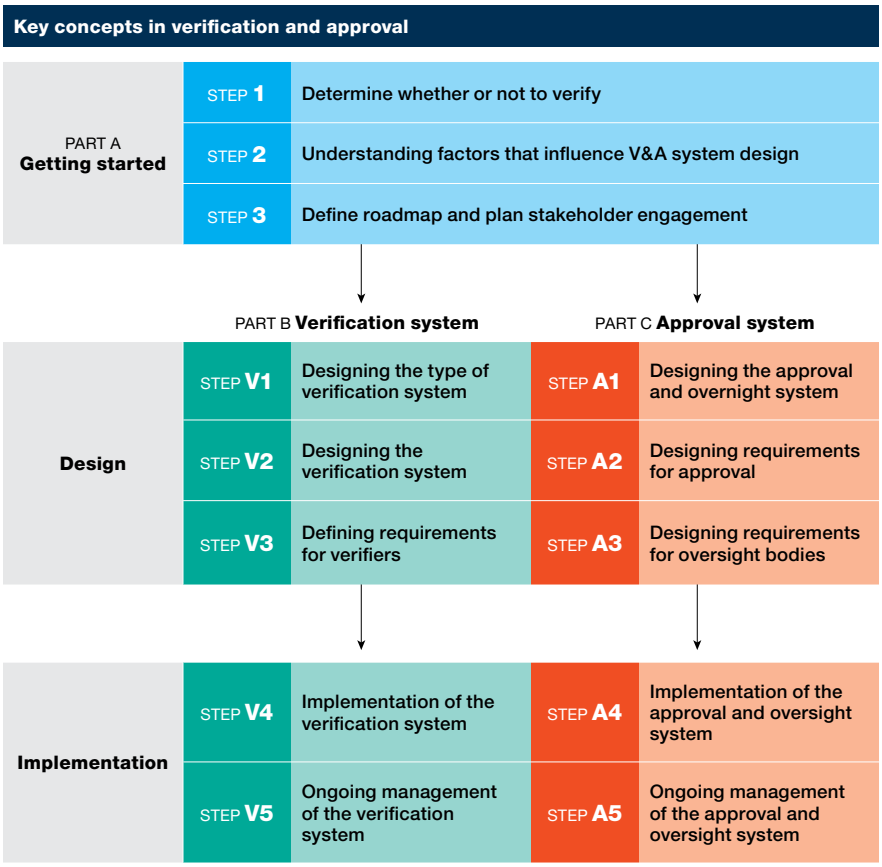
Introducing the design process

Setting up the V&A system starts with an evaluation of design options for the given CPI and planning of the activities to be carried out in the design and implementation process (getting started).

In designing the V&A system, policy makers take into account factors like policy objectives, environmental targets to be achieved, the type of CPIs, the country's available resources, the legal and institutional structure(s), and the policy maker's long-term plans for evolution of the CPI.

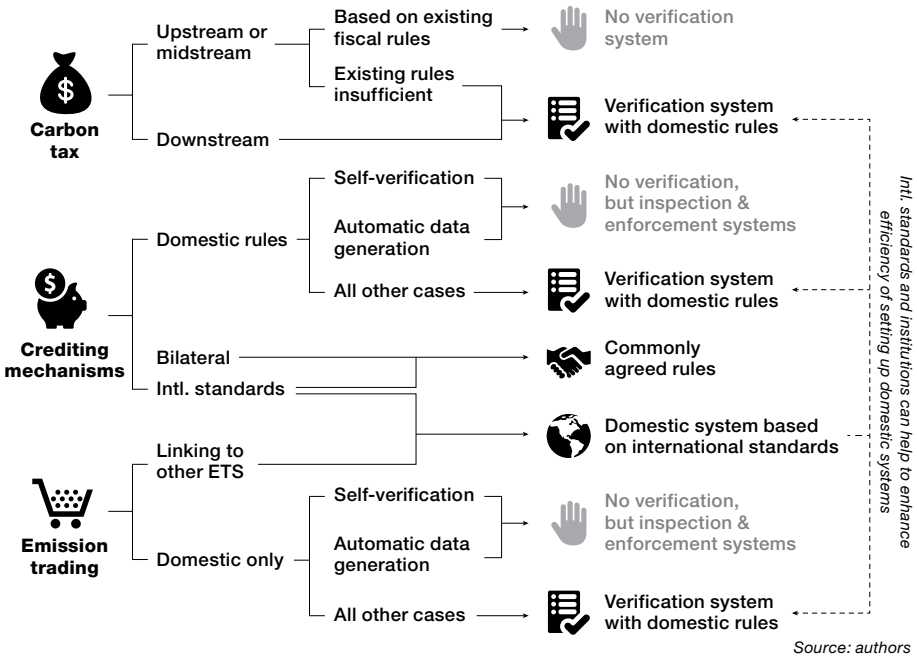
Implementing the V&A system involves the identification of measures to facilitate implementation, such as the development of guidelines, resources implications, and the approaches to ensure sufficient verification resources and competent verifiers. Finally, it is important to manage the system on an ongoing basis to ensure verifiers and oversight bodies remain competent and the system is of high quality.

FIGURE B. **Steps to set up a V&A system**



Source: authors

FIGURE C. **Decision tree: key choices for rules in V&A systems**



Source: authors

Getting started

To verify or not to verify?

The first choice in V&A for policy makers is to determine how accurate they want (or need) the emissions data to be as this decision defines many of the options that need to be selected – to verify or not, and if so, to what level of confidence for the user of the data?

Not all CPIs have a mandatory verification system. Some carbon tax systems have simple monitoring requirements that are based on fiscal rules; in that case, verification is not needed as the reports receive basic checks from tax authorities.

In this first step, policy makers will consider some of the key elements impacting the design of the V&A system as shown in figure C.

Stakeholders to be involved

To set up the V&A system it is important for policy makers to plan the design and implementation steps in a timely way and to consider:

- When to engage with the various stakeholders in the process. Stakeholder engagement can take place in the design process but also in the implementation phase while evaluating legislation or discussing practical implementation issues;
- Specifically, who to engage with, the level of participation, and priorities for engagement;
- Different approaches to stakeholder engagement;
- Communication lines between policy makers, regulators, and stakeholders.

The type of stakeholder involved depends on the CPI itself and the way the V&A system is structured. Relevant stakeholders include obligated entities, verifiers, regulators, and oversight bodies approving and supervising verifiers; for CPIs that include trading, relevant stakeholders could include market traders and lawyers that structure contracts and the like.

FIGURE D. **Stakeholders in different CPIs**

Emission trading

- Policy maker
- Regulator implementing the CPI
- Company or reporting entity consisting of various facilities/ operator of an individual installation or facility/aircraft operator
- Verifier/individual auditor
- Party approving/supervising verifiers (oversight entity)
- Party enforcing rules

Carbon tax systems

- Policy maker
- Company household
- Tax authority
- Verifier/individual auditor
- Party approving verifiers (oversight entity)
- Party supervising verifiers (oversight entity)

Offset mechanisms

PROJECT-BASED

- Project developer/implementor/project participant
- Project host (location country or owner etc.) (e.g., Designated National Authority)
- Designated operation entity (DOE)/ Verifier/individual auditor
- Party approving DOEs/verifiers/auditors (oversight entity)
- Party approving/supervising DOEs/ verifiers/auditors (oversight entity)

SCALED-UP

- Sector associations
- Jurisdictional host (regulators, policy enforcers in city, region)
- Designated operational entity (DOE)/ verifier/individual auditor
- Party approving DOEs/verifiers/ auditors (oversight entity)
- Party approving/supervising DOEs/ verifiers/auditors (oversight entity)

Source: authors

Setting up the verification system

Setting up a verification system requires policy makers to take a broad range of decisions. This guide groups these decisions into five steps as illustrated in figure E. The steps are highly linked, and it is important to ensure that an integrated approach is taken that fulfills the desired objectives of the CPI.

For each of the steps, different elements need to be considered and often a range of options is available. The sections below outline these options and discuss key considerations for decision making and how systems can evolve over time. Which options are selected depends on policy objectives, the type of CPI, type of monitoring and reporting system, available resources, the legal and institutional structure, and the country's plans for the CPI.

FIGURE E. **Step by step through verification**

STEP V1	STEP V2	STEP V3	STEP V4	STEP V5
Type of verification system	**Design of verification system**	**Requirements on verifiers**	**Implementation**	**Ongoing management**
DECISION ON:	DEFINITION OF:	ENSURING:	ENSURING:	ENABLING:
• When to verify?	• Verification principles	• Competence	• Availability of resources	• Quality assurance
• Type of verifier?	• Scope	• Impartiality	• Supporting infrastructure	• Ongoing capacity development
• Selection and payment	• Level of assurance	• High-quality processes		• Information exchange
• Rules for verification	• Materiality			
	• Specifics in the verification process			

Source: authors

STEP **V1**

The type of verification system

If verification for the CPI is required, the next decision is on **when to require verification (at what stage)**:

1. Verification can be used for the **design of the CPI**: for example, on data used to set a cap or baseline for calculation of allocation of allowances for an emission trading scheme, to create a baseline for a crediting mechanism, or to set carbon tax rates and baselines for a carbon tax system. This is important given the financial interests involved with CPIs. In the beginning it may be difficult to get data for the design of the system and to have it verified. However, this can evolve into more stringent requirements once the CPI is up and running.

2. Policy makers can decide to require **verification for the operation of the CP**I: to increase the public's confidence on the accuracy of data used as a basis for surrendering emission allowances, imposing a carbon tax, or issuing credits for offset mechanisms.

For both these stages (verification for the design of the CPI and verification for the operation of the CPI), policy makers need to decide **at what frequency** the verification is carried out. This can either be regularly at set intervals, on demand, or based on predetermined milestones. Verification for the design of the system will usually be a determined by the length of trading periods or other milestones for the review of basic design data. During operation of emission trading schemes and carbon tax systems there is usually an annual cycle of emissions reporting. In offset mechanisms there is often no specific frequency set.

A key decision for policy makers to make is the **type of verifier that will do the verification**. Different options can be distinguished:

1. Verification by the **regulator**: the regulator responsible for implementing the CPI verifies the data report and checks compliance with the programme specific requirements;

2. Verification by an **independent expert** hired by the regulator: institutes or experts are hired through consultancy projects, procurement services, or nominated as preferred experts by the regulator and carry out verification activities on behalf of the regulator;

3. Verification by an approved **third-party verifier**: an organisation that is independent from the regulator and other parties (that is, the organisation does the verification and takes responsibility for the conclusions and the decision to issue a verification report);

4. Verification by an approved **individual independent auditor**: an individual person instead of an organisation (that is, the individual takes responsibility for the conclusions and the decision to issue an opinion statement).

The type of verifier model can evolve over time. In the early years or a pilot phase, it could be that policy makers choose to select option 1 or 2 in order to have more control over the verification system and to build up sufficient competent verifier resources. Over time a CPI usually evolves toward option 3 which is the most common model applied in CPIs researched for this guide. There are however also CPIs that use option 3 from the start as they want to align with other schemes, link, or choose to apply recognised international standards.

Highly linked to these options is the choice policy makers need to make on **who should pay the verifier**. Different choices can be made which are influenced by the extent to which the regulator wants to have direct control over the verifier and how the regulator wants to ensure impartiality of the verifier:

1. Regulators pays from their normal **public budget**

2. Regulator pays from specifically **raised funds**

3. **Obligated entity** selects and pays the verifier

4. Obligated entity provide funds to **collectively** pay for a pool of verifiers

The way a CPI is set-up needs to ensure that the appropriate time is allocated to individual verification activities regardless of the 'fee rate' determined as appropriate. Policy makers need to make provisions for that in the legislation. In the early years, a selection and payment model may be chosen in which government agencies can exercise greater control. Over time, selection and payment can shift from the government to the obligated entity encouraging them to take more responsibility for the quality of their own data.

When designing the verification system and selecting the options available it is important for policy makers to assess how they want to embed the selected design options in legislation and how the **legal frameworks and rules** should be formed. The legal framework consists of:

- **primary legislation**, the highest legislation in a country or region, that provides the legal basis for the CPI and the associated V&A system;

- **secondary legislation**, delegated or subordinate legislation that incorporates more detailed requirements for the V&A system.

When designing the legal framework policy makers can make the **choice of whether or not to prescribe international standards on verification such as ISO 14065**. International standards can support harmonised procedures between verifiers and mitigate differences between verifiers in competence and verification approaches. International standards are recognised as accepted global 'best practice' and can thus increase the quality and robustness of

verification overall. Where international standards are prescribed, it is still important to create CPI specific requirements in domestic legislation because international standards are core frameworks applicable to all types of CPIs. Primary and secondary legislation will include, in those cases, a reference to relevant international standards as well as specific interpretations in the domestic legislation. When international standards are prescribed, policy makers should be aware that some choices in the verification processes or competences will be predefined by the standard. If, for example, ISO 14065 on the verification of environmental information is applicable, certain requirements on the competence of a verifier are mandatory.

STEP V2

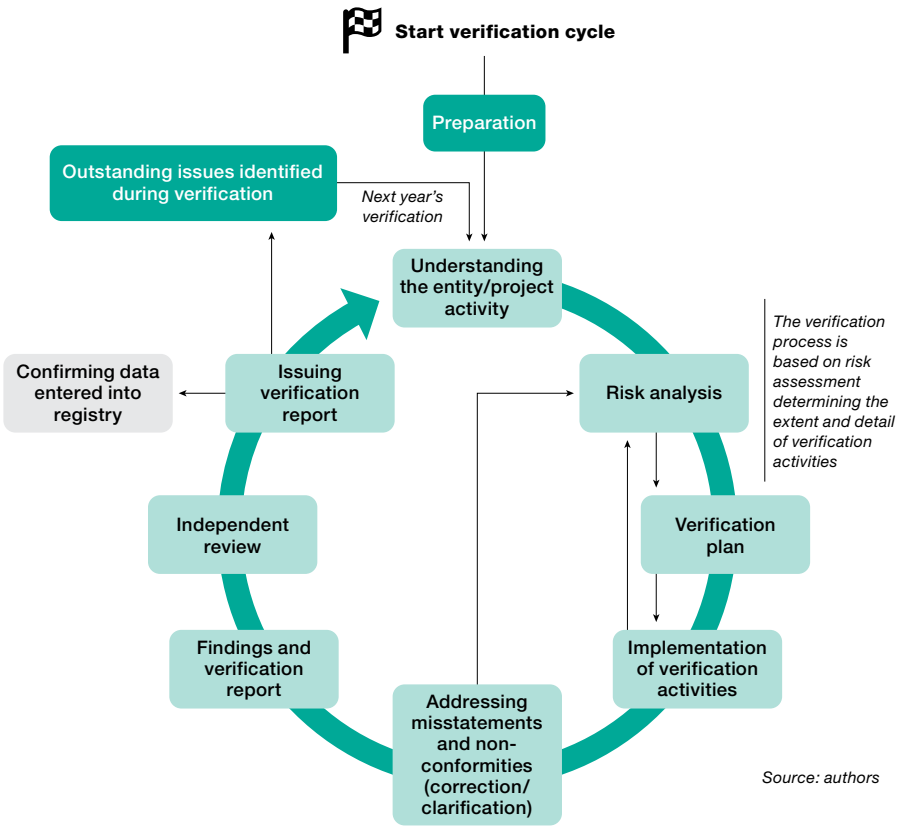
Design of verification system

The **scope of verification** is determined by the tasks the verifier must perform and the expertise required to achieve the objective of verification. Policy makers need to be aware that the design of the CPI and the associated M&R system can have an impact on the scope of verification. Application of specific methodologies, such as continuous emission measurement technology as compared to calculation-based methodologies mean that the verifier would have to do different checks. Sectors, type of emission sources, GHG gases, fuels, and materials covered by the CPI will impact the competencies required for verification. If a CPI requires obligated entities to have a formal documented monitoring plan or project design plan describing the boundaries and monitoring methodologies of an obligated entity, this provides a framework for the verification. Furthermore, defining strict rules on quality assurance and quality control procedures to be applied by an obligated entity can facilitate the verification. Policy makers should take these into account when designing the MRV rules. It is therefore good practice to develop the M&R and V&A rules at the same time.

Another key concept is the **level of assurance** the verifier applies in the verification. The level of assurance relates to the degree of confidence the regulator wants to have in the accuracy of the reported data. By specifying a particular level of assurance, the verifier is given direction on the depth and breadth of verification activities that it conducts. For CPIs, policy makers generally require a high level of confidence because financial decisions are involved. For general environmental reporting that is used to show trends, a less detailed assessment may be needed for the policy maker to have the necessary confidence in the data. Policy makers can choose between a limited level of assurance and a reasonable level of assurance. A 'limited' level of assurance requires less detailed verification activities but a higher risk that a misstatement or noncompliance will be missed. The depth and breadth of verification activities required to reach 'reasonable' assurance is much more extensive. The effort involved with reasonable assurance is considered to be high. Most CPIs apply a 'reasonable' level of assurance.

(50) **Materiality** is a key concept for the planning of the verification and the assessment of whether misstatements[4] or noncompliance issues, individually or when aggregated, have a significant effect on the reported data. During verification, the verifier assesses the likely risks of misstatements and noncompliances with requirements and any likely material effect these have on the reported data. In other words, is there a high risk of misstatement or noncompliance occurring and would they result in invalid data if not corrected? When assessing this, the verifier looks at the size of the misstatement (quantitative aspect), the nature of the misstatement/noncompliance, and the specific circumstances (qualitative aspect). Both aspects have to be taken into account by the verifier.

FIGURE F. **Activities in the verification process**



Source: authors

NOTE 4 » *Errors, omissions, and misrepresentations in the reported data*

For **quantitative materiality** a threshold needs to be defined in relation to the reported data. If that threshold is exceeded the misstatement is material. This is also true if the identified misstatements are aggregated and the materiality threshold is exceeded. The **qualitative** aspect of materiality is particularly important for misstatements or noncompliances below the materiality threshold. To determine this the verifier considers several factors: for example, likelihood of reoccurrence, duration of the issue, refusal to correct.

Materiality is important for policy makers to understand because:

1. They may want to define the **materiality threshold** in the legislation (quantitative aspect);

2. They may want to define in legislation that the verifier should also take into account the **qualitative aspects**;

3. It is important to understand that materiality should not be defined as a tolerance band for obligated entities; any misstatement and noncompliance issues need to be corrected. If it is not possible to correct the issue, the verifier will assess the material impact of that issue on the reported data;

4. It enhances understanding of the **meaning of verifier's opinion statements** (verifier's declaration on the accuracy of the data). A material misstatement or noncompliance prevents a verifier from giving a positive verification opinion statement, meaning the reported data are declared to be unreliable.

The verification process consists of different interconnected activities as illustrated in figure F. To understand how to set up a well-functioning verification system, it is important for policy makers to be familiar with the activities carried out by the verifier. It supports harmonisation if the key steps and activities are specified in legislation.

STEP V3

Requirements on verifiers

The verifier and its personnel involved in CPI related verification need to be **competent** to carry out assigned tasks. Competence is not only about education, knowledge, and skills but also about the application of these elements to carry out relevant verification tasks. The type of competence requirements that a verifier should meet depends on the specific sector scope in which the verifier is carrying out verification. Verifiers are required to undertake active measures to ensure competence of their personnel involved in verification activities.

Another key requirement is **impartiality of the verifier**. Crucial to any robust verification system is that the verifier must be independent of the obligated entity whose report or project activity is being verified. Risks to impartiality can arise from the revenue generated by the verifier, direct or indirect financial self-interest, familiarity which threatens objectivity, and from open or secret intimidation of verifiers or individual auditors. Measures to ensure impartiality can range from absolute prohibitions on carrying out verification for certain obligated entities to allowing a conflict of interest under certain conditions or in certain circumstances. A common aspect across CPIs is that verifiers are required to take active measures and implement safeguards to avoid conflicts of interest and risks to impartiality.

Where the use of international standards such as ISO 14065 and ISO 14066 is prescribed in the CPI rules, the competence and impartiality requirements laid down in such standards are directly applicable. Similar requirements apply to CDM verification on which some countries have based their domestic offset mechanisms. Policy makers should be aware that, even if these international standards apply, it is still important to specify in the rules any CPI specific requirements on competence and impartiality that apply.

STEP V4

Implementation of verification system

Policy makers have to **arrange for the resources that are needed by the regulator and other relevant parties in order to carry out their activitie**s. Costs can be incurred by regulators in delivering implementation and enforcement of the CPI, by the obligated entity in monitoring and reporting emissions, by verifier oversight bodies in conducting approval and oversight processes, and by verifiers in conducting their work. A distinction can be made between human and financial resources and if costs are one-off or recurring. Policy makers will have to consider the costs to the relevant stakeholders and arrange for sufficient resources in-house, either at a policy-making level and/or a regulatory or implementing agency level of government to design, implement, and maintain the verification management system. This requires a direct link with the budget of the agency or government department responsible for implementation.

Another important aspect in the implementation of the verification system is **ensuring that there are sufficient competent verifiers in the field**. At the start of a CPI it can be a challenge to arrange for enough competent verifiers needed to deliver the required work. Policy makers can make choices in the design of the approval system to facilitate the number of competent persons; they can also take specific measures to ensure competent persons are available:

1. **Accept verifiers from other CPIs or countries** (approved for verification by authorities of the other scheme; or ISO accredited). Accepting verifiers from other schemes or allowing ISO accredited verifiers is usually applied when countries do not have many resources, the scheme is small, or it is not possible to get sufficient competent national verifiers in time.

However, this option can also be chosen if the regulator decides to have an open verifier market.

2. **Set up training programmes**: For training programmes, resource needs depend on how much control the regulator wants to have over the training. The more control the regulator wants to have, the more elements of the training process are delivered by regulators.

Experience has shown that the legislative framework and specific legislation outlining the verification system need to be supplemented with more **detailed guidance and other implementation measures or tools**. These elements facilitate the consistent implementation of the verification system. Examples include:

- Guidance to clarify the requirements of legislation
- Templates for monitoring plans (if applicable), data reports, and verification reports
- Checklists and tools, examples or Frequently Asked Questions
- IT system or web-based platforms
- Regular update training, installing a central helpdesk, and so on.

STEP V5

Ongoing management of the verification system

Once the verification system is implemented and operational, it is important to monitor the quality of verification and of the verifiers to ensure that the parties involved in verification continue to be competent and independent. Ongoing management of the verification system is normally carried out by **oversight bodies** that supervise the continued competence and performance of verifiers and their auditors.

Where the regulator is not the same entity as the oversight body that approve and supervise verifiers, there are additional approaches that a regulator can implement to ensure high quality and have more direct control over the system. In these cases, the **regulator** can monitor the quality of verification by **checking the quality and consistency of reported data and verification outcomes**. There are different options available:

1. Basic checks on reports
2. Detailed checks on a sample of reports
3. Detailed checks on all submitted data and reports
4. Option 2 or 3 combined with checks on verifiers internal working papers and documentation
5. Reverification
6. On-site inspection by the oversight body or regulator

Which option is selected depends on the level of direct control the regulator wants to have on the quality of verification and on the available resources of a country. IT systems can facilitate this process. This is also an aspect that can evolve over time.

Ongoing management can also be achieved by continuing to **organise training and to keep on engaging with stakeholders**. Continued engagement with stakeholders can be done by organising annual meetings, ongoing stakeholder working groups, or other mechanisms, such as virtual platforms and ad hoc meetings. A key factor to consider is that it is not only useful for regulators to organise these various trainings on a regular basis. Verifiers should also be required to provide internal training and updates. If international standards are applicable, such internal training is a required element of the continued competence process that verifiers must establish. Training organised by regulators or other parties is often cascaded internally by the verifier to their auditors.

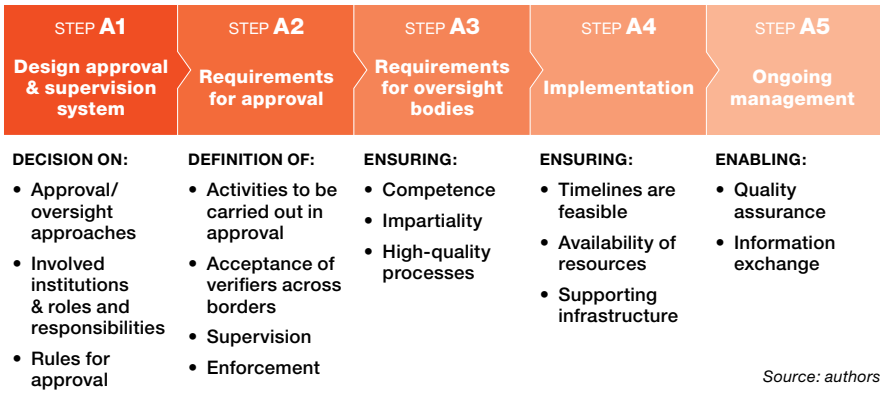
Finally, **information exchange** can be a means for regulators and verifier oversight bodies to keep a close eye on the V&A process whilst not duplicating efforts. Information exchange can be organised on both an informal and formal basis (embedded in legislation or institutional structures). If multiple regulators are involved in implementation of the CPI, it is good practice to arrange more formal information exchange lines to ensure key information is shared. It usually helps if there is a central coordinator that can liaise between relevant authorities. Templates for information exchange can support communication.

Setting up the approval system

If a decision is taken to implement a verification system, it is important to define how and by whom verifiers will be approved and supervised. Decisions around how to set up, implement and run the approval system are also grouped into five steps. These are illustrated in figure G.

When designing and implementing the approval and supervision system different options are available which are outlined in the sections below. Which option is selected depends on different factors such as policy objectives, the type of CPI, the available resources, the legal and institutional structure and the country's plans for the CPI. In any case policy makers should be aware that a selected option may have an impact on how the system is subsequently structured. The sections below also provide some information on how the system can evolve over time and how a policy maker can go from one option to a more robust option as the system is place for a longer period of time.

FIGURE G. **Step by step through approval**



Source: authors

STEP A1

Type of approval and supervision system

One of the first decisions policy makers should make when considering an approval and supervision system is the **approval structure**. Several choices are available:

1. Approval by the regulator based on assessment of documents submitted by the applicant and/or examination of individual auditors
2. Approval by the regulator based on witnessing of actual performance of the verifier and its auditors
3. Certification by an authorised personnel certification body of individual auditors
4. Recognition by an authorised institute or supranational authority not under the ISO standards framework (such as CDM)
5. Accreditation by an accreditation body according to relevant ISO standards

The extent to which the regulator wants to have direct control over the approval process is an important factor in determining design of the approval system. A regulator having full control will carry out all approval activities itself. A regulator relying on other bodies to carry out approval and supervision has less direct control but does not have to conduct all activities itself. This reduces the associated resource requirements making use of relevant expertise that they may not possess. In some cases international law or the application of international standards will predefine the choices for the approval structure (for example, CDM requiring CDM accreditation).

The different options outlined can also be used to develop the system over time. Simpler procedures such as under option 1 may be applied at the early stages of a CPI, developing into more extensive and robust approaches as described in options 2, 3, or 5. However, most mature CPIs include some form of verifier performance assessment (including witnessing on site).

The next choice to be made is **what type of oversight body** should be selected: that is, whether this should be an existing or new institution. In some cases the approval structure influences the decision of policy makers. If the approval structure is an ISO accreditation by a recognised accreditation body it makes sense to select existing accreditation bodies within a country. Furthermore, for countries that have limited resources using existing institutions can help reduce costs. However, even where an existing institution is used, it may need to develop or adapt existing procedures and internal rules to accommodate CPI specific requirements. Most oversight bodies have public authority. If this is the case it can affect the verifier approval process and the rules that may be applicable to the approval and oversight of verifiers.

In some CPIs both the verifiers and each individual auditor need to be directly approved. This is often called **'dual registration'**. In this process the oversight body evaluates the processes, documentation and competencies of the verifier as a whole and assesses all individual auditors. Both the verifier and the individual auditors will receive a qualification under a dual registration system. Most CPIs that have a dual registration system also have separate sanctions for verifiers and auditors. In a dual registration scheme it is good practice to define clear criteria for the approval of verifiers and individual auditors.

Once the approval system is in place and verifiers are approved, it is important to **monitor and supervise them on an ongoing basis** to ensure that they retain the required capability. Several options exist:

1. Review of emission data and verification reports
2. Training and reexamination
3. Assessment of updated documentation
4. Assessment of internal verification documentation
5. Document review, office visit and witness audit

The extent to which the regulator wants to have direct control over the ongoing supervision of verifiers is an important factor in determining the design of the system. Ongoing supervision normally needs to be done by the same party that approves the verifiers. If approval and supervision is not conducted by the same party, it is good practice to consider clear rules in legislation on the responsibilities of the different parties involved and formal information exchange.

The choice for a specific type of supervision is in most cases strongly linked with the type of approval system selected. Options 3, 4, and 5 above regarding the approval system will

involve a document review, visit to the verifier's offices, and witnessing of individual auditors on site. In general, this is not the case for options 1 and 2 which only include document review.

When designing the approval and supervision system and selecting from the options available it is important for policy makers to assess how they want to embed the selected design options in the legislation and how the **legal frameworks and rules** should be formed. The oversight structure needs to be embedded in a strong legislative framework with primary and secondary legislation to ensure that approval and supervision is carried out in accordance with the rules and that there is sufficient legal basis for imposing sanctions by the oversight body on a verifier. The rules for the approval and supervision system are normally developed together with the rules for the verification system as these are closely connected. The same observations on the decision to apply **international standards** and their use in domestic context can be made for the approval and supervision system.

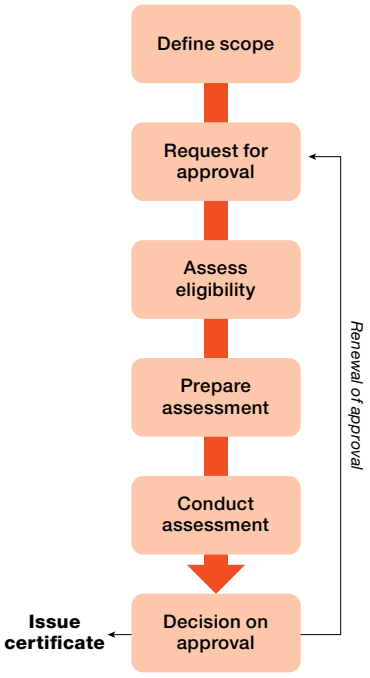
STEP A2

The design of the approval and supervision system

When designing the basic principles and requirements for approving and supervising verifiers, choices can be made in the specifics of the approval and supervision activities. In order to make the appropriate decisions policy makers need to be familiar with the concepts and processes of the approval and oversight of verifiers and/or auditors.

The **approval process** consists of several steps that are interconnected and interdependent. Although the basic steps are largely the same in most CPIs, the type of approval process affects the specifics of the various steps and the precise activities to be carried out in the process. Choices can, for example, be made on:

FIGURE H. **Activities in the approval process**



Source: authors

- Whether, and what sector scopes should be established for which the verifier can request approval in a CPI. In most CPIs, sector scopes are defined closely linked to the sectors covered by the CPI. Each sector scope requires different technical skill sets from a verifier;
- What documents to provide for the approval of verifiers, depending on the approval structure and CPI requirements;
- Whether to require eligibility criteria for verifiers and auditors;
- How to conduct an assessment: what checks to carry out, what procedure to follow, and how to assess the competence and performance of auditors;
- Content and validity of an approval 'certificate'.

Policy makers need to decide on whether to **accept verifiers from another CPI, region or country** to ensure sufficient competent verifiers or to open up the market. If verifiers from other regions, countries or other CPIs are accepted, it is good practice to:

- Confirm that the foreign verifier is accredited or meets other eligibility criteria;
- Require foreign verifier to meet the same competence requirements as national verifiers;
- Inform verifiers about domestic rules and requirements;
- Support compliance with national requirements by allowing technical translators/interpreters to be used by the verifier;
- Supervise foreign verifiers (with or without separate national registration or acceptance process).

Once the verifier is approved by an oversight body, that body should **supervise and continuously assess** verifiers. The type of approval system determines the type of supervision system as well as the activities that are carried out during the supervision system. A key element in all of the options for supervision is the **frequency of oversight**. Policy makers should define the frequency in legislation. The objective of supervision is to check whether the verifier is complying with the applicable legislation. Where noncompliance issues are not corrected, further investigation is done by the oversight body and follow-up of outstanding issue(s) is required. This could mean further investigation or ultimately imposing sanctions. It is essential for ongoing surveillance to document all actions taken, evidence collected, as well as findings.

Part of the supervision system is the ability for the oversight body to **impose sanctions on verifiers** that have not complied with the applicable rules. Different sanctions can be distinguished:

1. **Suspension**: The verifier's approval is maintained but the verifier is

temporarily not allowed to carry out verification activities in full or for part of the scope of approval. After termination of the suspension the verifier is again allowed to carry out verification.

2. **Withdrawal of the certificate or registration**: The approval is canceled in full which means that the verifier loses its 'licence to operate' and cannot carry out any verification activities.

3. **Reduction of scope**: The approval is canceled for part of the scope which means that the verifier loses its 'licence'/certificate to operate in a particular sector scope but maintains the approval in other scopes for which it has approval.

4. **Fines**.

5. CPI **specific sanctions**, such as imprisonment in case of serious fraud, blacklisting, and so on.

In most cases a sanction would have immediate effect once the decision is made to impose it. Normally this is regulated in national legislation, as this makes it is easier to enforce and there is more legal certainty. In most CPIs more than one option is implemented in legislation.

Once a penalty is imposed it is essential to exchange related information with the regulator,[5] the public, obligated entities, and other stakeholders.

In general **appeals** can be launched if an oversight body takes a decision: for example, a decision to impose sanctions or a decision whether or not to approve verifiers. It is good practice to have clear communication and legal rules on **appeals, procedures, and legal effects of appeal decisions**. Legal rules should regulate in which cases appeals can be raised, the timelines for procedures, the requirement for oversight bodies to set up procedures for appeal, and requirement to exchange information on the outcome of appeals with relevant stakeholders.

NOTE 5 » *Where that regulator is different from the oversight body that is imposing a sanction*

STEP A3

Designing requirements on oversight entities

Once the objective and key concepts of the approval and supervision structure have been defined, it is important to design and define **requirements related to the oversight body and personnel involved in approval and supervision** themselves. Personnel involved in approval and supervision of verifiers should be competent to carry out their assigned tasks. Competence is not only about education, knowledge, and skills but also about the application of these elements to carry out relevant activities.

As the oversight body evaluates whether the verifier is capable of assessing the M&R for obligated entities, this means that personnel involved in approval and supervision of verifiers should have knowledge and understanding not only of the V&A system but also of the requirements of the M&R system. It depends on the approval and supervision structure what specific competence requirements apply for personnel carrying out these activities. If the approval of a verifier consists of a training and examination, different criteria apply to where the oversight body assesses the verifier's performance during the verification itself. Technical experts can support (lead) assessors on specific subject matters (for example, language and technical issues, such as GHG accounting, understanding of metering equipment, or laboratory requirements).

Oversight bodies should be required to undertake active measures to ensure the competence of their personnel involved in approval and supervision activities. It is good practice for oversight bodies to organise periodic update/refresher training of personnel involved in approval and supervision of verifiers. One of the main challenges encountered in the majority of CPIs is in arranging for qualified personnel to evaluate verifiers. Lessons learnt show that it is better to intensively train a select group of persons to carry out assessment at the start of the CPI rather than giving basic training to a large group. In particular, if the oversight body assesses the performance of verifiers, personnel involved in that assessment need to have detailed knowledge to be able to do actual assessment of the verifier properly.

Another key concept is the **impartiality and independence of the oversight body and its personnel**. The oversight body should be independent from the verifier. For example, the oversight body must have no relations with the verifier (that is, not owning shares in the verifier company, not being in top management). Oversight bodies' policies and procedures should be nondiscriminatory for all parties. This does not mean that there cannot be eligibility criteria for the approval of the verifier; however, these criteria must be applied fairly and equally to all parties.

All personnel that could influence the approval and supervision process must act objectively, be impartial, and be free from commercial, financial, or other pressures that could cause risks to the impartiality of the oversight body. It is good practice that persons involved in the evaluation of verifiers do not take the final decisions on approval of verifiers.

Where standards such as ISO 17011 are applied, it should be noted that these are programme neutral standards. They set out a framework for control but do not specify every detail. This means that if policy makers want to cover specific competence and impartiality requirements this needs to be included in the CPI legislation, design, and/or rules. The creation of such rules is recommended so as to ensure that the approval and supervision is tailored to the application of CPI rules.

STEP A4

Implementation of approval and oversight system

To ensure proper implementation, policy makers should make sure

that the timelines for approving verifiers are feasible and that approvals of verifiers can be delivered in a timely way within the overall programme time frame. When designing the approval system, policy makers should be aware that a verifier needs to be approved sufficiently far in advance of the verification report needing to be submitted to the regulator to give the obligated entity confidence that they can comply with rules on verification.

The design of the approval system determines what timelines could be appropriate. The timeline for an approval system where only documentation submitted by the verifier is reviewed or an examination is held is likely to be shorter than the timeline for an approval system where a document review, visit to the verifier's offices and witnessing of an audit at work on site is planned (full scope approval, see figure J for an example timeline).

The oversight body and its personnel need to be sufficiently prepared. This means that the policy maker has to arrange for the **human and financial resources** that are needed for the oversight body to carry out the approval and supervision activities. The type of resources needed depends strongly on the choices that are made in the design of the approval and supervision system. Less resources are required for an approval and supervision system that is based on document review and/or examination than for a system in which the actual performance of the verifier will be tested in witness audits of its personnel and visits to the verifier's premises.

In addition, the **institutional framework for oversight bodies** needs to be set up. Existing institutions may only need to adapt procedures and processes to accommodate CPI specific requirements: for example, competence criteria, new assessment criteria, new checklists, and new criteria for imposing sanctions. For new institutions quality management procedures, appeal procedures, procedures for imposing sanctions, and so on need to be designed and implemented. This may require additional resources and time to set up.

The oversight body's staff involved in the approval or supervision of verifiers needs to be **trained in a timely way** on how to assess verifiers and their personnel. Where new institutions are set up more training may be necessary. For existing oversight bodies it is necessary to train existing staff on CPI specific elements, in particular the specific MRV requirements. It is important to spend sufficient time on informing oversight bodies on the CPI specific elements.

Arranging for qualified trainers and getting sufficient competent experts to support oversight bodies may be difficult at the start of a CPI. This is particularly true if the actual performance of verifiers is assessed. Mechanisms to facilitate this process include hiring experts from existing mandatory environmental reporting programmes or technical institutions, and peer-to-peer knowledge sharing between CPIs. Countries can also get support from international projects that help national governments in setting up CPIs.

Where a country has decided to accredit verifiers under the ISO framework, it is recommended that the accreditation body of that country becomes a member of the International Accreditation Forum and the relevant regional accreditation networks.

Experience has shown that the legislative framework and specific legislation outlining the approval and supervision system need to be supplemented with **more detailed guidance and other implementation measures or tools**. Measures facilitating implementation are similar to those for verification. Because of the links with verification, such supporting tools are usually developed together.

STEP A5

Ongoing management of the approval and supervision system

Once the approval and supervision system is implemented and operational, it is important to **monitor the quality of approval and oversight**. Measures to ensure ongoing quality or approval and oversight include:

1. **Information exchange** between oversight bodies and other parties.
2. Regular **training** of personnel involved in the approval and oversight. They need to be kept informed of updates in the CPI specific rules.
3. **Monitoring of the oversight body**. This is usually done by the policy maker that has established (or recognised) the oversight body.
4. **Peer review**: on a regional or international level. This may include an assessment organised by a regional or international organisation whereby different bodies peer review a particular oversight body and evaluate its procedures, processes and competencies. This is a required step for ISO accreditation.

The approval structure can determine what option is taken. ISO accreditation usually involves a peer review of accreditation bodies whereas a simple information structure in general will follow less extensive options. In some CPIs a combination of options is used. This can be a situation that evolves over time. However, this is not necessarily the case. If the policy maker wants to have control over the quality of approval and oversight, more rigorous monitoring can also be done from the start.

Good cooperation and information exchange can be a means for regulators and oversight bodies to keep a close eye on the V&A process. Information exchange can be organised on an informal and formal basis (embedded in legislation or institutional structures). This is crucial if sanctions are imposed by an oversight body or if the regulator has identified issues in their normal work processes that are relevant for the oversight body to know about a particular verifier.

Minimum requirements for setting up a verification system

- **Define the scope of verification**: the boundary and tasks involved in the verification. The more complex the CPI is, the more detailed and complex the scope of verification may be;
- **Define the level of assurance** to be delivered: this is essential for the design of verification activities. Most CPIs apply a 'reasonable' level of assurance;
- **Define a materiality threshold** that the verifier can use to plan the verification and to assess the significance of errors and noncompliance issues. Materiality is not a tolerance band for reporting, it is a decision-making tool for the verifier;
- Be aware that **verification is a risk-based tool** consisting of steps that are interlinked: an obligated entity with low risk may require less extensive verification whereas complex obligated entities have generally higher risks and could lead to more extensive verification. Similarly, two identical operations may have distinctly different levels of verification risk depending on the way they are managed and the approach they take to account for their emissions;
- **Set minimum requirements for verification**: for example, requirements for the verifier to allocate sufficient time to deliver all verification activities, requirements for obligated entities to provide certain information to the verifier; the verifier's risk analysis; what checks to carry out during verification; key principles of sampling, recording information, and evidence in internal verification work papers; requirements for obligated entities to correct errors and noncompliance issues;
- **Define the contents of the verification report**: these are often based on international standards and need to reflect key issues identified during the verification consistent with the CPI design;
- **Define specific rules related to verifier's site visit(s)** and consider the possibility of allowing waiver of site visits under certain conditions;
- **Recognise the timeline** needed to deliver verification so that verifiers (or regulators) can properly plan training to ensure competent personnel;
- **Define requirements on the competence and impartiality of the verifier** and of individual auditors: both concepts are essential in a robust V&A system and CPI specific requirements are needed;
- **Define procedural requirements for verifiers**, including requirements on confidentiality of information, quality assurance, and control procedures.

Minimum requirements for setting up the approval system

- **Define the entities involved**: consider that the use of existing institutions and structures may help to reduce costs;
- **Design effective training**: ensure that staff within the oversight body are properly trained in a timely manner;
- **Ensure timely approval**: timely planning of the approval process ensures that there are sufficient competent verifiers in the field;
- **Ensure a level playing field**: where verifiers from other CPIs or other countries are accepted, the importance of informing them about domestic rules is important to ensuring that these verifiers are supervised and that action can be taken if these verifiers are noncompliant. It is good practice for a foreign verifier to meet the same competence requirements as national verifiers. This process can be facilitated by the use of international standards and the application of the ISO Multilateral Agreements which enables mutual recognition of accredited verifiers;
- **Set minimum requirements for documentation**: it is important to set minimum requirements on documentation to be provided as part of a request for approval, eligibility criteria, sanctions that can be imposed against infringements, criteria for performing the assessment, contents, and validity of the approval certificate, frequency of supervision, reapproval of verifiers, competence, and impartiality of personnel involved in the approval and supervision.

1 Introduction

Carbon pricing is an important instrument in addressing climate change. This aims to factor in the cost to society caused by harmful emissions – known as external cost. A number of different instruments are available to policy makers to put a price on carbon. Which one is most appropriate in a given context will depend on a variety of factors.[6] Across the world a number of countries have implemented, are preparing to implement, or are contemplating introducing some form of carbon pricing instruments (CPI).[7] Robustness and credibility of data are key elements of all such systems.

Carbon pricing instruments (CPIs) involve large legal and financial interests. Trust in the accuracy and integrity of the reported data is therefore a prerequisite for a well-functioning instrument. To ensure accuracy and integrity of data a robust monitoring, reporting, and verification (MRV) system is essential. Verification is critical to enhance trust in a carbon pricing system. Where systems have large financial implications, participation is voluntary, or international exchange of units is planned, this trust is paramount for successful implementation. This guidebook aims to help regulators to better understand their options in designing a verification system tailored to their specific needs and circumstances. The guidance:

- Provides an overview of **available options** and discusses their implications on resources and credibility of the system;
- Helps to **avoid missing important elements and making common mistakes** that will increase the cost of the system or reduce trust;
- Allows understanding of **trade-offs** and how systems can **develop over time**.

This is a guide[8] on verification of reported data and the approval of parties carrying out such verification in the context of CPIs. The guide provides advice to policy makers, government officials, and practitioners that are in the process of, or are contemplating, setting up and implementing verification and accreditation/approval systems (V&A systems). This section provides information on:

- the type of CPIs that are covered in this guidance;
- the objectives and scope of the guidance; and
- further explanation of the structure and visual elements guiding the reader on the use of different sections of the document.

1.1 Overview of carbon pricing instruments

The most common CPIs are emissions trading schemes, carbon tax systems, and offset crediting mechanisms[9]. These three instruments are the prime focus of this guidance, and their characteristics can be explained as follows:

- **Emissions trading**: in an emissions trading system, the emissions of a group of participants are capped at a maximum allowed level. Each participant needs to have sufficient emission 'rights' or 'allowances' to cover its emissions. It can achieve this by either reducing emissions in-house or by buying allowances on the market from participants with excess allowances.
- **Carbon tax**: the regulator (directly or indirectly) imposes a levy on emitters of CO2 (or GHG) emissions, which increases the cost for those emitters and potentially for downstream parties, such as consumers. Emission reduction measures taken voluntarily result in lower emissions and hence lower cost.
- **Crediting mechanisms**: unlike emissions trading or taxes, which put a price on emissions, crediting mechanisms reward activities that reduce emissions compared to a (historical or projected) emission baseline. The earned credits can be sold on the market to entities that can use them for compliance with voluntary targets or mandatory obligations. As a result, the emissions of the buyer are allowed to be equivalently higher than in the absence of the purchased credits. These mechanisms are often based on individual projects or sets of projects, but could also be operated on a broader sectoral or policy basis, often referred to as 'scaled up' crediting mechanisms. As the requirements for V&A are similar to project-based crediting, they are not distinguished in this guide.

Throughout the guide icons will be used to indicate the type of information provided. The icons for individual types of CPI are used in cases where information is specific to a particular CPI. Where no CPI icons are used, information is applicable across CPIs and applicability may depend on other factors.


Emission trading


Carbon tax


Crediting mechanisms

Note 6 » *For discussion of these factors, see, for example: Partnership for Market Readiness (PMR). "Carbon Tax Guide: A Handbook for Policy Makers." World Bank, March 2017. https://openknowledge.worldbank.org/handle/10986/26300; Partnership for Market Readiness (PMR). "Emissions Trading in Practice: A Handbook on Design and Implementation." World Bank, 2016. https://openknowledge.worldbank.org/handle/10986/23874.*

Note 7 » *For more information see: World Bank; Ecofys. "State and Trends of Carbon Pricing 2018." World Bank, May 2018. https://openknowledge.worldbank.org/handle/10986/29687.*

Note 8 » *This guide is based on the practical experience of the authors and survey respondents; where it draws on information related to a specific jurisdiction the legislation and associated documents are listed in Annex 14.*

Note 9 » *Note – throughout this document the terms offset mechanism and crediting mechanism are used interchangeably*

Effective policy instruments need to be credible and trusted, in particular if economic consequences are involved as is the case with CPIs. This means that the underlying data needs to be accurate. Accuracy can be largely achieved by a robust monitoring and reporting (M&R) scheme. However, it also requires a robust and transparent process for checking the data and the application of methodologies that led to these data. Ex ante validation of carbon accounting methodologies and ex post verification of reported data are important aspects of a CPI.

The way a CPI is set-up determines how the monitoring, reporting and verification is carried out, how MRV systems are designed, and how rigorous they need to be in terms of quality assurance through regulators, verifiers, or both. Some of the systems being developed across the world are based on internationally recognised standards, while others are more nationally orientated.

TABLE 1. **Overview of characteristics of different carbon pricing instruments**

Carbon Pricing instrument	Incentive for GHG reductions	Level of MRV required	Financial flows	Nature
Emission trading	(Potentially) Increased cost of emitting, determined by cap on amount of allowed GHG emissions	Robust to ensure compliance, in particular if multiple and complex sectors are involved	Between participants in the scheme or on the open market	Mandatory[10]
Carbon tax	Increased cost of emitting	Depending on whether tax is levied upstream (fuel import) or downstream (consumers)	From entities to regulator	Mandatory
Crediting mechanisms	Financial reward for GHG emission reduction	Robust to ensure compliance in particular for larger projects	Between participating entities (including ETS/tax obligated entities that can use credits)	Mostly voluntary[11]

1.2 Objectives and scope of guidance

This guide is intended for policy makers and government officials responsible for setting up and implementing verification and approval (V&A) systems for CPIs. The focus is on implementation of domestic V&A systems but includes insights on how international standards can be applied in a domestic context. This includes information on how a country can build on international standards and what a country needs to consider to be able to conform with international standards, if these are applicable. This guide does not provide specific guidance on the V&A systems for Clean Development Mechanism (CDM)[12] or voluntary crediting mechanisms such as the Gold standard[13] or Verified Carbon Standard since there is existing guidance that provides sufficient information on these systems.[14]

This guide aims to provide practical advice on the steps that need to be taken to design, implement, and manage an appropriate V&A system for a CPI. The objectives of the guidance are to:

- Highlight commonalities and differences between existing V&A systems;
- Outline steps needed to design legislative and institutional frameworks for V&A in CPIs;
- Provide guidance on what is needed to design and implement a verification system and available choices for designing and implementing such a system. A key factor in designing a system is a proper understanding of how verification is carried out, including:
  - what common principles apply;
  - which institutions to involve;
  - what rules to develop;
  - what activities are conducted;
  - what to consider concerning competence and impartiality of parties doing verification.
- Provide guidance on what is needed to design and implement a system to approve and qualify verifiers, including:

Note 10 » *Note that voluntary systems also exist, but they are usually less effective as there is limited incentive to buy emission units in such a system, i.e., it would have sellers but no/few buyers, therefore limited trade and low carbon prices.*

Note 11 » *Offset crediting provides opportunities for participants to offset their emissions by purchasing offsets on the market that were either created through CDM or in the voluntary market. In most cases participants have a choice to participate in the scheme. However, this may not always be the case.*

Note 12 » *Further Information can be found on: https://cdm.unfccc.int/Reference/Standards/index.html*

Note 13 » *Further information can be found on: https://www.goldstandard.org/project-developers/standard-documents*

Note 14 » *Further Information can be found on: http://verra.org/project/vcs-program/rules-and-requirements/*

– how approval of verifiers is set-up and implemented;

– how to organise ongoing supervision of verifiers;

– which institutions to involve;

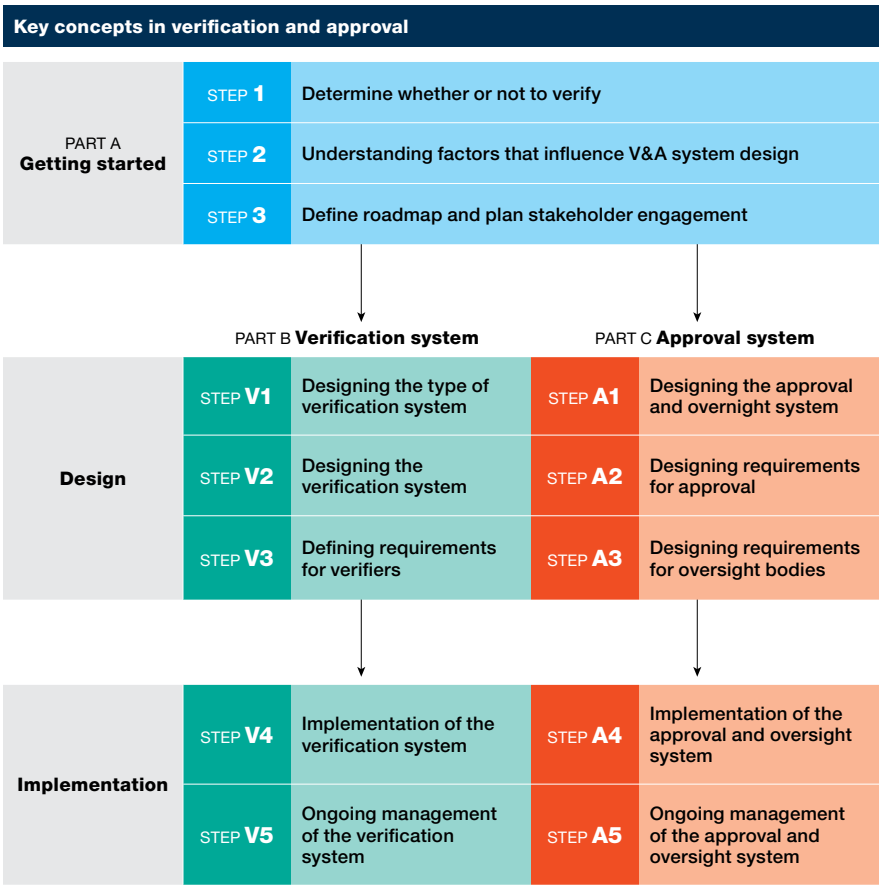
– what rules to develop;

– what activities are carried out in an approval and ongoing supervision mechanism;

– what else to consider when designing a system.

Where differences exist in the V&A systems for specific CPIs, this is highlighted in the guidance. It is noted that mandatory or voluntary greenhouse gas reporting programmes are often used to monitor and report data or as an initial point of data collection to establish 'baselines' for forthcoming CPIs. This guidance is also relevant for such programmes. Similar principles also apply to verification of international transactions.

FIGURE 1. **Structure of the guidance**



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1.3 How to read the guidance

Section 2 first introduces the key concepts in V&A, including the overall compliance and governance framework, the role of V&A, and some definitions and concepts fundamental to the design of V&A systems.

This step-by-step guide is then structured into three subsequent parts as illustrated in Figure 1.

Part A Getting started. This focuses on understanding whether a V&A system is necessary; what form it can take; and how the type and set-up of the CPI influences this (section 3). It also highlights which factors impact design of the V&A system and the stakeholders involved, as well as their roles and responsibilities (section 4). Section 5 then provides guidance on how to engage stakeholders and considerations for determining the roadmap for design and implementation of the system.

Part B and part C of the guide break down the design and implementation activities into five main steps and discuss them separately for **verification** and **approval**: identifying the type of system, designing and structuring the system, designing system requirements, and implementation and ongoing management of the system.

Where options are available to policy makers and practitioners, these options and their implications are outlined to support decision making regarding design, implementation, and management of a V&A system, indicated through this icon.

This guide also provides information on options to improve the system over time, discussing what constitutes minimum requirements for the initial phases of a CPI and which requirements can be developed when strengthening the system over time. Where the guidance explains how choices may affect further development of the V&A system and what a policy maker needs to consider, you will see this icon.

Throughout the guide, case studies, experiences, and lessons learnt from countries or regions that have an operational V&A system for a CPI are provided, marked by this icon.

2 Key concepts in verification and approval

For a CPI to function effectively, reliable and accurate data are needed to know how much carbon tax can be imposed, how many emission allowances should be surrendered,[15] or how many credits can be issued. Reliable and accurate data can be achieved by designing and implementing a robust monitoring, reporting, verification, and accreditation/approval (MRVA) system. In this section we explain:

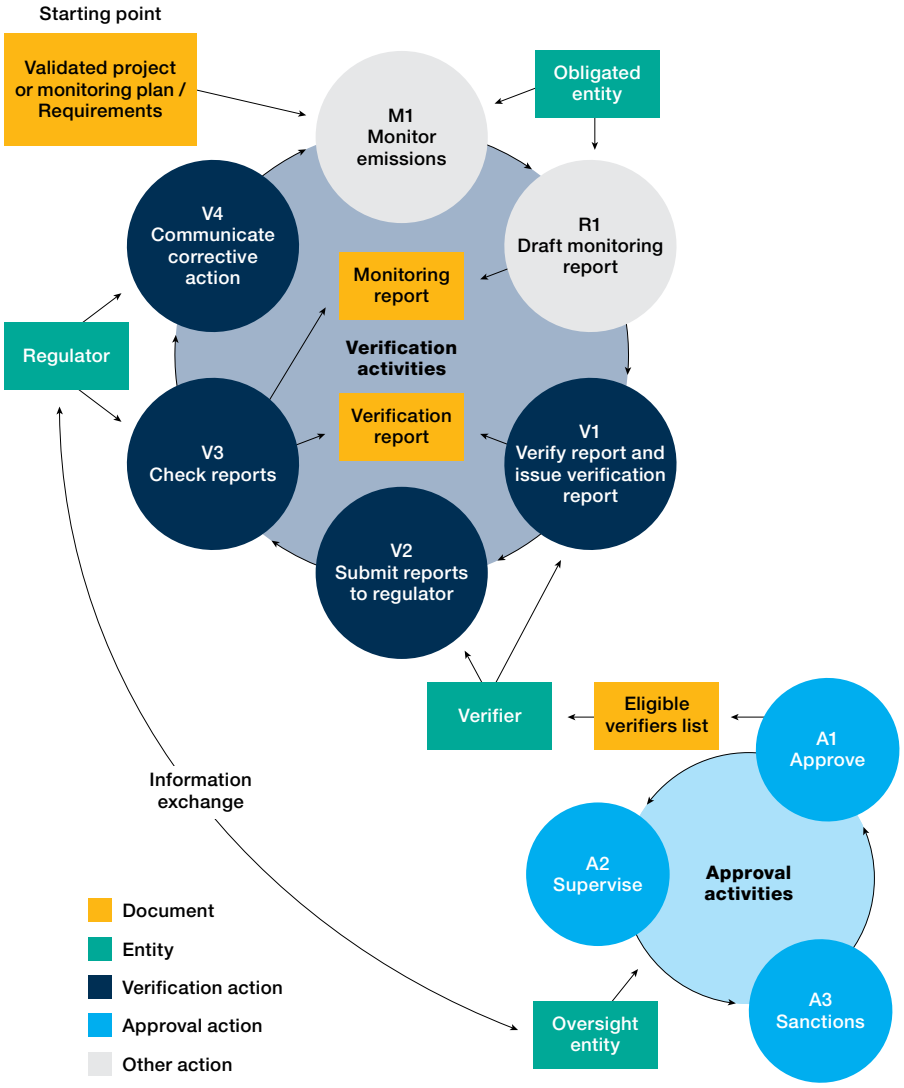
- The key elements of a MRVA system that underpin a CPI;
- The general concepts of V&A;
- The added value of V&A.

2.1 Key elements of a MRVA compliance system

In an MRVA compliance system, emissions[16] are monitored over a period of time, generally called the reporting (or crediting) period (see action M1 in Figure 2). The monitoring of data is carried out by the obligated entity according to CPI specific monitoring methodologies and quality control requirements as well as in some CPIs a validated monitoring plan or project plan. At the end of the reporting period, a report is compiled (R1) containing emission (and potentially emission reduction) data as well as underlying data substantiating these.[17]

The report is verified (V1) by an independent party, the verifier, which must have the appropriate permission or 'licence' to carry out such verification. In general this 'licence' is obtained through an approval process (A1) by a designated oversight body responsible for approval, oversight, and supervision of those

FIGURE 2. **Overall MRVA compliance framework**



Note » *For an explanation of the different elements (and letters used), see the description in the text.*

Source: authors

verifiers. The verifier will be incorporated in a list of eligible verifiers from which an obligated entity can choose. The oversight body will also supervise verification (A2) and impose sanctions on verifiers in cases of noncompliance with requirements (A3).

The verifier will communicate the results of its work to the obligated entity, usually in the form of a verification report which includes an opinion statement on whether the reported data are accurate and compliant with the requirements. Both the reported data and the verification report will be submitted (V2) to the regulator responsible for implementation of the CPI. Good practice for a robust MRVA framework

Note 15 » *In emission trading schemes emission allowances equivalent to the verified reported emissions must be surrendered in the registry before a certain deadline. One emission allowance is equal to one tonne of CO2 emitted.*

Note 16 » *Note that 'monitoring of emissions' here can refer to the monitoring of fuel, energy and material use, from which emissions are then calculated. It can also mean that emissions from flue gas are directly measured in the stack of a facility by a continuous emission measurement system. In some offset mechanism projects, emission reductions are calculated by subtracting the monitored actual emissions from the baseline emission level (e.g., CDM, JI). In carbon tax systems fuel consumption (or production, import, and sale) are monitored and used to calculate the tax obligations. Denmark, Sweden, and France, for example, do this on the basis of the Excise Movement and Control System. For more information, please see: PMR. "Carbon Tax Guide," 142.*

Note 17 » *For additional information on M&R see, for example: Partnership for Market Readiness (PMR). "Greenhouse Gas Data Management: Building Systems for Corporate/Facility-Level Reporting." World Bank, 2016. https://openknowledge.worldbank.org/handle/10986/23741?locale-attribute=es; Partnership for Market Readiness (PMR). "Guide for Designing Mandatory Greenhouse Gas Reporting Programs." World Bank, 2015. https://openknowledge.worldbank.org/bitstream/handle/10986/21981/Guide%20For%20Designing%20Mandatory%20Greenhouse%20Gas%20Reporting%20Programs.pdf?sequence=1&isAllowed=y.*

is that the regulator performs additional checks (V3) on submitted reports such as completeness checks or cross checks with other data. Issues identified in the verification report or in the regulator's review should be followed up by the obligated entity or the verifier depending on the finding (V4). The extent to which this is organised depends on the level of control that the regulator wants to have on the quality of verification.

The verified data are subsequently used as the basis for trading and surrendering emission allowances in an ETS system,[18] to impose tax in a carbon tax system or to issue credits to participants in an offset project or scaled up crediting mechanism.

This whole cycle of monitoring, reporting, verification and approval of verifiers is called the MRVA compliance system.

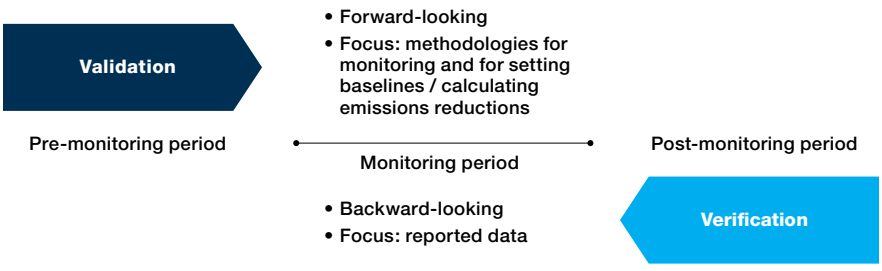
Each stakeholder involved in an MRVA compliance system is responsible for specific actions, documents, and deliverables. Policy makers need to be aware of the available options and recognise that choices can impact the design and implementation of the system. Section 4.3 provides an overview of decisions that need to be taken related to these stakeholders, specific actions, documents, and deliverables. The section also indicates where in the guidance the choices are discussed in more detail.

2.2 What is verification and approval of verifiers and why are both important?

The concept of verification

Verification is an independent check of reported data, among other requirements. This is different from validation. Whereas validation looks forward and is an evaluation of proposed methodologies, monitoring plans or project design documents against requirements in legislation or standards, verification looks backwards at the data that has been generated, collected, and monitored according to validated ('approved') plans and requirements over the reporting period.

FIGURE 3. **Validation vs. verification**



Source: based on training material by Planet & Prosperity Ltd

Defining verification

Verification is the systematic, independent, and documented process for the ex post evaluation of emissions or emission reductions against agreed verification criteria such as a project design document, monitoring plan, and requirements in standards or legislation.

In literature, **third-party verification** is an external process where the assurance is performed by person(s) from an independent entity or an independent auditor, while second-party verification is an external process (for example, verification of a supplier where there is a relationship between the two parties). **First-party (self) verification** is an internal process performed by a person(s) from within the obligated entity that is independent of the area being audited. In addition, regulators can carry out verification (this is not considered third-party verification).

Independent in the context of this guidance means that the verifier is not part of the entity that is generating the emissions data (that is, the 'obligated entity') or any party that is associated with it in terms of emissions quantification (for example, consultants).

To check the accuracy of the data the verifier will assess the whole data flow, following each specific step in that data flow from primary source data (via calculations, conversions, and other data processing[19]) to final reported output. In addition, compliance is checked with the programme rules, approved methodologies, and, where relevant, the implementation of project plans or monitoring plans[20] validated by regulators or independent third parties. In some CPIs the regulator responsible for receiving the data report does some checks on the report, but this is not verification. In verification the verifier conducts detailed checks on the data and checks compliance with the requirements in a much more extensive way than basic sense checks on the emission report by the regulator.

Note 18 » *In an emission trading scheme emission allowances equivalent to verified emission allowances must be surrendered. Surplus of emission allowances can be sold whereas a shortage of emission allowances means that the company has to buy emission allowances from another participant in the ETS scheme or on the open market.*

Note 19 » *Data processing: any activities that are necessary to move from primary source data to final reported data: e.g., any mathematical calculations/ conversions that are done on primary data to convert it to the required output parameters for reporting.*

Note 20 » *In some CPIs a monitoring plan or project design document validated (approved) by the regulator or independent third party is prescribed. The verifier will check against the plan or document in that case.*

Verification can take different forms and can be applied in various ways for different CPIs (see section 6). Because of these differences the requirements for verification can vary depending on the design of the CPI, and its specific purpose, and may differ even within one programme.

The concept of approval and supervision of verifiers

An important factor for ensuring the quality of verification is the question of who monitors those doing the verification. This is a key aspect of quality assurance of data used in CPIs and is covered by a process of initial approval and continuous supervision of verifiers.

In an approval process a regulator, accreditation body, or other oversight body assesses the competence, impartiality, financial stability, and performance of the verifier. If that assessment is positive, the approving body will recognise this by issuing, for example, a 'licence' for the verifier to carry out verification in a particular sector or multiple sectors covered by a CPI. Such an approval process and formal recognition gives the wider public confidence that the verifier is independent from the obligated entity, is competent, and has no conflicts of interest. Continuous supervision of that verifier by an oversight body will subsequently ensure that the verifier remains competent, financially stable, and independent, and continues to comply with legislation.

Importance of a robust V&A system

MRVA is the backbone of a well-functioning CPI. As a CPI usually involves large financial interests, trust in the accuracy and integrity of the reported data is an essential requirement. A robust V&A system has the following benefits:

- **Improved reliability**: Verification is an independent check on compliance with the CPI specific requirements. The quality of output data is checked by the verifier as a function of the completeness, accuracy, and consistency of the input data, so V&A improves the accuracy of output data.

- **Access to resources and know-how**: Regulators often do not have the necessary resources and competencies to assess risks in the data flow of an obligated entity participating in a CPI; to check their quality management systems and procedures; or to evaluate the technical aspects of sampling, laboratory analysis, and measurement instrumentation that may form the basis of reported data. A check by experienced third parties can be an effective way to gain access to such expertise to support the identification of errors in data as well as noncompliance issues.

- **Enhanced trust**: Verification by independent and competent parties increases the trust of the public, obligated entities, and other market participants in the functioning of the CPI and avoids any perception of conflict of interest on behalf of a regulator, particularly where they both approve an entity's monitoring plan and conduct audits of the data generated from implementation of the approved plan. It also enhances the trust of participants that they are treated equitably and fairly.

- **Avoid fraud**: Verification is an effective tool to avoid fraud as it involves an independent check on the data on the basis of formal evidence.

- **Avoid double counting and increase transparency of the data**: A robust verification system will be an effective mechanism to ensure accuracy of data.

Various checks and balances can be put in place to ensure the outcome of verification activities is sufficiently robust, including the quality of the approval and supervision process of verifiers. The more robust these processes are, the more trust the public and market participants have in the competence and independence of parties/persons doing verification and, therefore, in the quality of the outcomes of verification.

Part A

Getting started

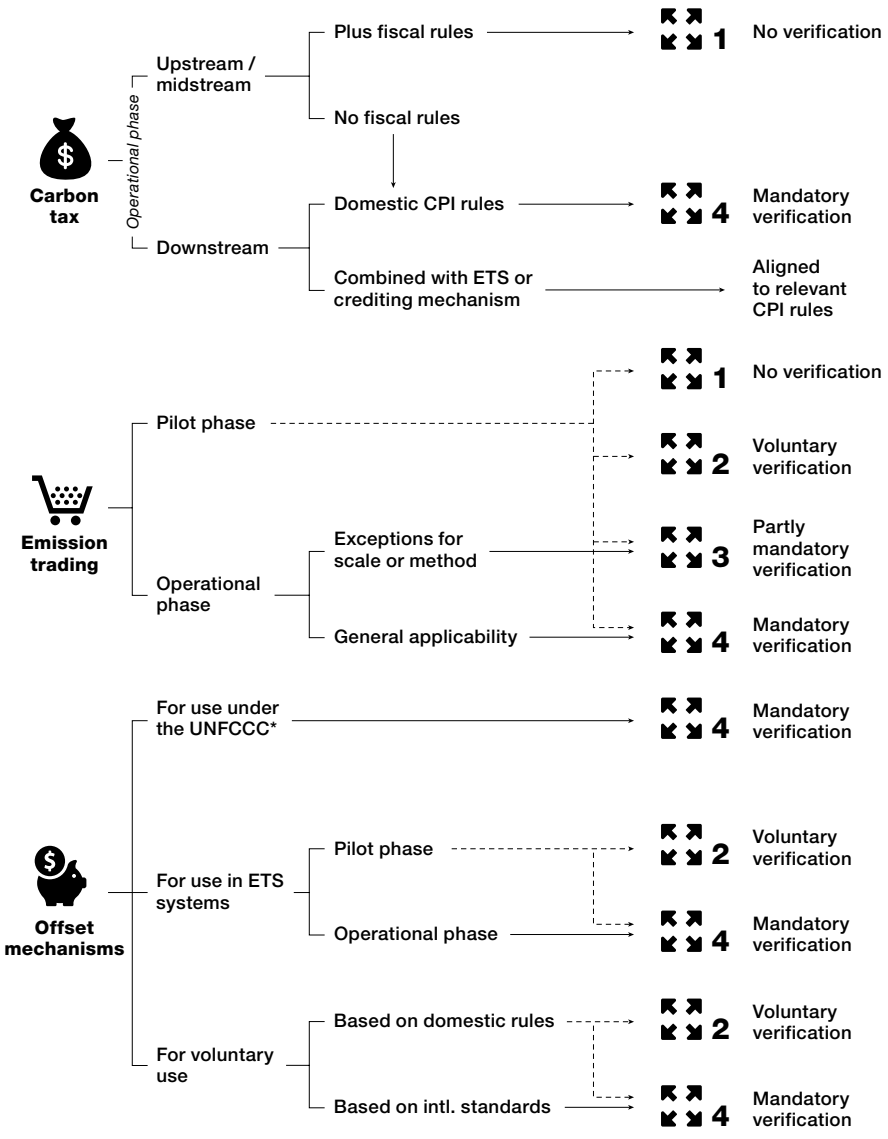
3 STEP 1

Determine whether or not to verify

One of the first choices confronting policy makers is whether or not to require verification for a CPI. Not all CPIs have a mandatory verification system. Some CPIs have voluntary verification or require verification only when the obligated party applies a specific monitoring methodology. In some cases verification is not needed at all. Figure 4 outlines different options for verification requirements: if verification is required at all, if it should be voluntary or mandatory. The tables then discuss the reasons for taking a particular option and its impacts. The numbers in the figure reflect the options in the tables which provide more information and examples of where different options are applied.

Apart from the two cases illustrated here, Table 2 discusses a few other situations where policy makers may select not to verify.

FIGURE 4. **Mandatory, voluntary, or no verification?**



Source: authors

** 'For use under UNFCCC' means that the offset mechanism is based on rules largely determined internationally: i.e., currently through the CDM (likely to build on that for future mechanisms under the UNFCCC). This could thus also include domestic offset mechanisms that are using CDM rules.*

Note » *option numbers refer to the options presented in Table 2 and Table 3*

TABLE 2. **Considerations for selecting not to verify**

Option	When is this option considered appropriate?	Important considerations	Examples
1 **No verification**	**Simple set-up of carbon tax system** ➔ Upstream or midstream tax; ➔ Monitoring is based on fuel sales; ➔ The fuels sales are subject to existing mechanisms for checking accuracy; ➔ Monitoring is in that case very simple and its accuracy guaranteed by these mechanisms;[21] ➔ The carbon tax is not linked to an offset mechanism;[22] ➔ Basic checks by a tax authority are sufficient to guarantee high accuracy of data.	• In a carbon tax system the regulator responsible for receiving the report has to assess it and check whether the fuel sales correspond with the report. • The policy maker should arrange for resources within the tax authority to check the data and monitor compliance of the obligated entities. • Instructions need to be developed on how to check tax reports. Checklists can help this process. • Legislation needs to include roles and responsibilities of stakeholders, data that need to be reported, instructions on how to calculate the tax and consequences if there is noncompliance, applicable sanctions.	**Carbon tax systems in European countries** do not have a verification system as most carbon tax systems are midstream or upstream, and data are determined based on fuels sales underpinned by financial accounting systems. The tax authority does basic checks on tax reports unless a discrepancy is found and further investigation is initiated. In a few cases checks are done as part of financial or energy audits, for example, if participants want to apply for a refund of the carbon tax.
	Self-verification or self-certification combined with strict enforcement ➔ The monitoring methodology and quality assurance is robust;[23] ➔ There is high confidence of compliance by the obligated entity; ➔ There is a strong inspection and enforcement policy implemented by the regulator. Such an option does not provide the same confidence as verification by an external party.	• The regulator needs to have high confidence in the quality and robustness of the CEMS or quality control. This means that the system must meet stringent requirements on calibration which must be checked by the regulator in the inspection/ enforcement regime. • CEMS can be expensive and is not always appropriate for determining the emissions. Examples of where a CEMS may be appropriate are power station or refinery flue stacks[24]. • The strict enforcement regime should not only include periodic inspection but also a strict penalty and enforcement regime. • Usually not suitable for countries where: – companies have limited resources; – confidence in the accuracy of data is not high; or – retrofit of CEMS to old facilities often cannot be demonstrated to meet accuracy requirements.	**Under RGGI**[25] the obligated entity must designate a representative within the company for certifying, signing and submitting the GHG report. The emissions are monitored continuously by a CEMS in the stack. Electronic quarterly reports are submitted to the Environmental Protection Agency (EPA) using an EPA provide software tool. Certification is carried out before reports are electronically transmitted. The EPA uses quarterly report data to assess compliance, by comparing each unit's reported CO2 mass emissions against the number of allowances held. The EPA's Greenhouse Gas Reporting Program (GHGRP) tracks facility-level emissions from the largest sources of greenhouse gas emissions in the United States: generally facilities emitting more than 25kt from stationary combustion and a variety of process sources. There are strict requirements on the quality assurance. The regulator decided that additional verification by an independent party was not needed, given the strong enforcement policy performing ad hoc facility audits. If the company is noncompliant significant penalties can be imposed.

(continued on next page)

NOTE 21 » *If this is not the case, the monitoring and reporting will be more complex, and verification is necessary to achieve the necessary confidence in the accuracy of the data*

Note 22 » *If linked to an offset mechanism, the system is likely more complex with multiple sectors covered and more complex monitoring and reporting mechanisms. Verification is necessary to achieve the necessary confidence in the accuracy of the data.*

Note 23 » *E.g., monitoring data that is measured by a continuous emissions monitoring system (CEMS) under the obligated entity's control is automatically transferred from a CEMS to the regulator responsible.*

Note 24 » *CEMS measure the CO2 content of output flue gases such as those in power station chimneys and refinery flue stacks where output gases are consolidated into a single flow. Since CEMS are expensive to install and operate, where output gases are not consolidated and there are a number of smaller flues it is unlikely to be cost effective to fit a CEM system on each flow specifically for carbon accounting.*

Note 25 » *U.S. Regional Greenhouse Gas Initiative*

(Table 2 continued)

Option	When is this option considered appropriate?	Important considerations	Examples
	Automatic generation of emission report without input from obligated entity ➔ The data report of the obligated entity is **automatically generated** from an independent external system or source that is not under control of that company. ➔ The data report generated by that system or source is **submitted** to the responsible regulator **without any changes** or input from the company concerned.	• The external system should be highly reliable and regulators need to have high confidence in the quality and robustness of data from the external system. This means that the system must meet stringent requirements on quality assurance and control; and be an independent data source that cannot be manipulated by the obligated entity. • Usually applies to simple programmes and smaller entities where the data can be generated from an external source.	**Small aircraft operators in the EU ETS emitting less than 25kt CO2 per year** can opt to have an emission report automatically generated from the ETS Support Facility provided by EuroControl. This system contains flight data, can calculate emissions and generate emission reports automatically from the system. The operator can download a report and submit it to the regulator without alteration. Verification is not needed in that case. Data comes directly from the system without any input from the aircraft operator. The regulator also has access to the ETS Support Facility and cross checks whether data in the system is the same as that in the report.
	Testing the system in pilot phases In **pilot phases** compliance of obligated entities may not be (fully) enforced as it is considered a period to test the system.	• The regulator checks the data reports. • Usually the regulator has high confidence in the compliance of the company.	
	Voluntary participation in CPI In some CPIs **smaller or medium-sized facilities** can voluntarily participate in the CPI. Verification is then not always required.	• In general applied to facilities that are small or medium sized and are less essential for meeting environmental targets and for which costs can be prohibitive. • The regulator checks the data reports	**Tokyo Cap and Trade System**: medium sized and small facilities are not required to reduce their emissions with the cap and trade system. Verification is not required for these facilities.

TABLE 3. **Considerations for voluntary, partly mandatory, and mandatory verification**

Option	Possible reason(s) for adoption	Important considerations	Examples
2 **Voluntary verification**	**Voluntary reporting processes** Can be used where the reporting requirement is **not linked to a regulatory carbon trading mechanism** or equivalent process for which high accuracy is required.	Voluntary verification is used for many reporting mechanisms which use GHG/emissions/energy accounting. Typically these processes use the GHG Protocol Corporate Accounting and Reporting Standard and/or the ISO 14064[26] series of standards as the basis for reporting and assurance. The reporting organisation can usually choose which particular monitoring methodology will form the basis of its reporting and assurance (if it chooses to have its report verified).	**The mandatory reporting programme in the UK** aims to get companies to identify information that triggers internal discussions around the level of emissions and what can be done to manage or reduce them. Making GHG reporting a part of the annual financial report and accounts means that it has to go through the Board review process for sign off for publication. This ensures that emissions information is seen by the senior management and that the aggregated information is available to shareholders. However verification is not obligatory as it is not essential that the data be highly accurate, and reporting may include elements of the company's footprint for which data collection parameters and quality may be highly uncertain. **Carbon Disclosure Project (CDP)**: Submission of verified emissions to CDP gains the reporter additional 'points' in the CDP process when their submission is evaluated.
3 **Partly mandatory verification**	**Mandatory verification for specific entities or application of methodologies** This covers a situation where verification is only required for a particular type of entity in the CPI or where the obligated entity chooses to apply a specific monitoring methodology for which verification is required.	• Policy makers need to be clear on the type of entities that would fall under this obligation. Legislation needs to include criteria for what parties are required to monitor and report and under which circumstances verification is required. Policy makers need to set the rules in such a way that competitive distortion or perverse incentives are avoided. Careful consideration needs to be given to placing a cost on some entities and not on others, particularly if treating companies in the same industry differently could have an impact on their ability to compete. • The environmental objectives and targets of a CPI determine which entities are covered by the scheme and which entities should be required to monitor and report and have their emissions or emission reductions verified. • Where verification is required only if a specific monitoring methodology is applied, robust internal validation and quality controls should be applied. Policy makers should have high confidence that entities that do not fall under the obligation to verify will still meet M&R requirements.	• **Tokyo Cap-and-Trade System**: verification is mandatory for the large facilities where consumption of fuels, heat and electricity in the previous fiscal year is 1,500 kL or more in crude oil equivalent. Those facilities are required by legislation to monitor, report, and verify emissions and emission reductions. Smaller and medium-size companies can choose to participate in the CPI and in that case they do not have to carry out verification. • **New Zealand ETS**: verification is required only if a unique (site specific) emission factor is applied which requires sampling and analysis of the fuel. If a default emission factor is used, verification is not required. Detailed checks on reported data will in that case be carried out by the regulator.

(continued on next page)

Note 26 » *Annex 5 provides a summary of the relevant international standards*

(Table 3 continued)

Option	Possible reason(s) for adoption	Important considerations	Examples
↖↗ ↙↘ 4 **Mandatory verification**	**Most emission trading schemes, offset mechanisms, and downstream carbon taxes** This applies if the CPI system **requires robust** verification for all obligated entities to provide assurance on the accuracy of data reported. This is the case when there are **large financial interests** at stake, involving multiple sectors with larger companies and project developers. In that case M&R is more complex, and risks of inaccurate data are higher requiring more assurance that the system is working properly.	• This option provides the public with a high level of confidence in the reliability of reported data – usually to the level of reasonable assurance (see section 7.2). • Legally binding legislative framework is important to underpin the V&A system.	• **Emission trading schemes**: in California and the Republic of Korea (Korea), EU ETS, Chinese pilot ETS, Chinese national ETS, some Canadian provincial schemes. • **Offset mechanisms**: CDM, JI, Japanese Joint Crediting Mechanism, Chinese Certified Emissions Reductions (CCER), Australian Emission Reduction Fund. • **Carbon tax**: in particular, downstream covering participants that are regulated at the point of fuel combustion where emissions released in the atmosphere result from burning fuel or industrial processes. This is, for example, the case in Singapore, South Africa, and Colombia.

4 STEP 2

Understanding factors that influence V&A system design

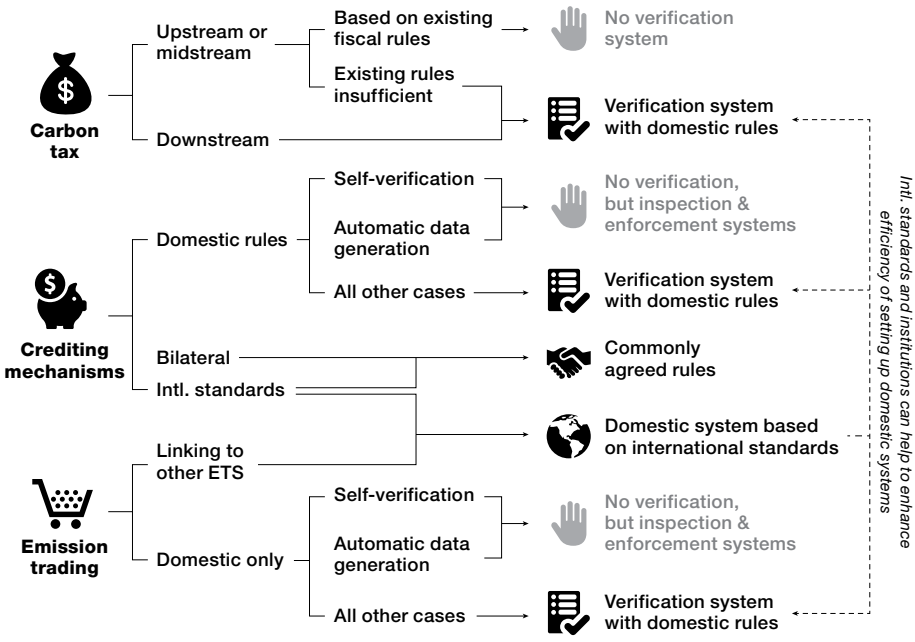
4.1 Use of international standards

Section 2.1 outlines the elements of the general MRVA compliance cycle, including the different entities involved, required documents, and the specific actions to be carried out in V&A. Apart from the question of whether to verify or not as previously discussed, key factors determining which options are the most appropriate for each of these elements are the **type of CPI**, how it has been **set up**, and whether it **applies international standards** or not. The following figure illustrates where domestically defined rules are usually applied and in which cases international standards can play a key role.

In some cases, participation in international schemes, such as the CDM, will require mandatory application of specific international standards, which will limit the choices of policy makers at the national level, but also potentially reduce the need to set up domestic regulation. For purely domestic systems, a strong link to international standards can be useful if linking with other schemes in other jurisdictions is envisaged. However domestic schemes can also use international standards to form their V&A system.

In any case where verification systems are set up, international standards and associated institutions can be useful to enhance efficiency of setting up the system and increase trust in system robustness. The potential use of international standards is discussed in more detail in the relevant sections in parts B and C.

FIGURE 5. **Decision tree: key choices for rules in V&A systems**



Source: authors

4.2 Understanding relevant framework conditions

Apart from the type of CPI and whether international standards apply, other factors can also play a role in selecting a particular option for setting up the V&A system. These include:

- **Legal structure**: the legal structure within a country can impact the design of the system. For example:
  - It can require policy makers to make use of local or regional regulators to implement the CPI.[27] This can lead to an increased need for coordination and information exchange between regulators.
  - Existing laws need to be taken into account when designing the system. For example, general legislation on fraud may be applicable to verifiers. Public access to information acts may be relevant for emission reports

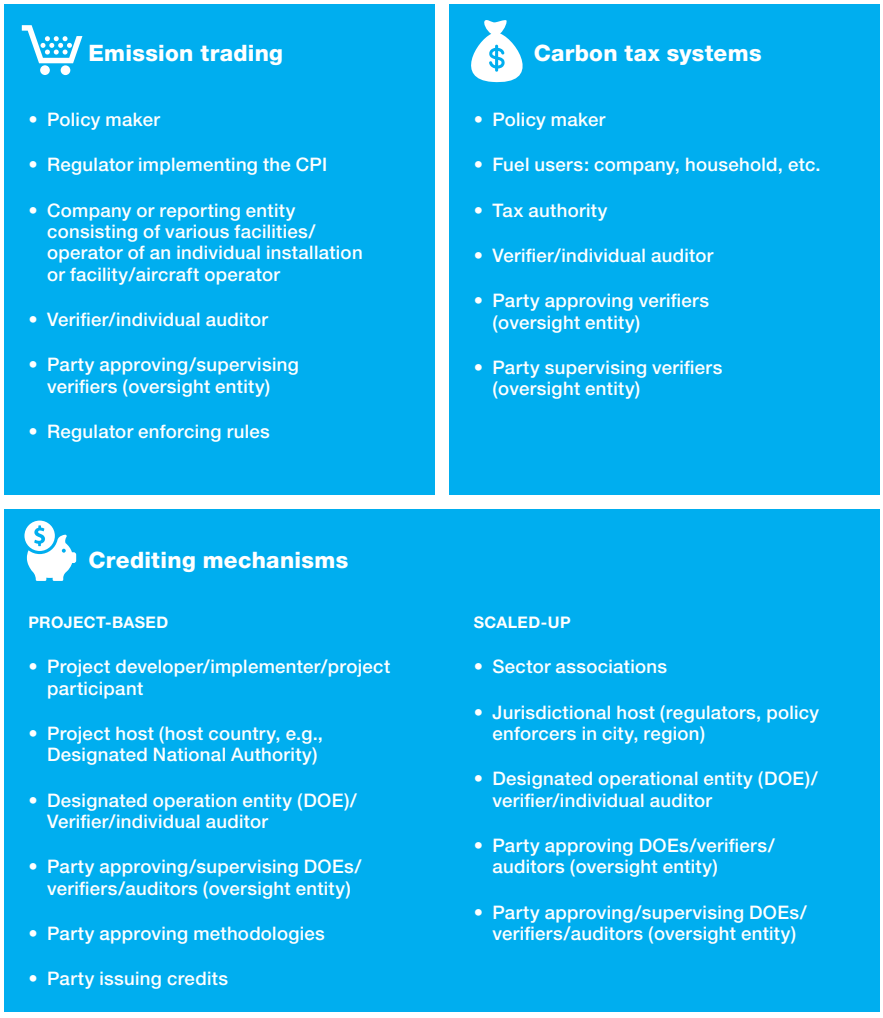
Note 27 » *This is, for example, the case in the Chinese national emission trading scheme where provincial authorities will be involved in approving monitoring plans and receiving emission reports. It also occurred in a number of EU countries such as Poland, the UK, and Austria.*

and parts of verification reports once these have been submitted to the regulator. These would have an impact on how to define instrument specific requirements on sanctions or confidentiality in the legislation that regulates the V&A system and may involve referring to other legislation.

– Some countries are required to follow international or regional law that determines how they have to implement the CPI and how to design the V&A system. For example, EU regulation on accreditation and verification is directly applicable to all countries covered by the EU ETS. In all European countries verifiers that are carrying out verification must be accredited by an accreditation body according to the regulation and EN ISO 14065.

- **Available resources**: where resources are limited, it may be more appropriate for a country to design its V&A system to use existing processes and institutions rather than set up new systems. Another option is that policy makers may choose less robust approaches in the initial stages of implementation and evolve over time.

FIGURE 6. **Stakeholders in different CPIs**



Source: authors

- **Level of ambition**: the country's environmental objectives and ambitions, including its emissions reduction target(s) and commitments, may influence the need for, and design of, the V&A system. This factor is highly linked to the resources a country has available. It can force policy makers to identify specific priorities in the design of the V&A system. If countries plan to link with CPIs from other regions/countries or if they envisage transforming from one CPI to another type in the future, this can impact decisions on structure and set-up. Policy makers may, for example, be inclined to put in place at the start of the programme the necessary systems to allow for an easier transition. It can also mean that policy makers may want to base the V&A system on international standards.

- **Accuracy**: The required accuracy level for the reported data[29].

The following sections will refer back to these factors and explain how they can influence the choices that can be made for certain options in the design, implementation, and management of the system.

4.3 Understanding choices in the V&A system design

Figure 2 in section 2.1 outlines different elements within the MRVA compliance system - main stakeholders, documents involved and activities performed. Related to each of these elements a number of choices can be made when designing the V&A system. This section provides an overview of what these choices are and where in the guide the more detailed discussion of each choice and its implications are.

Note 28 » *Commission Regulation (EU) 2018/2067 of 19 December 2018 on the verification of data and on the accreditation of verifiers pursuant to Directive 2003/87/EC of the European Parliament and of the Council. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R2067&from=EN.*

Note 29 » *This is impacted by both the quantitative materiality threshold selected (see section 7.3) and the level of assurance (reasonable versus limited) (see section 7.2).*

Stakeholders

Roles and responsibilities of all players involved in a V&A system should be clearly outlined in legislation. The following checklist provides an overview of decisions that need to be taken related to each of the stakeholders in the system and indicates where in the guidance the choices are discussed in more detail. Some of these decisions will be taken together with setting up the M&R system and are closely connected to that.

Figure 6 provides some examples of how the involved stakeholders can vary between CPIs.

TABLE 4. **Entities involved in V&A systems**

Entities	Checklist for policy makers	Impact of choices on V&A
Obligated entity	✓Define the sectors covered by the CPI (➔ section 7.1) ✓Define the type of obligated entity under the CPI and applicable thresholds if relevant (➔ section 7.1) ✓Define the type of M&R system and requirements applicable to sectors and obligated entities (➔ section 3)	The choice of sectors, obligated entities, and type of M&R system can affect how the verification is carried out and what checks the verifier makes. This influences the definition of scope, level of assurance, materiality threshold, and the options in the verification process (➔ Table 6)
Verifier	✓Define the type of verifier (➔ section 6.2) ✓Determine the approach to selection and payment of verifier (➔ section 6.3) ✓Ensure competence (➔ section 8.1) ✓Ensure impartiality (➔ section 8.2) ✓Ensure key organisational and procedural rules (➔ section 8.3)	These decisions affect the design of system and how to arrange for the availability of financial resources and sufficient competent verifiers (➔ section 9.1 and 9.2)
Regulator	✓Define the institutional set-up of the regulator (e.g., whether the policy maker is the same authority as the regulator implementing/ enforcing the CPI) (➔ section 5) ✓Determine whether to arrange for a centralised regulator or use multiple local/regional regulators	The institutional set-up of the regulator and the coordination between different regulators is defined when setting up the overall CPI. This can affect certain actions in the compliance chain: e.g., arranging for information exchange and coordination if multiple regulators are involved (➔ section 10.2 and 10.3)
Oversight body	✓Whether to use existing or new institutions (➔ section 11.2 ✓Ensure competence (➔ section 13.1) ✓Ensure impartiality (➔ section 13.2) ✓Ensure key organisational and procedural rules (➔ section 13.3) ✓Whether the oversight body is the same as the regulator (➔ section 11)	The type of oversight body affects the design of the approval and supervision system (➔ section 11) and how to arrange for resources (➔ section 15)

Section 5.1 provides information on how the various stakeholders can contribute to the design, implementation, and management phases of a V&A system and highlight the importance of involving stakeholders during the design of the legislative and institutional framework. Annex 3 provides examples of stakeholder engagements in different country CPIs.

Required documents and deliverables

A number of documents are potentially relevant in the V&A process as outlined in Figure 2, for example, monitoring plan, emission report, verification report. Policy makers need to define which documents are required, the necessary levels of detail in the documents, formats and, if appropriate, deadlines for submission. Table 5 provides a checklist of decisions that need to be taken related to each of the documents and indicates where in the guidance the choices are discussed in more detail.

TABLE 5. **Documents involved in V&A systems**

Documents	Checklist	Impact of choices on V&A
Monitoring plans 	✓Define whether obligated entities need to have monitoring plans outlining how they will monitor and report emissions and comply with relevant rules or standards. These plans are specific to the entity (➔ section 7.1 and 7.4). ✓Define who will validate required monitoring plans. For emissions trading schemes this is usually the regulator. For CDM this is the designated operational entity (➔ section 7.1). Not all ETS or offset mechanisms require a monitoring plan.	Affects the criteria that a verifier takes into account when checking the accuracy of data (➔ section 7.1). A monitoring plan can facilitate verification and reduce verification costs, especially if that plan is of good quality.
PDD 	✓Define whether to require obligated entities to have PDDs outlining how baseline emissions will be determined, explaining how the selected monitoring methodology is applied and estimating ex ante the emission reductions (➔ section 7.1). ✓Determine whether the PDD will be validated and who will validate the PDD. For CDM (and often domestic offset mechanisms) this is a designated operational entity (➔ section 7.1).	Affects design of system and how to arrange for resources (➔ section 9).
Submission of documents	✓Define how to submit data (electronically, excel template, word template, or no template) (➔ section 9.3). ✓Whether to require obligated entities to submit required documents before a certain deadline. This has advantages for enforcement.	The type of submission can affect the efficiency of the scheme, in particular if multiple parties are involved. Deadlines can affect the timelines for verification (➔ section 7.4) and trading.
Monitoring plan or PDD (if relevant), **Report, Verification report**	✓Define level of detail of content of the required documents (➔ section 7.1 and 7.4).	Can affect the verification. More detail in the monitoring plan and emission reports facilitates verification. However, too much detail in an emission report can complicate it (➔ section 7.1 and 7.4).
Eligible verifier list	✓Once the verifiers are approved, compile a list of eligible verifiers.	No real impact on the V&A system, only with CPIs where verifiers can only be selected from the list.[30]

Activities to be carried out in verification

A range of decisions is required for each activity illustrated in Figure 2 in section 2.1. These are closely related to the decisions regarding stakeholders and documents required. Figure 3 shows the relationship between stakeholders, documents, and activities. The checklist in Table 6 provides an overview of decisions that need to be taken related to each activity and indicates where in the guidance the choices are discussed in more detail.

Note 30 » *For example, in the Swiss ETS and in the domestic offset mechanism only verifiers from the list of eligible verifiers may be selected.*

TABLE 6. **Activities to be carried out in V&A systems**

Actions	Checklist	Impact of choices on V&A
Verification	✓Determine whether to carry out verification at all, and if so, voluntary or mandatory (➔ section 3) ✓Define the scope of verification (➔ section 7.1) ✓Define the level of assurance (➔ section 7.2) ✓Define the materiality threshold (➔ section 7.3) ✓Define the specifics in the verification process which are highly connected to the M&R system (➔ section 7.1)	Affects the type of stakeholders involved and actions that are taken to ensure accuracy of the report
Checking of reports	✓Determine whether to perform checks on submitted emission reports and verification reports (➔ section 10.1) ✓Determine how to check these documents (➔ section 10.1)	Issues found in the review can feed into the oversight of a verifier and can result in sanctions where a verifier is noncompliant (➔ section 12.4 and 12.5)
Approval of verifiers	✓Determine how to design the approval system (➔ section 11) ✓Determine whether to accept verifiers from another CPI or another country (➔ section 9.2 and 11.4)	Affects the design of the system and how to arrange for resources (➔ section 6.3 and 9.1)
Supervision of verifiers	✓Whether to supervise verifiers (and if so, how) (➔ section 11.4 and 12.3)	Affects the design of the system and how to arrange for resources (➔ section 6.3 and 9.1)
Sanctions	✓Define the type of infringements and the type of sanctions (➔ section 12.4) ✓Decide when to impose sanctions and who can impose them (➔ section 12.4) ✓Define the appeals procedures (➔ section 12.5)	Has implications for the eligibility of the verifier to carry out verification and for the acceptability of verification reports (about to be) submitted
Information exchange	✓Determine whether to arrange for information exchange between various stakeholders (➔ section 10.3 and 15.2) ✓Define how to exchange information and who to involve in the process (➔ section 10.3 and 15.2) ✓Determine what type of information to exchange (➔ section 10.3 and 15.2)	Can support the processes of the stakeholders involved and improve the efficiency and quality of the system

Example

How does compliance and governance work in EU ETS?

The European Commission has developed an M&R Regulation and an A&V Regulation. These regulations are directly applicable to all countries participating in the EU ETS, that is, all EU Member States of the European Union and Iceland, Liechtenstein, and Norway. The M&R requirements relate to the operator of stationary installations and 'aircraft operators'. The operator of the installation submits an installation specific monitoring plan to the regulator which validates (approves) this monitoring plan.

The operator monitors its emissions during the calendar year (the reporting period). After the reporting period has ended the operator compiles an emission report that is verified by an independent third-party verifier. That verifier is accredited by a national accreditation body according to EN ISO 14065 and the requirements in the A&V regulation. The national accreditation body supervises the verifier in annual surveillance and reassessment of the accreditation. The operator of the installation submits its emission report together with the corresponding verification report to the regulator which carries out checks on the reports. There are requirements on information exchange between the regulator, accreditation body, and verifiers. More information can be found on the European Commission website: *https://ec.europa.eu/clima/sites/clima/files/ets/monitoring/docs/exp_guidance_1_en.pdf*

How does compliance and governance work in the offset mechanism in Australia?

The Emission Reduction Fund (ERF) is a voluntary offset scheme with a mandatory verification system. If the project participants want to initiate a project under the Emission Reduction Fund they must register the project with the Clean Energy Regulator. Participants must use one of the ERF's methodologies to estimate likely emissions reductions from undertaking the project. The ERF has methodologies for agriculture; energy efficiency; mining, oil, and gas; transport, vegetation management, waste, and wastewater. The project is run according to the method selected and must meet the requirements laid down in the carbon credits legislation. Project participants submit regular reports on the project and have them verified by an individual auditor registered with the Clean Energy Regulator. Mandatory verification audits are required across the life of the project. The required frequency depends on the size of the project's abatement (typically every three to five years). To be eligible as a verifier the individual auditor must meet specific eligibility requirements. The Clean Energy Regulator monitors the auditors by carrying out inspections. The project monitoring report, together with the verification report, is submitted to the Clean Energy Regulator. Based on the emissions in the report, the project participants can claim Australian carbon credit units (ACCUs) for the emission reductions achieved and sell them. For more information please see annex 1.

How does compliance and governance work in the Mexican carbon tax system?

The carbon tax in Mexico is applied to import and sales of fossil fuels. The M&R system is simple as it is built on the fiscal system. Regular reports on the volume and price of fuels sold are submitted electronically to the tax administration service SAT. The data reported is stored and processed by the Secretariat of Finance and Public Credit. There is no verification system which means that part of the compliance framework is not applied for this carbon pricing instrument. Similar approaches appear in carbon tax systems in Europe. Tax authorities receive reports and carry out common sense checks on the reports.

5 STEP 3

Define roadmap and plan stakeholder engagement

This section aims to provide an overview of these design and implementation activities. A key element in activities is the involvement of stakeholders in order to achieve higher levels of public support and higher levels of trust in the CPI.

5.1 Planning stakeholder engagement

Several existing PMR guides[31] provide a step-by-step guide on how and when to involve stakeholders. Similar processes apply when planning stakeholder engagement for the design and implementation of a V&A system. As the V&A system is closely interlinked with the M&R system, it is good practice to combine the stakeholder engagement for both processes. The M&R processes need to be auditable by the verifier; hence verifiers' input to the design of M&R rules is crucial.

When planning stakeholder engagement, it is important for policy makers to take the following steps:

- **Identify the stakeholders involved**: potential stakeholders for the CPIs are outlined in section 4.3. This includes obligated entities, verifiers, regulators, and oversight bodies.
- **Define who to involve from different stakeholders**: this depends on the type of stakeholder.
- **Define the level of participation for stakeholders**: informing, getting feedback, or active participation.
- **Identify when to involve stakeholders**: there can be different stages of stakeholder engagement consisting of informal and formal engagement in the design phase, implementation phase, and ongoing stakeholder engagement. Early stakeholder engagement[32] is primarily focused on obtaining input on technical and functional matters, whereas later stakeholder engagement[33] is mostly used to promote the V&A system, raising awareness and building public confidence in the robustness of the system, and improve common understanding of rules and any issues likely to arise in its implementation. It is good practice to arrange for early and timely stakeholder involvement.
- **Define approaches for stakeholder management in different phases**: such approaches can include meetings, official consultation rounds, information to the public and stakeholders, and other mechanisms, depending on objectives, time in the development process, and available resources.
- **Define priorities** for stakeholder engagement: for example, on which part of the V&A system to involve stakeholders first.
- Develop **communication lines** that are tailored to the type of stakeholder engagement to be used.

5.2 Defining a roadmap

The activities needed for the development of V&A systems are usually conducted in different stages as described in Table 7. The different stages and steps form a roadmap for setting up the V&A system. The table also outlines what type of stakeholder engagement takes place at each stage.

Note 31 » *PMR. "Carbon Tax Guide."; PMR. "Emission Trading in Practice."; PMR. "Guide for Designing Mandatory GHG Reporting Programs." World Bank, 2016. https://openknowledge.worldbank.org/handle/10986/21981; Initiative for Climate Action Transparency. "Stakeholder Participation Guidance." May 2018. http://www.climateactiontransparency.org/icat-guidance/stakeholder-participation/.*

Note 32 » *Stakeholder engagement that is often not public and is carried out by the regulator on an unofficial basis. It is usually a group of selected stakeholders chosen by the regulator for their expertise.*

Note 33 » *Stakeholder engagement that is public and designed to raise awareness and promote the V&A system; it may also request expert review from a wider set of parties than early stage stakeholder engagement.*

TABLE 7. **Roadmap for setting up V&A systems**

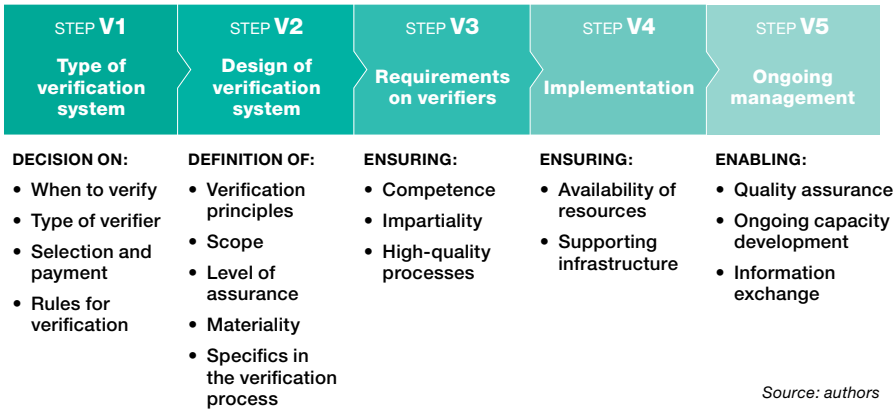
Stage	Activities needed for the design of the V&A system, the rules, and the measures to facilitate the implementation of the system	Stakeholder engagement
Stage I **Design of the system**	• Design of the CPI • Design the type of M&R and V&A system. It is recommended that policy makers discuss and make choices for both systems at the same time because they are very much interlinked • Make decisions on which institutions to use and how to set up the institutional framework • Develop a detailed roadmap for designing and implementing the V&A system, based on the basic design choices made and the existing institutional and legal system • Start considering the type of legislation depending on the legal system of a country • Start considering whether to apply international standards	Informal stakeholder discussions with people selected by the policy maker in order to inform decisions on the key design elements of the system from a practical and functionality perspective.
Stage II **Development of legislative framework**	• Development of CPI specific primary legislation. As these acts generally undergo a longer legislative process, policy makers need to time this properly. Policy makers will first start with the development of primary legislation which includes the legal basis for further rules in secondary implementing legislation • When developing primary legislation policy makers start to design the secondary legislation. It is good practice to start developing these rules while drafting the primary legislation to ensure that rules in secondary legislation have a proper legal basis and that nothing will be missed. • It is good practice to develop secondary legislation on M&R and V&A at the same time **Design of institutional framework** • Timing and approaches for designing this depend on the legal system and whether new institutions need to be created.	Early involvement of selected and relevant stakeholders in the development of sector-specific rules and more detailed requirements on MRV. Stakeholder engagement is more informal in this stage. Once the legislation is in final draft the official mechanism for stakeholder engagement of all identified relevant stakeholders that is normally used for developing legal rules will take place. How the stakeholder engagement is carried out depends on the legal system. For MRVA systems it is crucial to carry out this stakeholder engagement.
Stage III **Development of implementation tools**	• Finalization phase of the rules for the V&A system and CPI • Development of guidance material, templates, IT systems, and other tools/ checklists. Ideally guidance on M&R as well as V&A is developed at the same time. It is important for policy makers to realise that obligated entities need to have the rules and guidance in place before they start monitoring. • Design internal checklists and instructions within the regulator to manage the CPI. • Set up a helpdesk to support obligated entities and verifiers once the CPI starts. • Training of obligated entities, regulators, verifiers, and verifier oversight body	Stakeholder discussions when developing guidance to ensure guidance responds to the needs of obligated entities and works in practice when applied.
Stage IV **Start of CPI**	• Start of the compliance cycle for entities (M&R) • Start of the approval process for verifiers. Duration of approval process depends on type of approval process. • Maintenance of helpdesk for entities and verifiers	Continual stakeholder discussions in meetings, training, or other fora.
Stage VI	• Start of verification	

Part B

Setting up the verification system

Part B details the steps to be taken to design, implement, and manage a verification system. Individual sections discuss the options available within each step that can be selected to fit the local context and priorities. Figure 7 below provides an overview of the steps, which are further detailed below.

FIGURE 7. **Step by step through verification**



Source: authors

When designing the verification system, it is important for policy makers to have a clear view on how to structure the system, including:

V1 What type of verification system to select: this step includes decisions on:

- At what stages of the CPI data/ information will be verified;
- What type of verifier to use, and which other parties to involve, as well as the role of these parties;
- How to select and pay the verifiers;
- What type of rules to develop to regulate the verification system.

V2 How to design the verification system itself: in this step policy makers define the concepts used in verification such as the verification principles, the required level of assurance, and materiality. Decisions will need to be made on how to structure verification activities to be carried out and what to specifically include in legislation;

V3 How to design the requirements that are applicable to verifiers: this step is a key element in the design as it concerns the competence, impartiality, and other key requirements applicable to verifiers. This guide helps policy makers to identify where they need to define requirements and what options they have for defining requirements;

V4 How to implement the verification system: this step involves the identification of measures to facilitate implementation, how regulators can arrange their resources, and the approaches that can be followed to ensure sufficient verification resources and competent verifiers;

V5 How to manage the system on an ongoing basis to ensure that parties involved in verification continue to be competent and the system remains of high quality.

When implementing the various steps and defining the structure and design of the verification system, policy makers need to consider what crucial and minimum requirements are needed from the start of the CPI and what requirements can be strengthened over time as the CPI evolves. At the end of each section in the following sections recommendations are provided for the development of requirements.

Policy makers need to have a clear view of how verification works in practice so as to be able to set up the verification system and develop rules. This guide provides information on what principles and concepts are important in verification and summarises how verification is carried out and what activities are performed. Equally important is how the overall design of the CPI and the M&R system influences the design of the verification system. This guide also contains information on what policy makers need to consider for the design of the verification system.

A number of commonly accepted principles form the basis of any verification system and are essential to underpin requirements imposed on verification processes by legislation as well as the requirements imposed on verifiers and individual auditors. These principles inform the conduct of verifiers when they undertake verification activities. They originate from the financial accountancy world and from international accounting assurance standards such as ISAE 3000[34] and are included either in international ISO standards or in CPI national (primary) legislation. These principles provide the legal basis and framework for the more detailed requirements on verification discussed in the following sections. Annex 3 outlines the common principles that apply to both approval and verification processes.

Note 34 » *ISAE 3000: International Standard on Assurance Engagements*

6 STEP V1

Designing the type of verification system

As discussed in Part A, different choices can be made when designing the structure of a verification system. Each option has advantages and disadvantages. Which options are selected primarily depend on factors such as the legal structure, available resources, and the level of ambition in terms of environmental objectives and the level of robustness policy makers want to achieve with the V&A system. This section outlines the different options, the impact of those options, as well as their advantages and disadvantages. It also describes how different factors may influence the decisions of policy makers.

The key choices that policy makers consider under this step are listed in Figure 8 and explained in the following sections.

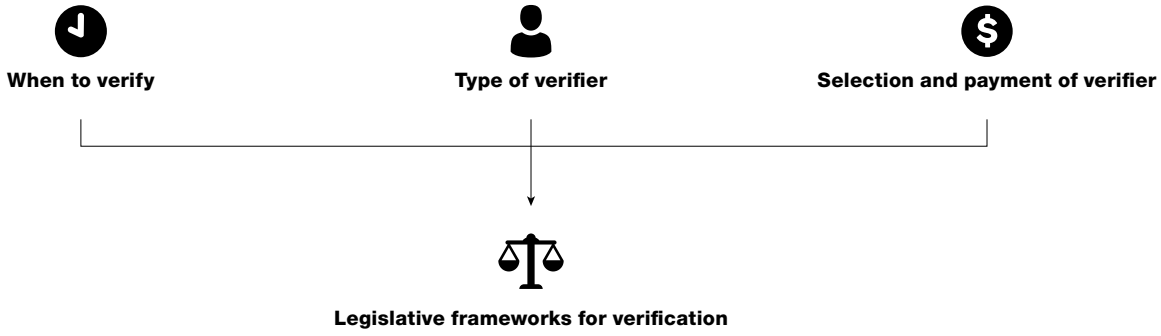
6.1 When to verify

When designing the verification system policy makers should determine when verification takes place and at what frequency it is carried out. There are two stages in a CPI for which verification can be considered.

1. **Data collected for the design of the CPI**
2. **Verification of data when CPI is operational**

Table 8 provides more detail on the two stages.

FIGURE 8. **Key choices in designing a verification system**



Source: authors

TABLE 8. **Verification at different stages of CPIs**

Stage	When to verify	Important considerations	Examples
1 **Data collected for the design/ adjustment of the CPI**	Mandatory or voluntary reporting schemes can be used to collect data to inform the design and development of the CPI. **ETS**: for determining the cap or to set the baseline for the calculation of emission allowances to be allocated. For these purposes historical data are collected before the start of the trading period. **Offset mechanisms**: setting of crediting baselines before the scheme is implemented. This is the case for scaled up crediting mechanisms.[35] **Carbon tax systems**: to set up the scheme (e.g., determine tax rates, baselines, in particular for downstream hybrid schemes)	**Usefulness of verification** • There will be higher confidence in the accuracy of baseline data and hence calculations based upon it. This is important given the financial interests involved. **Considerations for policy makers at the start of CPI:** • At the beginning when the CPI starts it may be difficult to get reliable data and impossible to have robust data. The CPI is new and relevant data may be missing or quality control measures not yet in place so that the data are not as reliable. However, verification of baseline data is recommended for determining the cap for ETS or baselines more accurately, or at least to understand the likely uncertainty associated with the data. • Accuracy of the data is less important at this initial stage than when the CPI is operational and is used for imposing tax or trading emission allowances/offsetting credits. Then accuracy is crucial for the functioning of the system and the trust in it. • When verification is considered at this stage, it is recommended to define mandatory rules for verification, in particular on competence and eligibility of verifiers as well as what data needs to be collected and checked. • Existing mandatory reporting schemes set up for other purposes can be used or adapted for these purposes. • It may be difficult to get competent verifiers to verify baseline data unless the market is opened to verifiers from other programmes or regions or timely capacity building is organised. The regulator should therefore consider training or a stakeholder consultation at a sufficiently early time. **Considerations on needs for a CPI that has evolved** When new data needs to be collected to determine updated baselines, caps, and allowances to be allocated, a higher quality of data can be obtained. More detailed requirements for verification are then required. This is in particular true for ETS systems.	A number of CPIs were preceded by mandatory reporting schemes that applied rigorous monitoring, reporting, and verification requirements to provide the input data for establishing the cap or to determine tax rates. This includes the Californian and Korean ETSs, some of the Chinese pilot systems, and the planned carbon tax system in South Africa. For the carbon tax in South Africa 2018 data are collected using mandatory national reporting mechanisms intended for GHG emission inventory reporting. **Example of an evolving system with frequent verification of baseline data** In the EU ETS the allocation of emission allowances for the third (2013-2020) and fourth trading period (2020-2028) is determined based on benchmark data. Each operator must submit activity data (production, heat or fuel use, or process emissions) depending on the applicable benchmark. These data need to be collected according to a specific methodology and subsequently verified by a verifier accredited by a national accreditation body. Once the trading period starts, annual emission reports must be verified by a verifier accredited by a national accreditation body. Although the process of verification is similar for verification in both phases, specific requirements apply to the competence of the verifier, and the checks to be carried out as benchmark data are different from annual emission data.

(continued on next page)

Note 35 » *Crediting mechanisms that take the principles of offset project crediting and apply them on a larger scale, e.g., at a sector level or through the application of specific policies to incentivize change. An example is the Jurisdictional and Nested REDD+ (JNR) process for government-led REDD+ programmes.*

(Table 8 continued)

Stage	When to verify	Important considerations	Examples
2 **Verification of data when CPI is operational**	This concerns the actual implementation phase when the CPI is operational. The frequency of verification depends on the nature of the CPI, its needs, and the time frame associated with local legislation and the compliance cycle. **For emission trading schemes and carbon tax systems** there is usually an annual cycle of emissions reporting. In most cases verification is done on an annual basis. However, in some CPIs the frequency may be established differently (see examples). **In offset mechanisms** there is, in some cases, no specific frequency set.	• The frequency with which verification is carried out should be regulated in mandatory legislation. • It is important to recognise that in ETS schemes where multiple sectors and complex industries are covered annual verification is good practice as it is important to check the accuracy of data and proper implementation of methodologies and quality assurance/ control procedures on a regular basis. • There are differences between the verification of baseline data and the verification of annual data in terms of the data required and the methodology for collecting data. This impacts how the basic steps of verification are carried out, where the risks of misstatement or nonconformance lie, and hence on what areas the verifier will focus its attention and effort. • In general, the type of verifier is the same for both stages, although there can be minor differences in the approval of verifiers and the criteria for competence.	In most ETS schemes there is an annual cycle of reporting and verification: e.g., EU ETS, but there are exceptions: In the **Swiss ETS** verification is required after the first year of the trading period. Following that first year, the regulator can decide if another verification is required.[36] The regulator checks the monitoring reports in detail, cross checking with data from other sources such as data collected in the carbon tax system. Some programmes in **North America (e.g., The Climate Registry and those based on the Western Climate Initiative)** allow for a 'less intensive verification' in intervening periods with full verification every three years to reduce the transaction costs for operators. Before applying the same first year plan it relies on the verifier confirming during the first verification that the operator's internal controls are robust and can be relied upon[37] and that nothing in the obligated entity's activity and accounting systems has changed at the next verifications compared to the first year.

6.2 Determine the type of verifier

Once policy makers have decided to set up a verification system, the next question is what type of verifier should do the work. In this regard, verification can be organised in different ways:

1. **Verification by a regulator**: the regulator responsible for implementing the CPI would verify the data report and check compliance with the programme specific requirements. Where a monitoring plan and/or a project or programme design document is prescribed, the regulator would verify whether this approved plan or document has been implemented. This is a different process from the regulator checking returned reports. It implies that the regulator conducts essentially similar activities as would be conducted by an independent third party and carries out detailed checks on data, application of methodologies, and compliance of the obligated entity;

2. **Verification by nominated institutes or experts** on behalf of a government agency or regulator: institutes or experts would be hired through consultancy projects or procurement services or nominated as preferred experts by the regulator. They would basically carry out similar activities as third-party verifiers or carry out detailed checks on data, application of methodologies, and compliance of the obligated entity;

3. **Verification by an independent third-party verifier**: a verification body that employs or subcontracts individual auditors;

4. **Verification by an independent third-party auditor** (individual): in some CPIs both the verification body and the auditors as individuals are approved under the CPI and can carry out verification. For other CPIs only the individual is approved regardless of whether they are employed by an entity or operate as a freelance auditor.

Note 36 » *When data in the monitoring report is not clear. This decision was made because a small number of facilities were involved, and these facilities were using standard commercial fuels and applying simple monitoring methodologies such as fiscal metering and default values for emission factors.*

Note 37 » *This is a normal aspect of reasonable assurance verification and would result in a verification programme tailored to the level of risk, so is essentially a part of any reasonable assurance verification under ISO 14064-3 even if it is not mandated within the programme rules.*

TABLE 9. **Types of verifiers**

Option	Considerations for policy makers
1 **Verification by regulator**	**When is this option appropriate?** • Where the regulator wants to retain direct control over the whole process. • In a trial phase when the regulator is unable to set requirements for verifiers and wants to test the processes. • If the regulator does not have confidence that it can get appropriately competent third-party verifiers. This is generally found only in the early stages as the supply of verifiers develops or where there is a marketplace open only to nationals. • Small schemes with limited number of companies involved.[38] • The monitoring methodology is not complex: e.g., using only default values for calculation factors and the amount of fuel is measured by fiscal quality regulated metering. • Where existing systems are in place: e.g., for carbon taxes, the national tax office may have existing systems for checking data. **Examples of application:** The **Norwegian emission trading** scheme was not yet linked to the EU ETS in 2005-2007. For these years the Norwegian regulator verified emission reports. This decision was made because the ETS was small and only a limited number of facilities were covered; the M&R requirements were not complex because of the sectors involved, and existing structures and institutions were used to develop the ETS, building on other environmental legislation applicable to the industries.
	Advantages • High level of direct control by regulator on the quality of the obligated entity's compliance with requirements and data accuracy. • The regulator gets to know the facilities very well.
	Disadvantages • Perception of, or actual, conflict of interest if the different functions of the regulator in delivering verification and approving monitoring plans or methodologies are not clearly separated. • Administrative and resource burden on the regulator from setting up new systems, processes, and training requirements; • The regulator does not always have the necessary expertise to conduct systems and data verification as opposed to regulatory compliance inspections. • Loss of impartiality over time as the regulator conducts verifications of the same companies every year (familiarity risk). • Less independent check on data from a different perspective to the regulator's view (compared to option 3).
	Observations: • Regulator would have to implement procedures on how to check and verify data reports and other relevant information. • In some cases (e.g., where the M&R process is straightforward and uses reliable external data sources such as commercial fuel data, fiscal metering, and default factors) a desk review may be sufficient. In other cases it may be necessary to go on site and check implementation, quality control systems, equipment, and compliance with requirements. • Policy makers need to be aware that verification of emission reports in CPIs often occurs in a particularly condensed time of the year (in line with the compliance cycle), concentrating the resource needs.
2 **Verification by institutes or selected experts**	**When is this option appropriate?** • If the regulator does not have confidence that there will be appropriately competent third-party verifiers, but does not itself have the internal resources/knowledge available to do the verification (see option 1 above). • If there is no, or limited, verification experience or infrastructure (e.g., no existing verifiers or processes that can be used). • If the regulator wants to have more direct control over the process but needs technical support from external parties, either from an expertise or resources point of view. • This can often occur when countries are doing a pilot phase or at the very start of a CPI.

(continued on next page)

Note 38 » *Although, it can be more cost effective to use an existing body (e.g., an ISO National Accreditation Body) if available rather than setting up new internal systems and processes within a regulator and training up staff as assessors or verifiers.*

(Table 9 continued)

Option	Considerations for policy makers
	Examples of application: In some Chinese ETS pilot systems research institutes or experts were selected by the regulator to carry out verification as the provinces were not able to get sufficient competent verifiers into the system in the early stages. These experts and institutes were paid by the regulator. Some European countries in the early years of the EU ETS assigned an institute (e.g., an energy agency) or in some cases one existing auditing organisation to carry out verification. That party worked under the authority of the regulator and had close contact with that regulator. In general these were parties with an environmental management and auditing background.
	Advantages • Less administrative burden for the regulator. • Allows use of specialist experts in the areas requiring verification. • Some separation of responsibilities to avoid conflict of interest.
	Disadvantages • Less direct control by the regulator on the quality of verification (compared to option 1). • May require budget for payment of external party/parties. • Less formalised and transparent requirements than option 3 as the regulator does not use an actual approval processes to ensure competent experts, for example.
	Observations: • Regulators would have to set up appropriate procurement and quality assurance procedures and ensure that the institutes and/or selected experts are competent to do the verification (as opposed to having purely technical competence). • It requires strict conditions and instructions on how the institutes/experts must carry out verification and what requirements they must adhere to in order to ensure consistency, accuracy, and transparency. • The regulator's budget cycle can influence when and how institutes and experts are selected to do the work, which can impact when verification can be done and the amount of time available for verification before reporting deadlines are hit. • Policy makers need to be aware that verification of emission reports in ETS and carbon tax systems occurs in a certain condensed time frame of the year (in line with compliance cycles). Institutes and experts should be arranged so that they are available in a timely way. • This option is less appropriate for CPIs that are running for a longer time as no official approval or recognition process is applied. There could be a risk to the impartiality of experts (e.g., familiarity if the same experts are involved in carrying out the verification) or conflicts if they also provide consultancy in similar areas to the CPI.
3 **Verification by third-party verification body**	**When is this option appropriate?** • In more complex CPIs such as ETSs and offset mechanisms that cover many different sectors, many participants and/or have more complex M&R requirements. • If regulators have made the decision to implement international standards such as ISO 14064-3 and ISO 14065 or CDM standards, or have plans to do so in the future. • If the CPI is set-up for eventual linking with one or more compatible systems.[39] • The regulator considers third-party verification essential for the credibility of environmental targets and robustness of the scheme to increase the confidence of the public and/or the trading market in the data being reported. **Examples of application:** • In most ETSs (EU ETS, Korean ETS, Chinese national ETS, California ETS) and offset mechanisms.

(continued on next page)

Note 39 » *When CPIs are linked, the linking countries will have to have confidence in the quality of the MRV system that they are joining to; so the rules of both programmes should be sufficiently close that there is confidence that 1 tonne of carbon in one system represents the same quantity in the linked system as there is compatible accuracy of data and hence allowances/credits from either can be accepted in both schemes. International standards increase the harmonisation of practices and could support this process.*

(Table 9 continued)

Option	Considerations for policy makers	
	Advantages • Less administrative burden for the regulator than if it carried out verification itself. • Independent check on data from a different perspective than the regulator's. • Independent check on obligated entity's application of legal requirements. It allows the verifier to see whether the regulator has missed anything or whether it has inappropriately approved some aspects of a monitoring plan that might not be fully in compliance with the rules.	**Disadvantages** • Less direct control by the regulator on the perceived quality of verification. Less independence of the verifier from the obligated entity.
	Observations: Policy makers should: • Develop programme specific requirements on how to do verification (e.g., what level of assurance is required, how materiality is applied, any mandatory tasks) to ensure different third-party verifiers carry out the verification in a similar manner. • Develop requirements on impartiality and competence of verifiers. • Develop a mechanism for approving independent verifiers. • Be aware that verification of emission reports in ETS and carbon tax systems occurs in a compressed time frame of the year and sufficient competent verifiers need to be approved in time.	
4 **Verification by individual third-party auditor**	**When is this option appropriate?** • In simpler CPIs or for simple sectors. If sectors are large and complex it may be difficult for a single auditor to cover all competence requirements and manage the complexity and scale of the verification. • If the legal system requires a country to allow for individual auditors or if the regulator wants to make use of a system of individual registered professionals (e.g., engineers or certain type of auditors). **Examples of application:** • The New Zealand ETS scheme uses individual financial accountants if the company requests to use a unique (site/fuel specific) emission factor. The Australian Emission Reduction Fund uses individual auditors. In Germany for the first two trading periods of the EU ETS auditors of environmental management systems and EMAS compliance carried out verification of emissions reports.	
	Advantages • As for verification by a third-party verification body. • Approval is granted to an individual and sanctions can be imposed on an individual rather than a whole organisation	**Disadvantages** • Being dependent upon individuals potentially without support network or back up. • Difficulty in obtaining impartial and independent technical review of the auditor's work before the opinion is issued (see section 7.4 under point 8). This is specifically relevant if ISO 14065 is prescribed. • Difficulty for individual auditors to meet the same requirements as verification bodies (e.g., implement quality control procedures and impartiality measures such as rotation of Lead Auditors). • Potential pressures from paying clients impacting impartiality (without the shielding that a verification body can offer its personnel).
	Observations: • See observations for option 3 • If a country allows verification bodies and individual persons to verify reports, they would both have to meet the same requirements, e.g., for level of competence, impartiality, quality control, etc. If there is a distinction in competences or in how verification is carried out, it could risk the integrity of the CPI system (both environmental and financial). • It is not possible for individual auditors to get accreditation by an ISO accreditation body against ISO 14065. Only verifiers as organisations or bodies are able to obtain such accreditation.	

The type of verifier model can evolve over time. In the early years or a pilot phase, policy makers may choose to select option 1 or 2 to have control over the verification system and to ensure sufficient competent verifier resources. However there are emerging systems that use third-party verification from the start[40] or apply international standards[41] because they want to align with international systems. Over time a CPI usually evolves toward option 3 which is the most common model.

6.3 Selection and payment of a third-party verifier

If the option selected is to have a verification system using third-party verifiers, there are different choices for how these verifiers are selected and how they are paid. The type of selection and payment model can have an impact on how requirements are defined for a CPI. Different selection and payment models include:

1. The **regulator selects and pays** for the verifier:
   - Payment from **regular public budget**;
   - Payment from **specifically raised funds**, for example, through revenues obtained by auctioning emission allowances in an ETS or through revenues from carbon tax systems or fees collected for other purposes;
2. The **obligated entity selects and pays** the verifier;
3. **Obligated entities provide funds to collectively pay for a pool of verifiers**. Verifiers for reporting entities are selected from the pool by the company or regulator[42] but paid from the pooled funds.

Which option to choose strongly depends on the nature of the CPI, the legal system in the implementing country, the level of direct control government agencies want to have over verifiers and verification, and the level of ambition in designing the system. Whichever approach is used, the 'cash funds' available should not dictate the amount of work done. The way a CPI is set-up needs to ensure that the appropriate time is allocated to individual verification activities regardless of the 'fee rate' determined as appropriate. Annex 4 outlines the pros and cons of different payment approaches.

In the early years, a selection and payment model may be chosen in which government agencies and regulators can exercise greater control to ensure a sufficient number of competent verifiers are established, to ensure the quality of the verification system, and to reduce costs for obligated entities (option 1 and 2). Over time, selection and payment can shift from the government to the obligated entity.

How this is done depends on the CPI, the institutional framework, the level of ambition of the implementing country, and the maturity of the obligated entities. The latter refers to their understanding of why robust verification is necessary and how it can help them deliver compliance in an effective and efficient manner. An example where the payment model has evolved over time can be found in some EU countries. In the first years of the EU ETS (2005-2007) regulators in some countries selected verifiers and directly contracted them to carry out verification. Over time this gradually changed to a payment by obligated entity model.

6.4 Legislative frameworks for verification

Domestic legislation

Verification systems need to be embedded in a strong and mandatory legal framework to ensure government agencies and oversight bodies can enforce requirements on verifiers and obligated entities.[43] A clear legal framework is needed, consisting of **primary legislation** that contains the main principles and describes roles and responsibilities of the different parties, as well as **secondary legislation** that outlines more detailed requirements for verification and verifiers.

The type of rules selected will have an effect on how to design the system and vice versa. When understanding the design and making design choices, it is therefore important to assess which type of rules are appropriate for the design options. **Sections 7 and 8** provide more information on what to include in primary and secondary legislation.

Application of internationally recognised standards

A key question for policy makers is whether to apply **internationally recognised standards** for verification or to develop their own national/regional (domestic) standard. This is often dependent on the type of CPI and the type of V&A system developed for that CPI. Figure 9 illustrates the most typical application of international standards for different types of CPIs. As shown in Figure 9, the type of approval system has implications for applicable standards and legislation (or vice versa).

Note 40 » *Turkish CPI which is largely build on EU ETS, Chinese national ETS scheme that has implemented a third-party verification system selected by national authority.*

Note 41 » *Singapore CPI will use international standards. The same applies to Korean ETS.*

Note 42 » *Where the regulator controls the pool funds that are brought in by obligated entities. (Although, there are examples in other mechanisms where a third-party not-for-profit organisation has managed such pool funds and selection process).*

Note 43 » *Obligated entities can have requirements under a verification system: e.g., the requirements to provide relevant information to the verifier during the verification.*

Reason for applying international standards

For situations where the policy maker has flexibility to opt for using international standards the following reasons can apply.

- Countries that intend to link their CPI with other CPIs in the future: linking can be facilitated by the use of recognised standards such as ISO 14065; this encourages a common approach.
- Countries wanting to facilitate involvement of foreign verifiers in a national or regional marketplace (for example, to increase the available pool of competent verifiers) are more inclined to adopt international standards as their harmonised approach simplifies the acceptance of foreign verifiers.
- Using international standards can support countries that have limited resources and want to use existing institutions or existing structures.

Applying the ISO standards framework means a country can use an existing recognised accreditation body and only have to adapt or supplement existing procedures. This is less work than building institutions from scratch. Using international standards also means that domestic legislation can build on these standards, possibly requiring a less extensive legal drafting process.

Example

Primary legislation

Primary legislation is usually among the highest legislation in a country or treaty in a region. It depends very much on the legal system whether it is an act of parliament, order of council, or other type of legislation. In general, it provides the legal basis for the CPI and the associated V&A system.

Example of primary legislation:

The National Greenhouse and Energy Reporting Act in the Australian domestic offset mechanism (the Emission Reduction Fund), which establishes the requirement that verification must be carried out by an auditor, the type of audits that are carried out, the main roles and responsibilities, and how registration of auditors works.

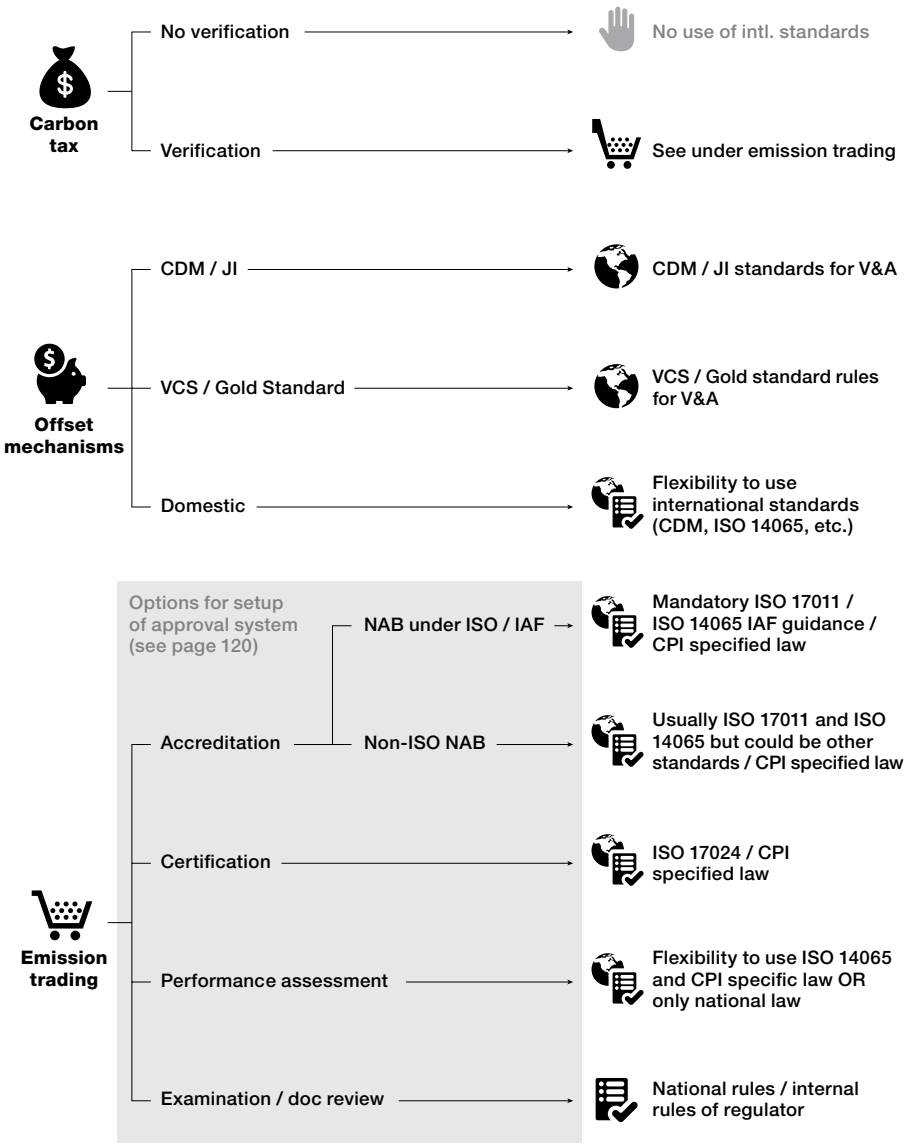
Secondary legislation

Secondary legislation is delegated or subordinate legislation. In general this legislation is used to work out detailed requirements for the V&A system.

Examples of secondary legislation:

The National Greenhouse and Energy Reporting Regulation in the Australian offset mechanism specifies eligibility requirements and standards of professional conduct for registered greenhouse and energy auditors.

FIGURE 9. **Typical application of international standards**



Source: authors

Advantages of applying international standards:

- Lessons learnt from the verification systems of a variety of CPIs across the world show that harmonised procedures and requirements mitigate differences between verifiers in competences and verification approaches. Harmonisation increases the quality of verification overall. International standards can support these harmonised processes and are recognised as accepted global 'best practice' in the approach to verification and accreditation activities.

- Enhanced confidence in the robustness of the applied V&A system, which is an important aspect for a CPI in particular the more complex ones such as ETSs and hybrid systems.

From the countries that have implemented a CPI to date, the majority have prescribed the use of an internationally recognised standard in their legislation or based their legislation on (part of) these standards. Annex 3 provides more detail on the internationally recognised standards that are applied to verification systems across the world.

How to apply international standards in the domestic context

Compared to CDM standards which contain detailed rules on how to validate project design plans and how to verify emission reductions and removals, other standards such as ISO 14064-3 and ISO 14065 provide more of a framework of what good practice should cover. This means that it remains necessary to include programme specific requirements for verification where the standard leaves choices or where programme specific requirements are more relevant.

A country that wants to apply international standards in the domestic context must consider the following:

- Determine whether an international standard is required because of the CPI concerned or the approval system selected (see section 11.1). As mentioned above in some cases the application of a standard is required;

- Study the international standard and assess which parts offer flexibility, where additional requirements are needed and (if the standard is not required) which parts of the standard to use;

- Define which programme specific requirements are needed in domestic legislation in addition to the international standard framework;

- Be aware that application of international standards predefines certain choices to be made in core requirements for verification and verifiers. Sections 7 and 8 explain where CDM standards or ISO standards determine what elements need to be followed in the process or what requirements apply;

- Determine whether domestic legislation should refer to the standard or whether requirements of the standard should be included in legislation. This depends on the legal system of a country or whether the standard is required for a CPI in primary legislation.

Example

Requirements in ISO 14065

The verifier shall not use personnel with an actual or potential conflict of interest. The verifier shall not validate and verify GHG assertions from the same GHG project unless allowed by the applicable GHG programme.

How has this requirement been made programme specific in the EU ETS?

Article 42 of the Accreditation and Verification Regulation for the EU ETS contains specific impartiality requirements. A verifier is not allowed to verify the emission report of an installation for which the verifier (or any part of the same legal entity) provides consultancy services to develop part of the M&R process outlined in the monitoring plan of that installation. The verifier is also not allowed to be involved in the development of that installation's monitoring plan, emission report or monitoring system/data management system used for the EU ETS.

How has this requirement been made programme specific in California ETS?

A number of impartiality requirements have been included in California's mandatory GHG reporting regulation. Any:

- employee of the verifier, or
- employee of a related entity, or
- subcontractor who is a member of the verification team cannot verify the report of an obligated entity for which they have carried out certain services listed in the regulation within the past five years. Furthermore, there is a mandatory rotation of the lead auditor. A lead auditor cannot verify the same facility or reporting entity for more than six years. After the 6 years a mandatory break of three years must be taken by the lead auditor for that particular entity.

7 STEP V2

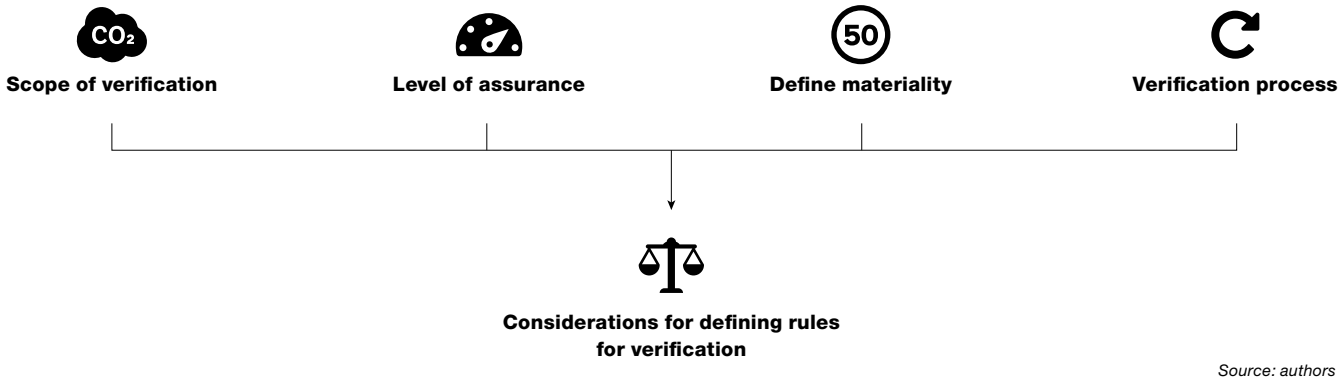
Designing the verification system

To design an effective verification system, policy makers need to understand the principles and concepts used in verification as well as how verification is carried out. This section outlines the key elements in verification system. These are:

- **Scope of verification**: How to define what the verifier must check and what verification criteria such as legislation and monitoring plan (if relevant) the verifier must take into account when assessing the accuracy of data. This is very much influenced by specific M&R approaches used in the CPI;
- **Robustness (level of assurance and materiality)**: How verifiers determine the depth and detail of verification needed to have confidence in the accuracy and reliability of reported data;
- **Activities in the verification process**: How specific verification steps are carried out; and what verification activities are performed;
- **Legal structure (rules for verification)**: How the rules of verification are defined.

These options are explained in the sections below.

FIGURE 10. **Elements in designing the verification system**



Source: authors

7.1 Define the scope of verification

When defining the roles of the regulator and the verifier in the verification system, it is important for policy makers to consider the scope of verification as this influences the responsibilities of the verifier. The scope of verification is determined by the boundary of the tasks the verifier must perform and the expertise required to achieve the objective of verification: to ensure that the emissions and data have been monitored in accordance with the CPI's specified requirements and that correct and reliable data are reported. The policy maker should consider the following elements when defining the scope in legislation and associated guidance:

- What is included in the scope and system boundaries of the CPI: for example, which sectors, type of emission sources, fuels and materials are covered by the

scheme; do thresholds apply for facilities or entities falling under the scheme; which technical units may be excluded;

- Which emissions are included in the CPI: for example, direct emissions or indirect emissions[44] (or both), gases;
- Which party is required to monitor and report emissions: a project developer, a reporting entity consisting of multiple facilities[45] or a specific individual facility, a fuel producer or supplier, and so on;
- Whether to require the obligated entity to have a monitoring plan[46] or project design document validated ex ante by a regulator or an independent third party; and the detail to be included in such a plan or document. Where a monitoring plan is prescribed, the verifier checks the implementation of a plan that is specific for the obligated entity and validated by a regulator or independent third party. The advantage of this approach is that the verifier has a tailored framework of assessment criteria to take as a starting point for the verification;
- Which specific monitoring methodologies to prescribe in the scheme: for example, whether to allow for continuous emissions measurement or only calculation-based methodologies, what requirements to apply to sampling and analysis for the determination of emission factors;
- Which requirements for quality assurance and quality control apply.

The choices that are made regarding these elements can affect the specifics of verification as the verifier checks completeness of data and emissions, compliance with requirements, effectiveness of obligated entities' quality assurance and quality control systems and the accuracy of data. This is true in all CPIs that have a verification system. Annex 6 provides examples of how the choices mentioned above affect the scope of verification. Some of these choices can facilitate verification and improve the accuracy of data.

Minimum requirements

Defining the scope of verification is a step that needs to be taken in any verification system. In an emerging CPI where not many (industrial) sectors are involved or requirements are rather simple, the scope of verification is different than in CPIs where many sectors are involved and rules are complex. The scope of verification is highly influenced by the set-up of the M&R system and decisions on precisely what the verifier is signing off on. When designing the A&V system the policy maker should pay close attention to M&R system (and vice versa since decisions made in the M&R process can have fundamental impacts on the A&V process).

7.2 Define level of assurance

In any verification, the degree of assurance over the accuracy of data that a verifier provides through its verification opinion statement is important. The level of assurance required plays a crucial role in determining the depth and extent of verification work to be conducted and the level of verification risk that is involved. Policy makers must set the level of assurance that is required from the verification system. Good practice over a number of years has identified two[47] levels of assurances, these are largely drawn from concepts in financial assurance:

- **Limited** level of assurance: This is defined in various international standards as a level of assurance where the nature and extent of the verification activities have been designed to provide a moderate confidence in historical data and information.
- **Reasonable** level of assurance: This is defined in various international standards as a level of assurance where the nature and extent of the verification activities have been designed to provide a high but not absolute level of confidence in historical data and information.

Obviously, a limited level of assurance requires less detailed verification activities than a reasonable level. The depth and breadth of verification activities required to reach reasonable assurance is much more extensive, affecting the type and detail of checks to be carried out as well as the areas[48] to be checked. The effort involved with reasonable assurance is considered to be high. In practice it means that with a limited assurance, elements of the accounting process, including some quality control procedures may not be checked, while with reasonable assurance such checks would be made to give the verifier sufficient confidence that the data are free from material misstatements.[49]

The two levels of assurance result in a difference in the way the verifier's opinion is expressed:

- For reasonable assurance, the opinion is expressed in **positive**

Note 44 » *Generally known as scope 2 emissions (but may include scope 3 emissions – see the GHG Protocol for definitions).*

Note 45 » *This is, for example, the case in some Chinese pilot schemes and the national emission trading scheme. Reporting entities consisting of different facilities are required to monitor and report emissions in one report; similarly, the Korean ETS requires entity reporting where all facilities owned by one entity report data in a single report.*

Note 46 » *A monitoring plan outlines how data are to be monitored and reported by the obligated entity or how projects or programmes are to be implemented in the case of some crediting mechanisms (such as CDM).*

Note 47 » *In theory there is a third – Absolute Assurance – but this cannot be provided without the auditor conducting its work in parallel with and checking every step of the total accounting process – no verifier will offer absolute assurance.*

Note 48 » *What areas of an operator's emissions accounting system to check is to the professional judgment of the verifier and is difficult to predefine.*

Note 49 » *What checks are carried out and the precise level of detail involved under reasonable or limited assurance depends on the professional judgment of the verifier and cannot be predefined. It is a common concept used in auditing and comes from international accountancy standards. Some examples are provided in ISAE 3000 and 3410.*

terms: *"on the basis of the checks we have undertaken, the reported data **are** materially correct"*

- For limited assurance, the opinion is expressed in **negative** terms: *"on the basis of the sample of checks we have undertaken, no issue has been identified to suggest that the reported data **are not** materially correct"*

Both levels of assurance are applied only to the verification of (historic) data. The concept is not applicable to the validation of projected data because an opinion with either level of assurance cannot be given on the basis of assumptions or forecasts of future developments. An opinion that is issued based on assumptions can prove to be invalid in the future once the reporting period has ended. However, an assurance opinion can be provided on historical data that may be input to forecasts or for use in allocation processes (for example, historical data defining benchmarks used for allocation in ETS or baseline development in crediting mechanisms.)

Although requiring a reasonable level of assurance can impose a higher direct cost on the obligated entity (because more work is required by the verifier), in practice it might be considered good value from a regulator's perspective if it ensures better compliance.

TABLE 10. **Levels of assurances**

Assurance level	Level of detail	Direct cost	Advantages/ Disadvantages	Outcome
1 **Limited assurance**	Limited	Lower	**Advantage**: A degree of confidence at lower cost. May act as a stepping stone to reasonable assurance, getting companies on the path to good quality assurance activities **Disadvantage**: limited confidence, risk of missing an error is higher, less suitable if CPI and M&R system is complex and requires high degree of accuracy (e.g., for trading)	No evidence to suggest that data **are not** materially correct
2 **Reasonable assurance**	High	Higher	**Advantage**: Substantial degree of confidence, risks that errors are missed is substantially lower, more suitable for complex systems. **Disadvantage**: higher costs, which can be mitigated to a certain extent by approaches based on concepts such as risk analysis and the materiality level that aid the planning of work and the focus, extent, and breadth of testing to be done	Evidence to show that reported data **are** materially correct

Minimum requirements:

Defining the level of assurance required is essential for the design of the verification system.

When considering what level of assurance should be defined for a specified CPI, the following should be considered:

- ☑ The primary legislation should define which level of assurance is required.
- ☑ A limited level of assurance will give lower confidence in the accuracy of reported data and might not be appropriate if the financial stakes are high.
- ☑ A limited level of assurance may reduce initial verification costs but can cause complications later and entails higher risk.
- ☑ Most V&A systems of CPIs prescribe a reasonable level of assurance.
- ☑ Reasonable level assurance is done on a risk basis. Once a full scope reasonable assurance verification has been conducted, the verifier may be able to plan less work to be conducted in subsequent years. However, this is only true when the risks in the accounting process are found to be low, the internal controls being applied can be relied on, and no changes in the entity, facility, or project/programme under evaluation or its monitoring or internal control processes have occurred.

7.3 Define materiality

(50) The concept of materiality plays an important role at different stages of verification. Materiality is the concept that individual errors or the aggregation of errors, omissions, and misrepresentations could affect the GHG emissions data[50] sufficiently to influence the decisions of the user of that data. The concept of materiality is an intrinsic part of planning and designing verification activities as well as a tool for drawing conclusions on the results of the verification. Annex 9 provides more information.

During verification the verifier assesses the likely risk of misstatements and noncompliances with requirements[51] and any likely material effect these have on the reported data. The verifier will focus its activities on those areas that are deemed to have a higher risk.[52] This allows the verifier to tailor its approach to each individual verification, affecting the nature, timing, and extent of verification activities.

Materiality is also used to determine whether the reported data are acceptable. Reported data with material misstatements cannot be considered 'verified as satisfactory' and would lead to a 'no verification' opinion statement. In determining whether misstatements have material effect, the impact of each individual misstatement as well as the aggregate of these misstatements are considered in the context of the final[53] total reported data. Materiality has both a quantitative and qualitative aspect.

For quantitative materiality a threshold needs to be defined: if that threshold is exceeded the misstatement is material. The qualitative aspect of materiality comes into play for errors or anomalies below the materiality threshold. In the qualitative assessment the verifier takes into account the nature, size, or particular circumstances of the misstatement or noncompliance and assesses whether these aspects individually or in aggregate can cause the verifier to decide, in its professional judgment, that the misstatement or noncompliance has material impact. A misstatement below the materiality threshold can thus also be material where the nature, size, or particular circumstances of the misstatements or noncompliance can influence decisions of the user of the reported data. Annex 7 provides more information on materiality.

Minimum requirements:

Policy makers need to consider the concept of materiality and whether to define a materiality threshold. Materiality is not a tolerance band for reporting, it is a decision-making tool for the verifier.

- ☑ The materiality threshold is usually a certain percentage of the total reported data value. For consistency across all verifications, a predefined threshold in legislation is considered good practice. More recommendations concerning the threshold are made in annex 6.
- ☑ In some CPIs the qualitative aspect has been specifically regulated in law (for example, for the EU ETS), in other CPIs it derives from international standards such as ISO 14065 and recognised financial accountancy standards.
- ☑ The concept of materiality is difficult for verifiers to apply and can cause problems (see annex 6). Policy makers and regulators should consider this when preparing guidance or training material.
- ☑ Materiality is not a tolerance band for the participant to use in presenting their data nor as a justification to decline to correct identified errors. It is good practice for policy makers to specify in legislation that misstatements and nonconformities identified by the verifier must be corrected regardless of whether or not these are material.

7.4 Understanding the verification process

The verification process consists of different interconnected activities. To understand how to set up a well-functioning verification system, it is important for policy makers to be familiar with the activities carried out by the verifier. This allows the policy maker to understand what specific requirements need to be included in legislation to ensure the objectives of the system are met by implementation of the required activities. The basic activities are the same for any verification in a CPI because they are based on recognised financial assurance standards applicable to any data audit. However, different options are available for how these steps are designed and how specific verification activities are carried out. These are discussed below.

Basic activities of the verifier in the verification process

Figure 11 outlines the basic activities to be carried out by the verifier in any verification process; these activities are explained in the sections below.

Activity 1. Preparation of the verification

Before verification starts, the verifier must determine whether there are risks involved for the verifier in undertaking the

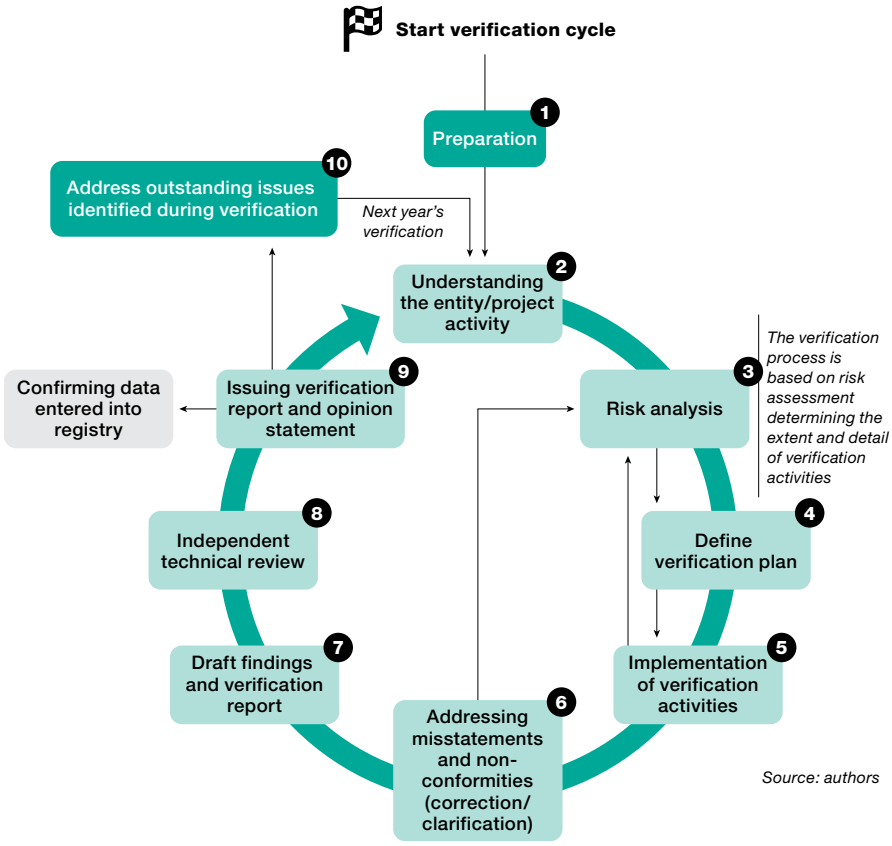
Note 50 » *Or emission reductions / removals.*

Note 51 » *This can be requirements in legislation and/or, if relevant, the monitoring plan or project design plan.*

Note 52 » *This risk could, for example, be increased because the element is a large contributor to the final reported total; the potential for breakdown in internal control is high or the determination of a key emission factor is complex and therefore prone to error.*

Note 53 » *I.e., if errors are identified, the data accounts are updated to correct the error, and the total declared value is updated; the final update is used as the denominator in the materiality analysis.*

FIGURE 11. **Activities in the verification process**



Source: authors

verification. This determines whether the verifier can accept the engagement. During this step the verifier analyses whether:

- It has the necessary **authorisation** to do this specific type of verification (that is, it has been approved by the CPI programme regulator or nominated oversight body);
- It can assemble a team that has the required **competencies** to do the verification in line with programme specific requirements; and
- It is **impartial** and has no (potential) conflicts of interest.

If the analysis shows that the verifier is not authorised to do the verification or does not have the necessary competencies it should not accept the verification engagement.

A key element to also consider at this stage is the allocation of time needed for delivery of all verification activities for an obligated entity. The verifier should ensure that the scope of the verification work and the time allocated is consistent with the risks identified with respect to the obligated entity's processes. Insufficient time may pose a risk for the verification. The time allocated is appropriate if all required elements can be delivered in enough detail and rigorousness to collect sufficient evidence to meet the level of assurance specified for the verification. This should be a case-by-case assessment based on individual factors such as the risks involved, the robustness of the obligated entity's internal quality control system, the complexity of the obligated entity or project/programme activity, and specific sector related factors that might apply. This exercise must be done regardless of who has selected and who will pay the verifier.

Minimum requirements:

Verifiers need to ensure that time allocation (and related resource requirements) are sufficient to meet the level of assurance specified for the verification. Policy makers together with oversight bodies should be aware of this and develop key principles on time allocation.

- ☑ As time allocation is a key aspect in the preparation phase, it is good practice to regulate in legislation that the verifier must allocate the appropriate time needed, taking into account certain factors.
- ☑ In any verification system the allocation of appropriate time should be a case-by-case evaluation for individual obligated entities. In some CPIs, specific guidance has been developed to support the verifier in determining an appropriate time allocation (see Annex 14 for information on available guidance).
- ☑ Where the regulator selects and pays for verifiers, it must avoid using pre-fixed budgets as the time allocation is a case-by-case evaluation.
- ☑ Experience from longer running CPIs indicates that it is important to facilitate adjustment of time originally allocated to the verification in the contract if higher than anticipated risks are identified during the actual verification, showing that more time is needed.

Activity 2.
Understanding the obligated entity's activities or project/ programme activities

It is common practice that the verifier first aims to understand the activities carried out by the obligated entity that impact the reporting of relevant data. This includes the likely nature, scale, and complexity of operations (including facilities and, if applicable, other locations), sources, use, and cross-boundary flows of fuels

and materials; the project or programme activities; and so on.

The more complex the activities and data accounting processes within an obligated entity or project the more complex and extensive verification is likely to be. During this stage the verifier will also consider any relevant changes to the monitoring methodology, boundaries, and other elements, as these changes can affect how verification activities are designed.

Minimum requirements:

Regulators need to be aware that obligated entities need to provide verifiers with access to all information the verifier considers necessary to conduct the verification. Definition in legislation is recommended for enforceability reasons.

- ☑ It is good practice to regulate in legislation what minimum information an obligated entity is required to provide so that the verifier can plan and design appropriate verification activities. Lessons learnt from existing CPIs show that delivery of such information is difficult to enforce without such a legal obligation. The precise information to be provided will depend on the specific requirements of the CPI concerned and the design of its M&R system.

- ☑ At the start of a CPI, it may be difficult to specify which type of information will be needed. It is recommended to include a requirement that the obligated entity must provide the information that the verifier considers is necessary to plan and complete the verification. When the CPI has run for a longer time, this can be specified in more detail in terms of the type of information an obligated entity should provide.

Activity 3. Risk analysis

A key element of verification is to focus on areas where there is a high likelihood of risk of misstatements and/or noncompliance with specified legal requirements.[54] During verification, the verifier assesses these risks and evaluates their likely impact on the reported data. If the verifier has identified risks, it evaluates whether they have a potentially material impact on the reported data. The outcome of this risk analysis determines how, and to what extent, verification activities are designed, planned, and implemented. The risk analysis is thus an important tool to focus verification on the most relevant areas (for example, where data are processed manually and human intervention is involved or where there is potential for equipment malfunction or failure of data transmission or archive processes).[55] These areas then need in-depth checks. The verifier will assess different types of risks including risks in the data flow (inherent risks) and risks in the quality control system (control risks).

During its risk analysis, the verifier will identify and evaluate all potential risks as well as the robustness of quality assurance and quality control processes implemented by the obligated entity. On the basis of the analysis the verifier will determine the nature, timing, and depth of specific verification activities that will lower the verification risk[56] to an acceptable level. This means that the verifier will be able to issue a verification opinion statement with the required level of assurance stating that the reported data are free from material misstatements. The higher the risks involved, the more detailed the verification activities should be. If the risks are low, a less extensive verification may be undertaken even within the context of reasonable assurance. Often, when the final risk analysis indicates low risks in the first year, less intensive reasonable assurance verification can be done in subsequent years, provided there are no significant changes in the obligated entity's operations or its M&R processes.

An important aspect of the risk analysis is that it is an iterative process, subject to change where necessary. If, during the verification, it becomes apparent that identified risks are higher or lower than expected, the risk analysis should be updated and the planned depth and focus of verification can change as a result. Where additional misstatements are spotted, or deficiencies in quality assurance/quality control measures identified, it is important for the verifier to be aware that these may affect the relevant risks and thus the risk analysis and the nature, timing, and depth of planned verification activities.

Minimum requirements

Risk analysis is an important tool in any verification, including verifications in emerging CPIs. Policy makers need to be aware that the risk analysis tailors the verification to the risks associated with a specific obligated entity. Defining this step in rules or referring to applicable international standards is recommended.

- ☑ Risk analysis is a key aspect in all verifications, and it is good practice to clearly define this in legislation and further explain the concept in guidance.

- ☑ Experience has shown that the risk analysis is a powerful tool for tailoring verification activities. The more internally organised and 'in control' the obligated entity is of its M&R system, the lower the risks in the data flow and the quality control system are, the more efficient and effective the verifier can be in its work and the lower the amount of time and cost that may be incurred in delivering the verification.

Note 54 » *This includes any monitoring plan or project/programme design plan if this is prescribed by the CPI.*

Note 55 » *In EU ETS extensive guidance has been prepared on the verifier's risk analysis in KGN II.2 on risk analysis accompanied by two examples. This guidance can be found on: https://ec.europa.eu/clima/policies/ets/monitoring_en#tab-0-1.*

Note 56 » *Verification risk is the overall risk that the verifier issues an inappropriate verification opinion by not conducting sufficient breadth and depth of checks to capture all potential and actual misstatements and cases of noncompliances.*

Activity 4.
Define verification plan

Based on the risk analysis the verifier sets up its verification plan and designs detailed verification activities. This plan describes in general:

- The activities to be carried out during the verification, what locations will be visited, which people will be interviewed, what documentation will be assessed, and so on.
- What and how data will be tested – including the nature, size, scope, and method of sampling from within the overall data set (and subsets);
- What checks will be carried out on quality assurance and quality control systems and how these will be done.

In some cases the data flow can be quite extensive, particularly for large entities, so sampling of data or quality assurance/quality control measures may need to be applied. Depending on the verifier's analysis of likely inherent and control risks, the verifier determines whether sampling is justified, what samples[57] it needs to take, what the sampling size and selection approach should be, which types of tests or checks it should undertake on each sample, and what should be done if the results of the sample check indicate that there are problems.[58]

Minimum requirements:

The verification plan is connected to the risk analysis and forms the basis of the verification. Policy makers need to be aware that the verification plan is not set in stone. It can be subject to change if the risks of errors or noncompliance changes. This is a common step in any verification.

☑ At the start of the CPI it is not always a priority that sampling principles are included in legislation or standards. However, it is good practice in emissions trading schemes and offset mechanisms that cover multiple sectors and obligated entities to include basic sampling principles in legislation over time.

☑ How sampling of data or quality control measures is done cannot be defined precisely in legislation. Guidance can help verifiers plan the verification.

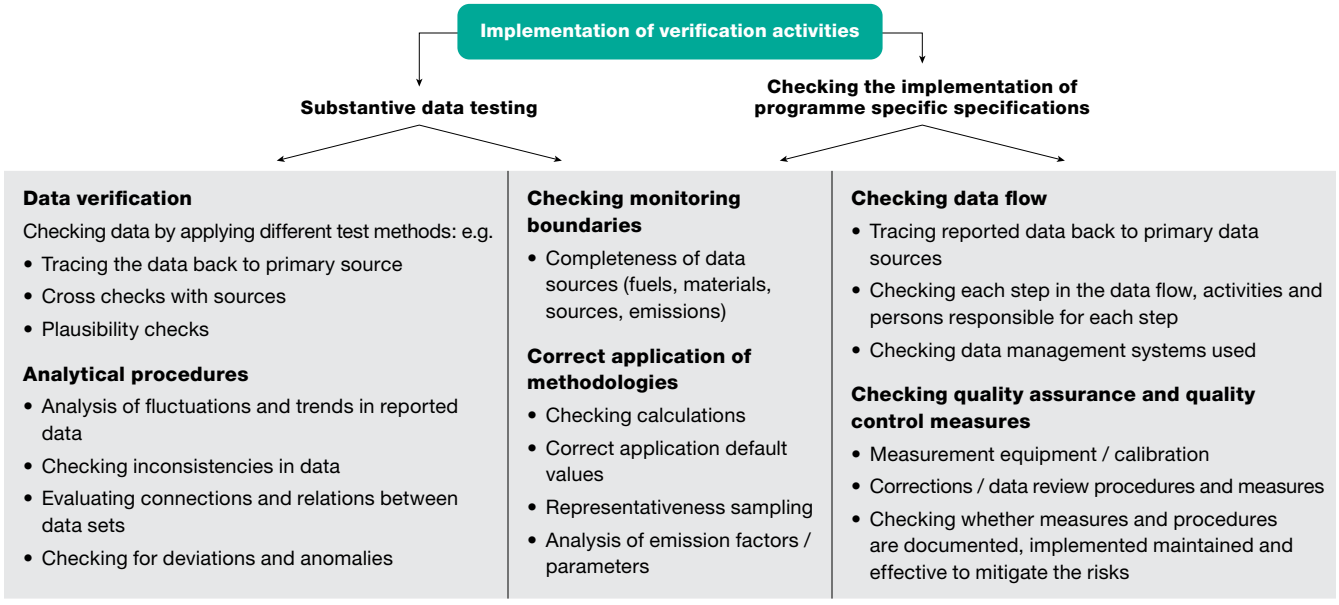
☑ In some CPIs specific guidance and tools on verifier sampling have been developed. Annex 14 provides information on available guidance.

☑ Reasonable assurance verification associated with a multilocation entity that has been sampled will not provide the same level of confidence as reasonable assurance verification of an individual installation. It is for this reason that some CPIs (especially emissions trading systems) require verification at an individual installation/facility level.

Activity 5.
Implementation of verification activities

During this stage the verifier will implement the verification plan and collect and document evidence upon

FIGURE 12. **Implementation of verification plan**



Source: authors

Note 57 » *Any subset of the total population of data or control activities and procedures that is selected for checking.*

Note 58 » *The sample could include a check on the application of internal controls (e.g., quality assurance of the measurement equipment, procedures) or could include rechecking of the application of factors and formulae as part of data recalculation. If there are issues identified, a bigger sample of data should be checked.*

which conclusions and the verification opinion can be based. Figure 12 indicates the activities carried out in this stage by the verifier. The verifier will perform checks on the data and will assess the obligated entity's implementation of, and compliance with, CPI specific requirements and the monitoring plan or project/programme design plan, where applicable. The verifier will apply selected auditing methods and procedures such as interviews, observation of how an obligated entity carries out quality assurance and control, inspection of measurement equipment, recalculations, data checks, and so on.

Minimum requirements:

When defining the M&R rules, policy makers need to be aware that the M&R rules have an impact on what checks the verifier makes during verification.

- ☑ Some monitoring methodologies require specific verification checks to be carried out: for example, additional checks must be carried out to assess a continuous emission measurement system, the accuracy of the measurements, and the application of required standards, such as quality control standards.
- ☑ In some CPIs policy makers have specified in legislation or guidance how a verifier should deal with specific monitoring situations such as addressing data gaps, dealing with continuous measurement, or carbon capture storage. Annex 14 provides information on where such legislation and guidance can be found.

Activity 6. Addressing misstatements and noncompliance issues

During verification the verifier may identify misstatements and/or noncompliance with the CPI's requirements. Normal practice is for the verifier to report these to the obligated entity and to require correction and/or clarifications. Several options for dealing with such issues can be distinguished depending on the nature of the CPI.

TABLE 11. **Options for addressing misstatements and noncompliance issues**

Option	Considerations
1 **Whether to involve the regulator**	• For ETS schemes that prescribe the use of monitoring plans it is necessary for an obligated entity to contact the regulator to update and reapprove these plans. To maintain independence, the verifier should not become involved in any corrections or updates being made, other than to confirm that they are reasonable solutions for the identified issue. • In offset mechanisms, there may not be direct contact between the regulator and the obligated entity. The verifier would request the obligated entity to correct or clarify misstatements and noncompliance issues. Direct contact may only take place between the verifier and the regulator.
2 **How to record corrected issues**	Issues resolved during verification are recorded in internal verification working papers by the verifier. In some CPIs such as CDM these issues are also included in the external verification report.
3 **How to deal with issues that are not corrected before issuing the verification report**	In all CPIs the verifier assesses the material impact of identified issues. This impact, along with any unwillingness to correct by the obligated entity, will influence the conclusions expressed in the verification opinion statement. In offset mechanisms that are based on CDM rules, the verifier does not sign off the report if the issues are not corrected by the obligated entity. In other mechanisms such as ETSs it depends on whether the misstatement is material.

Minimum requirements:

Policy makers need to define the process to be followed if the verifier identifies any misstatements or noncompliance. It is essential that identified misstatements and noncompliance are corrected by the obligated entity. Policy makers need to be aware that there can be circumstances where the regulator needs to be involved in the process. It is important for policy makers to clearly define roles and responsibilities in these cases, as well as communication lines.

They also need to define what to include in the verification report, how verifiers must report issues, and what happens with unresolved issues (see activity 10).

- ☑ Lessons learnt from various CPIs show that it is good practice to regulate in legislation that misstatements and noncompliance issues must be corrected by the obligated entity.
- ☑ Good practice also suggests requiring in legislation that verifiers include outstanding misstatements and noncompliance that are not

corrected before issuing the verification report in this report. These issues should be followed up after the verification (between the regulator and the obligated entity).

☑ For offset mechanisms that are based on CDM rules, the verifier cannot issue an opinion if misstatements and noncompliance are not corrected.

Activity 7.
Draft findings and the verification report

When concluding on its findings the verifier has to ensure that it has obtained sufficient objective evidence to support statements to be made in the verification opinion. Whether the verifier has obtained such evidence depends on its risk analysis and the detailed verification activities required to reach the CPI's specified level of assurance. Sufficient evidence supports the verifier in its assessment of whether the reported data are free from material misstatements and whether a positive verification opinion statement can be given. The source, the type of evidence, and the particular circumstances of the verification will determine whether the evidence obtained is reliable and sufficient. Once the verifier has determined it has sufficient information to come to a justified and defensible conclusion, it can draft the verification opinion statement.

Activity 8.
Independent technical review

Not all existing CPIs require an internal independent technical review. However, it is considered good practice and mandatory for verifiers where standards such as ISO 14064-3 are prescribed. An independent internal technical review is a final internal check by someone within the verification body that has not been a part of the verification team and is independent of the work that has been conducted. The technical review covers all steps in the verification process from precontract stage to final reporting and has several functions:

- A check on whether all the verifier's internal procedures as well as due professional care and judgment have been applied during verification activities;
- A final check to confirm that there are no technical errors or omissions and whether sufficient evidence has been obtained to support the conclusions in the verification opinion statement;
- An overall quality review of the work papers and opinion statement to ensure they are defensible.

Activity 9.
Issuing verification report and verification opinion statements

In general, the verifier will issue a verification report and opinion statement to the obligated entity. However, in most offset mechanisms that are based on CDM, the verifier will send the verification report directly to the regulator[59] together with a verification statement (if required). The verification report will be submitted along with the corresponding data report to the regulator responsible for receiving relevant CPI reports. In most CPIs this needs to be submitted by a certain deadline.

The key element of the verification report is the opinion statement because this describes whether the reported data are acceptable for the purposes required by the CPI. There are a number of different opinions that can be offered; these are based on those defined in recognised financial assurance standards, and in general[60] are outlined in annex 7. Basically, the data report is verified as satisfactory if the data are free from material misstatements.

⚠ Minimum requirements:

Policy makers need to define what information should be included in the verification report.

The following issues are relevant for consideration by policy makers:

☑ In a number of CPIs, detailed requirements on the content of verification reports are included in legislation which supports a harmonised approach between verifiers. Annex 14 provides information on where such legislation can be found.

☑ Experience with a number of different CPIs show that it is good practice to include specific elements in a verification report. These elements are described in annex 7. When applying ISO standards these elements are required.

☑ It is good practice to develop templates or file format specifications if IT systems are used. This will ensure harmonised approaches between verifiers and facilitate the ease with which regulators can review verification reports (see section 10.1).

Activity 10.
Address outstanding issues identified in the verification

Where a data report is not verified as satisfactory, the reported data cannot be used to meet obligations under the CPI. The data in that case is considered not materially correct and action needs to be taken to determine how legal obligations or other requirements can be met by the obligated entity. Different approaches are used in different CPIs, and examples of such approaches are outlined in Table 12. These examples occur mostly in ETS systems. Noncompliance issues should also be corrected. If relevant, legal enforcement action can be taken by imposing sanctions on obligated entities.

Note 59 » *In the case of CDM this is the Executive Board.*

Note 60 » *Specific terminology may vary from standard to standard, but essentially they all come down to meaning verified, verified with comments, or not verified.*

TABLE 12. **Actions to address outstanding issues identified in the verification report**

Option	Consequences	Considerations
1 **Reverification of the reported data (complete reverification from the start)**	The regulator requires the obligated entity to correct material misstatements and have the corrected report verified again usually by a second verifier (meaning a complete reverification).	**Advantage**: fewer resource requirements for the regulator, accurate data because of reverification, second independent check on the whole data set by a fresh pair of eyes. **Disadvantage**: time-consuming, more costs for the obligated entity, the possibility that deadlines are not met meaning that penalties may have to be applied.
2 **Reverification of reported data focusing only on the corrected data**	The regulator requires the obligated entity to correct material misstatements and have the corrections in the report reverified. This is the approach taken by UK regulators in relation to the EU ETS, for example, where an error is identified in one part of an emissions report that has already been submitted.	**Advantage**: fewer resource requirements for the regulator, accurate data because of reverification of corrected data, reduced costs for the obligated entity compared to option 1. **Disadvantage**: possibility that deadlines are not met, the verifier's risk analysis can change as a result of correction, so it may be necessary to reperform certain steps in the verification process related to other aspects of the data set.
3 **Conservative estimation of emissions by the regulator**	The CPI regulator conservatively estimates the data based on information from the obligated entity.[61]	**Advantage**: less complicated process, no additional costs for the obligated entity. **Disadvantage**: • It can be resource intensive for the regulator to provide an accurate conservative estimation of emissions, for example, if they have to go on site.[62] • It is not always possible to ensure emissions are conservatively (over)estimated but also reasonably accurate. It is good practice to define a clear methodology for conservative estimation in the CPI rules with specific criteria that the regulator can use in determining its approach.
4 **Request for correction without reverification**	This action can be taken, either in combination with one or more of the approaches described above, or separately. It includes: • A request from the regulator to the obligated entity to correct the misstatement, after which the regulator then checks whether the misstatement has been corrected. • Enforcement action by the regulator against the obligated entity followed by sanctions, if applicable. It depends on the legal system of a country as to how and whether sanctions and enforcement actions can be imposed.	**Advantage**: this approach is relatively simple and imposes no extra costs on the obligated entity. **Disadvantage**: additional effort on the side of the regulator and potential problems in assessing whether the misstatements were, in fact, corrected in an appropriate manner. Therefore, this approach is not always possible in cases where it is difficult to correct the misstatement. If this approach is selected as a stand-alone action, it is usually applied where there is strong communication between obligated entities, verifiers, and regulators; resources are low; and misstatement and the correction thereof is straightforward.

In most ETSs, misstatements and noncompliance that are not material and were not corrected during the verification are still required to be addressed by the obligated entity. This can range from correcting any noncompliance by, for example, updating a monitoring plan; implementing improvements in quality assurance/control measures; applying approved monitoring methodologies correctly; or including missing sources, fuels, materials, and so on in the monitoring system. Noncompliance issues with requirements often need immediate action. In the next cycle of verification, the verifier[63] would need to check whether these issues have been resolved or take this into account in forming its conclusions. Issues identified in a prior year's verification opinion statement are one source of information that should feed into the risk analysis for the subsequent year's verification. This approach is not applicable to CDM related

Note 61 » *Conservative estimation can be done in several ways. In most cases emissions will be overestimated or determined by the regulator in on-site inspection. In the EU ETS, specific guidance has been developed on approaches that can be used to conservatively estimate the emissions (see annex 14).*

Note 62 » *However, in other cases safety factors are used, where the regulator can use information that was input to the verification or where the regulator just overestimates emissions, it may not have a significant impact on the administrative burden.*

Note 63 » *Whether this is a new or existing verifier.*

verification because in that case the verifier cannot issue a satisfactory opinion if there is noncompliance with the rules.

Where a country has limited resources at the start of the CPI, a conservative estimation or requesting correction without reverification (options 3 and 4 above) are more likely to be used. However there are CPIs such as some of the Chinese pilot ETSs where reverification was required from the start.[64] The choice strongly depends on the type of control a regulator wants to have. Over time CPIs evolve, in general, to options coexisting next to each other. In any case, it is important for countries to require the correction of misstatements and noncompliance issues, sanctions, and infringements and follow-up of issues in the legislation.

Minimum requirements

Policy makers need to define the actions to be taken when there are outstanding issues in the verification report.

- ☑ Most countries that have a CPI require in their legislation or regulatory guidance that obligated entities correct misstatements and noncompliance.
- ☑ The type of infringements and sanctions or legal enforcement action that can be taken in case of noncompliance varies between countries as this is very much dependent on the national legislative framework and legal system.
- ☑ Most countries have regulated in law what to do if there is a negative verification opinion statement and the data cannot be accepted. However, approaches vary between countries; in some cases a combination of approaches is applied depending on individual circumstances.
- ☑ Policy makers need to balance the requirements for environmental integrity and accurate emission (reduction) data with the costs to the regulator and the obligated entity involved with an approach mentioned in Table 12. Reverification may not be the most appropriate approach in all cases.

Timeline of verification

A key factor in delivering an efficient and effective verification process is to ensure that the verification starts sufficiently early so that the required deadline for submitting emissions and verification reports is reached without significant stress on the verifier or the obligated entity.[65] For policy makers the timeline for verification is important to consider because:

- When setting the frequency of required verification activities, it is good practice to take into account the timeline of the verification while keeping in mind the level of assurance required, the complexity of sector activities, the CPI concerned, the size of the scheme, and the type of obligated entities and verifiers involved;
- Policy makers or regulators should plan the development or updating of guidance material and other tools before the verification period starts;[66]
- The policy maker, regulator, and/or oversight body should plan training or stakeholder meetings before the verification period starts;
- Regulators and oversight bodies should be aware of the risks to the outcome of the verification if work has not started sufficiently early.

More information on appropriate starting times for verification activities and associated considerations are given in annex 10.

Importance of internal verification documentation

The verifier needs to ensure that there is a complete trail of plans, evidence, evaluations, and decisions made during the verification, including any updates resulting from findings. This documentation should contain, for example, a record of the strategic analysis and the risk analysis, the information obtained, and verification activities planned and carried out during each step of the verification process, including, where necessary, justifications and evidence used when making decisions.

Internal verification documentation and work papers need to be transparent and drafted in such a manner that the internal technical reviewer and the verifier oversight body can understand the contents of the documentation and how the conclusions expressed in the opinion statement have been arrived at. These people, who are independent of the verification team, should be able to follow the complete audit trail showing links between the evidence, the assessments of risks, tests planned and their outcomes, and the conclusions reached from the findings.

Good quality internal verification documentation and work papers are essential for the oversight body supervising the verifier as they will use the documents to assess competence of individual auditors and compliance of the verifier during supervision cycles.

- ☑ It is good practice to provide guidance on what type of information to include in internal verification documentation and to stress the importance of proper recording by the verifiers. Lessons learnt from some CPIs are that the quality of internal verification documentation is higher when there is such guidance at least in terms of minimum requirements.

Note 64 » *The verifier was selected by the regulator in that case.*

Note 65 » *In the case of the verifier, stress on the individual auditors gives rise to the increased potential for errors to be made and inappropriate conclusions to be formed.*

Note 66 » *This may be before the end of the reporting period as compliance checking is not time dependent.*

Importance of on-site visits

On-site visits are an important aspect of verification. During a site visit the verifier is able to gather appropriate evidence by interviewing staff, reviewing documents and records held there, and assessing the obligated entity's procedures in practice. Other activities conducted during a site visit can include:

- Checking monitoring boundaries, the data flow (from primary data sources through to aggregate reported data), completeness of applicable fuels/materials and sources;
- Actual testing of quality assurance or control measures and assessing implementation of procedures (that is, seeing how they work in practice);
- Obtaining physical evidence through assessment of measurement equipment, monitoring systems, and processes, and so on;
- Interviews with involved stakeholders;
- Checking how a planned offset project is implemented.

The initial risk analysis is key to determining which locations at a site need to be visited, when to visit, and how often to visit. The verifier's risk analysis should also be used to determine which members of the verification team should conduct site visits: for example, lead auditors, auditors, or technical experts (if the verification team lacks certain technical competence). If the site visit results in an increased risk compared to the anticipated level or the verifier is not able to find sufficient evidence during a site visit, it may decide to do more tests, interviews, sampling, document reviews, and follow-up site visits. In such a case, it may be necessary to adjust the initial time allocation for the verification.

Where the obligated entity consists of multiple facilities, the site visit plan should be based on the degree of homogeneity of the different facilities and their contribution to total entity emissions, as well as the verifier's risk analysis. Only visiting the entity's head office would not be sufficient as it would not allow the verifier to assess implementation and actual practice on the ground at the primary source of data generation. In the case of heterogeneous activities and/or accounting processes used across sites, not visiting a location significantly increases the verification risks. For reasonable assurance verification it would usually be necessary to carry out site visits to all the individual facilities.

For some CPIs mandatory site visits are required for every verification, for others a site visit is required in the first year of verification and subsequently every few years. Alternatively, a mandatory site visit is the default option but the verifier can waive a visit if strict conditions are met.

Minimum requirements

In any verification system policy makers should define in the rules whether it:

- Requires mandatory site visits for each verification
- Requires mandatory site visits but allows waiver of site visits under strict conditions and whether the regulator's approval is necessary for such waiver of site visits. It is good practice in any verification system to specify this in the rules. In emerging CPIs it is important that the verifier carries out site visits as the system is new for all stakeholders. This is especially true in ETSs. For offset mechanisms it depends on whether domestic rules are based on CDM; if so, then generally the conditions outlined in the CDM rules are applied.

When defining requirements for the verification, the following are important considerations for policy makers:

☑ Site visits are considered vital for verifiers to assess implementation of, and compliance with, programme specific requirements and, if applicable, the implementation of a monitoring plan or project design plan.

☑ Practical experience suggests that it is efficient to carry out a site visit because it enables the verifier to review documentation, observe and inspect actual practice on site and to rapidly follow up questions with relevant personnel.

☑ Where policy makers consider waiving site visits under certain conditions, it is important to have clear criteria on when such a waiver is justified. The role of the verifier's risk analysis should also be a key factor in deciding whether a site visit can be waived.

☑ In the CPIs that allow waiver of site visits, site visits were carried out at least for the first verification and when significant changes to the operations or monitoring methodologies occurred. In most CPIs verifiers' site visits are an important element in delivering a robust verification, and more conditions apply.

☑ It is good practice to have the verifier's risk analysis determine which locations need to be visited on site (or which sites within a multisite entity are visited) and at what stages of the verification site visits are required.

Note 67 » *E.g., at what stages in the verification process.*

Note 68 » *In the Californian Cap-and-Trade System at least one approved auditor, including the sector specific auditor, if applicable, shall make one site visit as a minimum during each year where full verification is required, to each reporting facility.*

Note 69 » *In CDM on-site visits can also be waived under certain conditions laid down in the CDM rules. This also applies to some of the domestic or regional offset mechanisms that are based on CDM rules such as Japanese Joint Crediting Mechanism.*

Note 70 » *For some CPIs such as EU ETS site visits can be waived for certain type of facilities every few years provided this is justified by the verifier's risk analysis, the information can be accessed remotely, it is not the first verification, and there have been no significant changes. Strict criteria have been imposed for what type of facilities and under what conditions site visits can be waived. The regulator's approval is needed for waiver of site visits to large installations.*

7.5 Considerations for defining rules for verification

The previous sections outlined the key elements for delivering verifications to provide policy makers with an understanding of what the verification process entails. This section provides an overview of what policy makers need to consider when drafting the legislation or rules. For further information on guidance documents and other tools that supplement legislation, see section 9.3.

TABLE 13. **Defining the rules for verification**

Considerations	Elements to consider	Observations
What to include in primary legislation	In most CPIs, primary legislation outlines: • The roles and responsibilities of different parties, including obligated entities, verifiers, regulators, and oversight bodies; • Deadlines by which data reports need to be submitted; • Sanctions that can be imposed; • A legal basis for any more detailed requirements for accounting and verification including approval and supervision of verifiers.	It depends on the nature of the specific CPI and the implementing country's legal system what detail can be included in primary legislation. However, it is important to ensure that the primary legislation is mandatory and provides a sufficient legal basis for implementation and enforcement of all key elements.
What to include in secondary legislation	In general, the secondary legislation regulates more detailed aspects such as: • Definitions and thresholds of materiality; • What information an obligated party needs to submit to the verifier; • Whether or not site visits are required; • Principles of sampling for both data/control systems and site/location selection; • The minimum content of verification reports; • The requirement to correct misstatements and cases of noncompliance identified during verification; • Requirements for follow-up of any outstanding issues identified in the verification report • What action should be taken if the verification opinion is negative; • The requirement to adjust allocated verification time where the verifier thinks more time is needed than was anticipated on the basis of its initial planning work. • In some CPIs the core steps of a verification process as mentioned in section 7.4 are included in legislation.	It is important for secondary legislation to include mandatory rules to ensure that they are enforceable and to give the verifier a formal backstop when they require information or action from the obligated entity. Guidance usually elaborates on the requirements laid down in legislation especially where there may be different means of achieving the outcome laid down in the legislation.
Applying international standards	Section 6.4 explains how international standards can be applied in the domestic context and why international standards can be useful. It depends on the legal system how international standards may be included in legislation. This can either be done by referring to the standard in the legislation or including parts of the standard in legislation. In some jurisdictions the content of an ISO standard may first need to undergo an approval process before it can be included in legislation. Section 6.4 contains examples of how programme specific requirements can be included in legislation.	Policy makers will need to maintain a watchful eye on any updating of international standards as this may have a subsequent impact on national implementation measures and legislative requirements. They will have to assess whether the national legislation needs to be adapted, whether some specific deviations from the standards need to be specified, or whether reference to the standard is still justified.

(continued on next page)

(Table 13 continued)

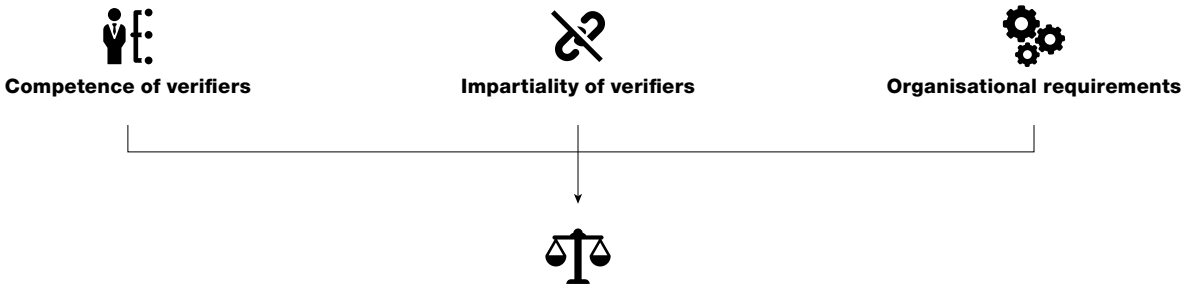
Considerations	Elements to consider	Observations
Measures to reduce transaction costs of verification	The concept of materiality and the verifier's risk analysis are important tools to minimise transaction costs whilst not limiting the quality of verification. They allow verifier efforts to be focused on significant or complex aspects of data monitoring and accounting. Simple facilities with low risks may require a less extensive verification whereas complex facilities have generally higher risks and would thus require more extensive verification. On the other hand, simple or small obligated entities often do not have the resources to spend sufficient time and effort on their data monitoring and quality control to ensure that it runs smoothly, which can increase the risks and verifiers may in fact have to spend more time than expected. The amount of time and effort required to conduct a verification depends on the extent to which the obligated entity is 'ready for verification'. The following requirements for obligated entities can facilitate verification: • To have formalised internal control processes and procedures; • To apply monitoring processes regularly (e.g., monthly or quarterly); • To include regular internal data validation; and • To conduct internal audit/evaluation of data accounting and quality control processes. For some CPIs, specific requirements have been included in legislation for small and medium-size entities or projects, e.g., to make provision for simplified approaches to monitoring or verification. An example of specific requirements for verification of small scale projects can be found in CDM where the verifier can determine whether a bundle of small scale projects are verified together. Similar rules are applicable to China Certified Emission Reductions (CCER). California has two mechanisms for simplification of its mandatory reporting rule: a. Streamlined verification – for the first year, all verification requirements must be implemented – this includes a site visit, verification plan, sampling plan, review of the data management system, and data checks, etc. However, in the second and third years, verification effort may be reduced to include emissions data checks based on the sampling plan developed in the first year provided that it resulted in a positive verification opinion. b. Triennial verification – certain obligated entities are eligible for this. A full verification is required every three years; in the second and third years, verification of the emissions data report is optional. However, operators may choose to have a streamlined (less intensive) verification – see (a) – during these years. Mechanism (b) gives rise to challenges for a market instrument that requires regular reporting since there would be allowances surrendered/traded without formal confirmation of validity threatening market trust; therefore California requires annual verification for parties obligated under their ETS rules.	
What M&R requirements can facilitate verification	• The requirement for a formal (standardised) monitoring plan which contains specific monitoring elements. Such plans would then be validated upfront by the regulator or other party and form a basis for verification. In particular, for complex CPIs such a monitoring plan can be useful and may help to harmonise approaches within sectors; this is, for example, required in the EU ETS and the CDM and is planned for the Chinese national ETS. • Requirements for quality assurance/control measures (e.g., instrument calibration, documented procedures, information security, etc.). This can lead to a robust monitoring system which in turn facilitates and simplifies verification; • Requirements on the minimum content of data reports which facilitates the verifier's review of these reports. The use of a standard template can also be helpful to harmonise reporting by obligated entities and can be beneficial for both the verification and the regulator's review of such reports. • The requirement to record changes to monitoring methodologies and monitoring boundaries as well as other changes so that the verifier is aware of changes and looks for their impact on the quality of data produced. In general, such information should be retained for a number of years which can vary depending on the CPI; • Where changes to the obligated entity's activities impact any benefits or obligations under the defined CPI (e.g., the allocation of allowances for an ETS), it is important to require validation by the regulator of significant changes so that the verifier knows the regulator's opinion of any statements that the obligated entity may make in relation to changes. In some CPIs, such as the CDM and some domestic offset programmes based on CDM, there are requirements for postregistration changes to the project to be verified.	
Arrangements to help the verifier's impartiality	An independent technical review is an additional check by a person (employed or contracted by the verifier but who has not been involved in the actual verification) of the documented output of the verification work and associated evidence collected by the verification team. This person also checks that risks to the impartiality of the verification team and any potential for conflicts of interest have been adequately evaluated and addressed at the start of the contracted verification.	

8 STEP V3

Defining requirements for verifiers

Once the objective of the verification system has been defined, and it has been determined what that means for the scope and level of detail of activities, ensuring high quality within these boundaries is essential. Key to this is the competence of verifiers and their personnel. However, highly competent verifiers may not deliver the desired quality if they are not impartial in their assessment and some key organisational requirements are not in place.

FIGURE 13. **Steps in designing requirements for verifiers and personnel**



Source: authors

8.1 Ensure competence of verifiers and personnel

The verifier and its personnel involved in CPI related verification need to be competent to carry out assigned tasks. Competence is not only about education, knowledge, and skills but also about the application of these elements to carry out relevant verification tasks in an appropriate way.

In most CPIs, specific competence requirements are included in secondary legislation for auditors and lead auditors, ranging from minimum requirements for education and knowledge of relevant legislation to data and information auditing skills and the ability to carry out specific verification tasks. Of utmost importance is the requirement that auditors and lead auditors have appropriate technical knowledge applicable to the CPI's M&R specifications and requirements. Where relevant, at least one person in the verification team should have knowledge of the sector of the obligated entity that is being verified (for example, in relation to applicable activities, technologies, and processes).

Where the use of standards such as ISO 14065 is required by the CPI, the competence requirements laid down in associated standards such as ISO 14066[71] have to be complied with. ISO 14066 contains general competence criteria related to GHG emissions monitoring and on information and auditing skills. It also requires verifiers to establish, document, implement, and maintain a formal competence management process and to take certain measures to ensure continued competence of all its relevant personnel.[72] Such a competence process is a verifier internal process to ensure that all personnel involved in the verification are, and continue to be, competent for tasks allocated to them. Such processes should be documented and include:

- Defining competency requirements for all relevant roles at the verifier participating in the CPI verification process;
- Ensuring job role descriptions are defined to meet specified competency requirements;

Note 71 » *See section 6.4 for more information on ISO 14065 and ISO 14066.*

Note 72 » *Relevant personnel are not only the members of the verification team (auditors, lead auditors, and technical experts), but also technical reviewers, decision makers, and people peripherally involved in the verification that can have an impact (e.g., sales and marketing personnel that submit quotes of time and costs to clients).*

Example

Programme specific requirements on verifier competence in CPIs applying ISO 14065 and ISO 14066

- The Californian Climate Registry has programme specific requirements on competence included in its Accreditation Guidance: *https://www.theclimateregistry.org/wp-content/uploads/2014/12/TCR-Accreditation_May-2008.pdf*
- In the EU ETS, programme specific requirements have been included in the Regulation on Accreditation and Verification which have been elaborated in Key Guidance Note II.7 on competence: *https://ec.europa.eu/clima/sites/clima/files/ets/monitoring/docs/kgn_7_competence_en.pdf*

- Training (internal or external and internal evaluation of auditor performance;
- Maintenance of competence as the CPI evolves over time through refresher training and/or continuing professional development mechanisms.

Similar requirements apply to CDM verification.[73] As some domestic offset mechanisms are based on CDM rules, similar competence requirements apply to such domestic schemes.[74]

Minimum requirements

Regulators need to define competence requirements in legislation and be aware that different technical competence requirements apply for the various sectoral scopes. Where international standards apply verifiers are required to establish and implement a process for continued competence which contains, for example, specific competence criteria and internal training.

Based on experience across a range of CPIs, a number of considerations should be taken into account when specifying competence requirements:

- ☑ It is good practice to look beyond experience and education when assessing the competence of a verifier. The performance of individual staff members during verification is equally important. In many CPIs verifiers are required to take internal measures to ensure the competence of their personnel. Furthermore, in some CPIs actual performance is assessed by an oversight body as part of the approval and supervision of the verifier (see section 11.1 and 11.4).
- ☑ The detailed requirements on competence depend on the complexity of the sectors covered by the CPI, the M&R rules, and the specifics of the verification system designed for the CPI.
- ☑ For some CPIs the actual performance of verifiers and their personnel is not monitored and assessed. In such cases the regulator or other body responsible for approving and supervising verifiers assesses whether the verifiers and its auditors meet specific competence criteria based on document review and/or examination or sometimes interviews. In general, the competence requirements in these countries cover requirements on the number of years of auditing experience of the auditors in a specific sector or specific credentials and education records.
- ☑ Auditors, lead auditors, technical experts, and technical reviewers need to have knowledge and understanding not only of the V&A system but also of the requirements of the M&R system the obligated operator is required to implement, as they are tasked with evaluating its implementation for compliance.
- ☑ Technical experts can support auditors and lead auditors on specific subject matters (for example, language and technical issues, such as inspection of metering equipment). These technical experts are operating under the direct control of the lead auditor and need to be competent on their subject matter.
- ☑ When defining competence requirements for verification in a specific CPI it is good practice to look at the general competence requirements in ISO 14066 and assess how these can be made more relevant to suit the specific CPI. Programme specific requirements are needed because auditors, and lead auditors must be knowledgeable about programme specific rules and M&R methodologies.

Example

Competence requirements when domestic CPI specific requirements are applied

In EU ETS, specific competence requirements have been included in the EU accreditation and verification regulation. For example, an auditor must have knowledge of and experience in the sector specific technical monitoring and reporting aspects that are relevant for the activities that are carried out in the installation in whose verification that auditor is involved. For example, they should have knowledge of and experience in assessing how to analyse information and data to confirm whether the monitoring plan is implemented; assessing the completeness of sources and source streams; assessing the installation's activities, measurement equipment, relevant processes, calibration devices, and compliance with tiers and uncertainty thresholds. Sector specific requirements are included in Commission Guidance (Key Guidance Note II.7 on competence).

Note 73 » *The CDM Accreditation Standard includes specific requirements on competence of designated operational entities, their personnel, technical experts, and teams that are carrying out verification activities. It also includes specific requirements on internal processes to ensure continued competence.*

Note 74 » *The Chinese Certified Emission Reduction programme (CCER) has similar rules to the CDM. In the Japanese Joint Crediting Mechanism designated operational entities accredited according to CDM rules are allowed to carry out verification. CDM rules on competence apply in that case.*

8.2 Ensure impartiality of verifiers and personnel

A lack of impartiality is a potential verification risk that may compromise a verifier's ability to make unbiased decisions.[75]

This can have a number of sources:

- **Revenues**: risks related to the obligated entity paying for verification of its report; risks that a specific obligated entity comprises a significant portion of the verifier's annual income or that another part of the verifier's organisation is being paid for consultancy work or support in relation to areas that are subject to the CPI's verification process;
- **Self-interest**: risks of a verifier or individual auditor acting in its own interest (for example, financial self-interest, where an auditor or one of their relatives receives remuneration or reward from circumstances affected by a specific opinion being issued);
- **Self-review**: risks that a verifier or individual auditor reviews its own work; for example, assessing M&R activities of a client to whom the verifier's own, parent, or sibling organisation has provided consultancy related to the CPI would be such a self-review risk;
- **Familiarity** (or trust): risks from a verifier or individual auditor being too familiar with the obligated entity or too trusting of the judgment or opinion of another person instead of seeking objective verification evidence; this can arise where the same verifier – or same lead auditor – has conducted a significant number of consecutive verifications for the same obligated entity;
- **Intimidation**: risks that a verifier or individual auditor is being coerced openly or secretly to achieve a specific verification outcome, or the perception that such a situation arises, implies a risk to be addressed or reported to a supervisor.

Crucial to any robust verification system is that the verifier must be independent of the obligated entity whose report or project activity is being verified. Both the verifier as a legal entity and its auditor personnel should be impartial; this is also true for personnel that may be subcontracted, such as technical experts. Consequently, certain programme specific requirements on impartiality are likely to be needed to ensure that processes are in place and enforceable to manage risks to impartiality and independence.

In most CPIs programme specific requirements on impartiality are included in legislation, standards, or guidance. The type of requirements can vary, ranging from absolute prohibitions on carrying out verification for obligated entities to allowing the conflict of interest under certain conditions or in certain circumstances. A common aspect across CPIs is that verifiers are required to take active measures and implement safeguards to avoid conflicts of interest and risks to impartiality. Annex 8 provides examples of situations that have led to impartiality risks; it also outlines what type of safeguards or measures can be taken to mitigate or avoid these risks.

Minimum requirements

Policy makers should be aware that specific impartiality requirements need to be defined in legislation. Impartiality of the verifier is essential in any robust verification system. Where international standards apply, verifiers are required to establish and implement a process to ensure continued impartiality. Such a process includes:

- Defining criteria for what constitutes unacceptable conflicts or loss of impartiality;
- Defining and implementing measures to address a possible internal conflict, for example, when commercial pressure (from either the client or the verifier's own management) could lead to hesitations over denying the client a satisfactory verification opinion.

When defining requirements on impartiality policy makers need to consider the following:

- ☑ Where ISO 14065 or CDM accreditation has been prescribed, general requirements on impartiality in those standards or rules are mandatory. Programme specific requirements on impartiality may well also be needed even if ISO 14065 or CDM rules are prescribed.
- ☑ When designing rules on impartiality it is good practice that policy makers balance the different interests involved. For example, having the verifier do both the validation and verification may be more efficient, but could pose risks to impartiality.
- ☑ Requirements on impartiality should be set up in such a way that the regulator or oversight body has some flexibility on what constitutes a risk to impartiality. However, there may be certain risks to impartiality that are in all cases unacceptable and should be prohibited in law.

Note 75 » *As defined in chapter 5 of the Explanatory Guidance on EU ETS verification. https://ec.europa.eu/clima/policies/ets/monitoring_en#tab-0-1*

8.3 Define key organisational and procedural requirements

It is normal practice that a verifier implements some key organisational and procedural elements to ensure verification activities can be carried out robustly and effectively. Verification is an assurance type of business potentially involving major financial interests. Therefore, it is recommended that verifiers are required to set up formalised management processes and procedures to ensure proper control and delivery of verification and to mitigate any risks involved.

Where standards such ISO 14065 or the CDM accreditation rules are applicable, such key organisational and procedural requirements are prescribed in the standards and rules. However, there can be differences in the extent to which these rules are interpreted in law because of country specific legislation or design of the system. Annex 12 presents some of the key organisational and procedural requirements that are necessary. Most of these requirements would be relevant regardless of the complexity of the scheme. However, it is noted that if the risks are small, procedures and management systems can be simpler. Many verifiers will be familiar with these types of requirements in other areas of their business.

8.4 Considerations for designing rules on verifiers and verifier personnel

This section explains what policy makers need to consider when drafting the legislation in general. For some specific topics, concrete observations on defining requirements were already made in previous sections.

TABLE 14. **Defining the rules on verifiers and verifier personnel**

Considerations	Observations concerning the considerations
What to include in primary legislation	The primary legislation should outline the general rule that verifiers must be competent and impartial. How much detail is included will depend on the specific CPI and the legal system of the implementing country. However, it is important to ensure that the primary legislation is mandatory and provides a sufficient legal basis for enforcement.
What to include in secondary legislation	It is good practice to include in secondary legislation programme specific: • Competence requirements for lead auditors, auditor, technical experts and technical reviewers, and competence requirements that should be met by the verification team as a whole. • Impartiality requirements: e.g., requiring the verifier to be independent from the entity subject to verification; putting restrictions on the provision of consultancy to the obligated entity; and/or requiring verifiers to take active measures to mitigate risks to impartiality. • Confidentiality requirements, including measures to ensure confidentiality of client information. The detail and type of requirements on these topics depends on the nature and complexity of the CPI, the ambitions and objective of the scheme, as well as its coverage and M&R processes. It is recommended to use mandatory legislation for such rules.
How can complexity of the CPI system influence the type of requirements	Where the CPI and its coverage is simple and relates to simple sectors, specific competence criteria, and requirements may be less stringent. However, a complex sector (e.g., large chemical plants and refineries) requires detailed technical knowledge in the verification team as a whole so as to ensure its understanding of technical aspects as well as the required M&R processes and methodologies. Knowledge of M&R processes includes sector technology (to understand fuel users/ emissions sources, etc.); measurement/analytical instrumentation and its quality control; fuel and materials sampling, laboratory analysis, and its quality control; control of information and information security; etc.

9 STEP V4

Implementation of the verification system

Once the CPI verification system is designed, it needs to be implemented and maintained. To ensure proper implementation the following activities are needed:

- Ensuring the resources needed for the regulator – and other relevant parties – to carry out their assigned approval and supervision activities are available in both the short and longer terms;
- Ensuring sufficiently competent verifiers in the field and ensuring competent staff at the regulator;
- Taking measures to facilitate the implementation and evolution of the V&A system.

These steps are discussed in more detail in the following sections.

FIGURE 14. **Elements in implementing a verification system**

Source: authors

9.1 Resource needs for verification

When designing the verification system it is important to identify the resources needed to set up, implement, and manage the system. The resources required for the verification system are interlinked with the resources needed to develop the approval and supervision system.

Policy makers will have to consider the costs for the relevant stakeholders. These costs can differ between CPI depending on how complex the system is and how the V&A system is set-up. A carbon tax system or offset mechanism that is built on existing structures and rules will require less resources than if it is a complex emission trading scheme or a new system with new institutions.

Usually consideration of costs is done through impact assessment studies when developing the legislative and institutional framework.

Costs can be incurred by regulators in delivering implementation and enforcement of the programme, by verifier oversight bodies in conducting approval and oversight processes, and by verifiers in conducting their work. The costs of verification for verifiers and therefore the direct costs to obligated entities are the most visible since obligated entities generally pay for the verifiers' services. These costs can be partially contained by the obligated entity's 'readiness for verification'. The more internally organised and 'in control' of their M&R system the obligated entity is, the more efficient and effective the verifier can be in their work and the lesser amount of time and cost is incurred in delivering the verification.

Costs to the obligated entity for M&R activities and associated direct verification costs are indicators for policy makers of how to set up the CPI efficiently. Where the internal M&R compliance costs for obligated entities and the associated direct verification costs are high, the policy maker may want to implement measures to streamline or simplify requirements to reduce those costs. At the same time, it is important that this does not impair the environmental integrity of the CPI. Another option is to find alternative means to support the system through the approach that is taken to, for example, paying and selecting the verifiers.[78] Examples of how to reduce verification costs are outlined in previous sections.

Aside from the costs to external stakeholders, policy makers need to

Note 76 » *Direct costs can be reduced by obligated entity spending the time and effort internally to make sure that data are properly validated and that the system for generating data is subject to an appropriate internal quality control process.*

Note 77 » *There are a few programmes where the regulator pays for the verification activities – e.g., some of the Chinese pilot ETS programmes – but generally this cost is borne by the obligated entities (see section 6.3).*

Note 78 » *Studies in several European countries on the EU ETS showed that the direct cost of verification is only a small proportion of the cost incurred by the obligated entity as compared to the indirect costs they incur internally in time and effort to set up and comply with M&R requirements.*

arrange for sufficient resources in-house, at a policy-making level and/or a regulatory or implementing agency level to design, implement, and maintain the verification management system. This requires a direct link with the budget of the agency or government department responsible for implementation.

A distinction can be made between human and financial resources. How much and what type of resources are needed depends on the choices that are made in the design of the CPI and the V&A system, and how these choices are implemented. The previous sections have already indicated how a particular option influences the resources needed to implement that option.

Table 15 summarises the cost categories that can be identified for regulators and obligated entities. Section 14.2 outlines the cost categories for oversight bodies responsible for the approval and supervision of verifiers. Annex 8 provides more detailed information on the type of resources needed, whether the resources to be arranged are for a one-off activity or a recurring activity, and what measures can be taken to reduce costs for the regulators and influence the type or amount of resources.

TABLE 15. **Cost categories for verification during implementation and operation of the system**

Stakeholder	One-off cost	Recurring cost
Regulator	• Studies/data to facilitate the design of the V&A system • Stakeholder engagement activities (staff, travel, venues, etc.) • Set-up of legislation • Set-up / restructuring of institutions • Development of guidance material • Set-up of IT systems	• Cost of verification activities (if paid by the regulator) • Staff for communication with verifiers and obligated entities • Training verifiers • Update/enhance guidance • Maintain IT systems • Staff for helpdesk (if applicable) • Costs for review of emission reports or emission reduction costs and follow-up (if applicable)
Obligated entities	• Cost for stakeholder engagement during design (staff, travel) • Set-up of MRV processes • Set-up of IT systems	• Cost of verification activities (if paid by entity) • Operating cost of the MRV system

9.2 Ensuring skilled personnel for verification

At the start of a CPI it can be a challenge to ensure sufficient competent verifiers. The number of qualified verifiers required depends on:

- The number of obligated entities (or individual installations/facilities) or projects that need to be verified;
- The complexity of sectors covered by the scheme;
- The frequency of verification;
- How the CPI is set-up (for example, whether there are situations in which verification is not required or situations in which verification can be simplified);
- The extent of direct control the regulator wants to have on the overall verification process for individual obligated entities, and so on. In some CPIs such as the California ETS, the EU ETS (at the early stages), and the Australian Emission Reduction Fund the regulators wanted to have more control on how training was organised to ensure that there would be competent verifiers for the start of the schemes.

Policy makers can make choices in the design of the approval system to ensure competent persons; they can also take specific measures to ensure competent persons are available. Previous sections explained the choices policy makers can make in design of the V&A system at the start of the scheme (for example, selection of verifiers or type of verifiers). In addition, policy makers can also:

- **Accept verifiers from other CPIs or countries**: The approval system is designed in a way that allows verifiers approved in other countries or for other CPIs to carry out verification or to undergo an additional simple registration process to do so.[79]

Note 79 » *For example, verifiers accredited against ISO 14065 and designated operational entities accredited under CDM are allowed to carry out verification in the Japanese Joint Crediting Mechanism. They only have to submit documentation which is checked by the Joint Committee.*

- **Set up training programmes** to ensure that verifiers and their auditors are competent and clearly understand the rules and requirements of the specific CPI. This training can be organised in a number of different ways. Coordinated training on M&R rules and V&A requirements can help prepare verifiers and assessors from independent oversight bodies for the start of the CPI.

The tables below indicate different approaches that can be used to ensure availability of resources, their potential impact, and what to consider with respect to different options. Table 16 discusses approaches to accepting verifiers from other CPIs or countries, while Table 17 presents approaches for setting up training. Elements of these different approaches are found individually or mixed in different CPI programmes around the world.

Figure 15 illustrates the flexible nature of how verification resources can be

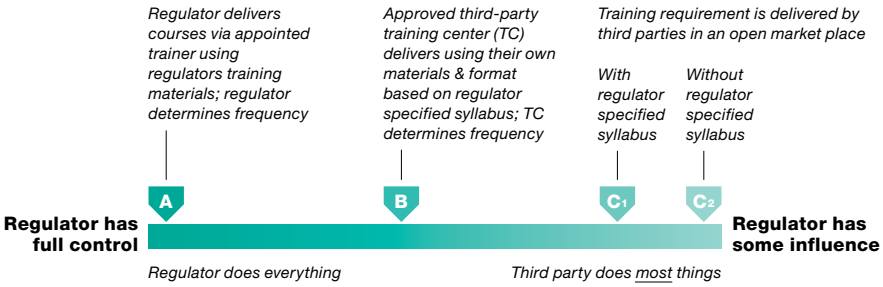
TABLE 16. **Acceptance of verifiers from other schemes or countries**

Approaches	Considerations
1 **Verifiers from other schemes** The CPI rules allow for acceptance of verifiers from another CPI provided they demonstrate to the regulator/ nominated oversight body their ability to comply with the requirements for verification (e.g., competencies, mandatory steps in the verification process and language)	**When can this option be suitable:** • Usually applied when countries do not have many resources, the scheme is small or it is not possible to get sufficient competent national verifiers in time for the start of the scheme. • Usually applied when the domestic scheme has similarities to the CPI under which the verifier was approved. For example, some domestic crediting programmes accept CDM verifiers, e.g., the Japanese Joint Crediting Mechanism (JCM). Designated operational entities accredited under CDM and verifiers accredited under ISO 14065 can carry out verification in the JCM. This decision was taken because the JCM has similarities with CDM and there were not resources to get sufficient domestic verifiers. **Observations:** • Regulator effort is required to ensure that rules are established to identify what other CPI's verifiers would be acceptable and to set up a mechanism for vetting their ability to comply with local requirements. • Regulator effort is required to monitor any changes in the foreign approvals processes that might affect recognition for the domestic CPI (e.g., changes in competence requirements, approval cycles, etc.). • Awareness is needed that sanctions by the foreign oversight body could impact availability of verifiers in the domestic market.
2 **ISO accredited verifiers** The CPI rules allow for acceptance of verifiers accredited under ISO Standards (e.g., ISO 14065) provided they demonstrate to the regulator/ nominated oversight body their ability to comply with the requirements for verification (e.g., competencies, mandatory steps in the verification process, and language)	**When can this option be appropriate:** • See above. • An example of this is the Swiss ETS scheme. Verifiers that are accredited by an ISO accreditation body for EU ETS are allowed to carry out verification in Switzerland. They formally have to undergo a simple registration process. The decision to accept these verifiers was taken because the market was small, and the CPI was going to be linked with the EU ETS. **Observations:** • Regulator effort is required to ensure that the rules identify that ISO 14065 accredited verifiers are acceptable or, for example, if they have to be accredited by specific International Accreditation Forum accreditation bodies to ensure their mutual recognition.[80] • The acceptance of an open market for verifiers allows flexibility in the domestic marketplace that could adapt to demand over time. But for a new CPI programme there might be impacts on local verifiers that would be less experienced than ones working under existing CPIs that accept the ISO Standard. So if policy makers want to develop their market for local verifiers and provide an opportunity for local verifiers to develop and gain experience, then consideration might be given to restricting acceptance of ISO 14065 verifiers from outside the relevant country for a period of time to allow local verifiers to establish, gain experience, and become competitive.

Note 80 » *Such as ones that are part of the multilateral agreement on ISO 14065 and are subject to peer review of their accreditation competence.*

managed in terms of training processes. The more control the regulator wants to have the more elements of the training process are delivered by regulators. The different options illustrated in Figure 15 are explained in Table 17.

FIGURE 15. **Sliding scale of direct control of training governance & delivery**



Source: own illustration based on training material by Planet & Prosperity Ltd

When planning to allow the use of foreign verifiers, it is important for policy makers to consider the following:

- ☑ How foreign verifiers are trained and informed about domestic rules and requirements.
- ☑ Whether specific rules should be set for foreign verifiers as compared to national verifiers. In some cases it will not be legally possible to differentiate between foreign and national verifiers.
- ☑ How to be able to confirm that a foreign verifier meets the eligibility criteria: being accredited or otherwise approved.
- ☑ Whether the regulator wants to have direct control or influence over the quality of verification by foreign verifiers and the extent to which this is possible: for example, through information exchange, review of data reported, and verification reports.

TABLE 17. **Training approaches to ensure availability of qualified verifiers**

Approaches	Considerations
A **Regulators control the entire process of training (and approval). The training is part of the approval of verifiers. This means, for example, that:** • They control access by individuals to approved training; • Successful completion of training by their personnel is required for verifier approval; and • Regulators maintain a select list of approved verifiers/individual auditors. Training may be paid for by the regulators or the verifier.	**When is this option appropriate:** • In situations where the regulator wants to have a high level of direct control over the training and approval process. • Where the regulator has the resources and competence to organise training (though it can also hire individual experts to support the development of curriculum, materials, exams, and other aspects of training if required: in that case the regulator still has control of the entire process). **Examples:** Examples of this type of training are the Californian ETS and Korean ETS. Verifiers have to undergo training organised by the regulator in order to obtain approval. The Californian ETS is an example of a CPI where the regulator wants to have full control over the approval of verifiers. **Observations:** • Regulators may have to set up the entire process of verifier approval and training from scratch. They also need to be competent themselves to design appropriate training activities. This includes training their own staff in the competencies required to determine the competence of individual auditors and the competence, management, and control processes of verifiers. Regulators will thus have to organise internal training to ensure their own competency (or 'buy in' specialist help). • There may be potential limitations on the number of individuals that can pass through verifier training if the training capacity is defined by the time and budget available to regulators to deliver training sessions. • Limitations on the amount of training being delivered may act as a barrier to sufficient numbers of qualified persons being available, and the number of verifiers in the marketplace at the start. • Free training may lead to free riders: individuals might participate in training but then do not go on to conduct verification work, leading to an inefficient use of time and budget. • Limitations on the timing of training offered may be a constraint for verifiers as their staff base evolves over time, meaning they may be left with too few qualified individuals to deliver their contractual commitments.

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(Table 17 continued)

Approaches	Considerations
B **Regulators control parts of the process of training and approval of verifiers. This means, for example, that:** • They could control specification and endorsement of verifier training, but delivery of training is available on the open market by approved providers. • Successful completion of the training is required for verifier approval but the regulator itself does not have to be the party responsible for approving the verifier. • Training is controlled by a regulator or other nominated oversight body which maintains a select list of approved verifiers/individual auditors. Controlling the training can mean, for example, that the regulator controls the syllabus or the approval of the trainer or training centre that delivers the training. The training centre or the trainer usually delivers the training materials and decides when the training will run.	**When is this option appropriate:** • In situations where the regulator wants to have a high control over the training and verifier approval process but does not have sufficient resources or the competency to set up and implement the whole process. **Observations:** • Regulator effort is required to define the training curriculum and approve training providers (and potentially their individual trainers). Alternatively the regulator can subcontract parts to a specialist training supplier working under the guidance of the regulator – for example, to develop a structured curriculum and a process for approving Training Centres. Once agreed, the costs of going through the process of obtaining and maintaining approval of a training course would be borne by the training provider, until such time as the curriculum specification might need updating. • Delivery of training can happen as often as the market demands, meaning flexibility to adapt to the demand for verification resources. • Separation of training delivery from the verifier approval process means the regulator/ oversight body can concentrate on mechanisms for initial and ongoing approval of verifiers. This can be done on a predefined (e.g., by periodic calls for applications from interested parties) or ad hoc basis as new verifiers emerge. Depending on the nature of the verifier oversight body, it or the regulator may have to set up the entire process of verifier approval from scratch. This includes training their own staff in the competencies required to determine the competence of individual auditors and the competence, management, and control processes of verifiers. Those oversight bodies that are part of the International Accreditation Forum (IAF) are already established with the precise competencies and processes needed for an overall approval process; and a nominated body, for example, a Professional Institute or a Personnel Competence registration body will have the processes and competencies to evaluate individual auditor's competencies for registration as approved individuals. More detail on the approval process is provided in section 12.1.
C **Regulators maintain influence on the process of training and approval of verifiers through the development of rules for the development and delivery of training, e.g., based on a specified curriculum, but:** • Development and delivery of verifier training materials and services is procured on the open market. • Training is separate from the verifier approval process. • The verifier approval process is conducted by a nominated independent oversight body – such as a national accreditation body – which maintains a select list of approved verifiers. • Appropriate training is a required element of verifier approval by the nominated independent oversight body.	**When is this option appropriate:** • In situations where the regulator has confidence in the ability of the (national or international) market to deliver training with the required level of quality; • Where there are Professional Institutions that include aspects of training and competence assessment in their professional qualifications or registers, and which could give regulators further confidence that individuals would be appropriately qualified. • Where it is national policy for independent accreditation bodies to be used for the approval of verifiers. **Observations:** In addition to points made above: • Regulator effort is required to ensure that the rules for training are established in a manner that provides a clear specification for a training curriculum and minimum expectations (e.g., for the qualifications of tutors) that can be used by open market training suppliers.

At the start of the CPI the regulator may not have sufficient resources to organise the training of verifiers according to the approaches listed in the table above. However, it is good practice to organise training in a structured and timely manner. In emerging CPIs the regulator usually wants to have more control over training to ensure verifiers are aware of the new requirements. However, it should be noted that it is important for the regulator themselves to have detailed knowledge in-house to provide or control training and to arrange for experts or trainers when such knowledge is lacking. Training is best organised before the start of the CPI to allow for timely instruction of verifier personnel.

9.3 Facilitate the implementation of the verification system

Experience has shown that the legislative framework and specific legislation outlining the verification system need to be supplemented with more detailed guidance and other measures unless the legislation is very prescriptive and clear as to its intent. Guidance will support a common understanding of the legal requirements and help verifiers and obligated entities comply with legislation; it will also help regulators and oversight bodies to treat verifiers in an equal way, enforcing legislation in a uniform and consistent manner.

Examples of further implementing measures include:

- **Guidance to clarify the requirements of legislation** (that is, instruction on how to practically apply the requirements and understand the specifics of M&R in a harmonised way, especially where there are different ways of achieving the same outcome).
- **Templates for monitoring plans** (if applicable), data reports, and verification reports to ensure a consistent interpretation among obligated entities and verifiers as well as a consistent data reporting. This reduces the administrative burden for regulators reviewing reported data and verification reports, facilitates the work of the verifier oversight body, whilst at the same time increasing the quality of reporting. It will also lead to harmonised reporting by verifiers, which is particularly important if verifiers work across borders.
- **Checklists and tools** that can have two functions:
  - Facilitating verifiers in delivering their verification activities (for example, templates for risk analysis or tools to support sampling of data);
  - Supporting regulators in their activities, such as the review of reported emissions data and verification reports.
- **Examples or FAQs** on how to deal with (sector) specific MRV issues for standard entities/projects and for small entities and so on.
- **IT system or web-based platforms** to facilitate submission of monitoring plans, project plans, reported data, and verification reports. IT systems make workflows more efficient; mitigate the risk of errors in data by enabling the use of defaults and embedded calculations; enable automatic cross checks; and retain all necessary data in one central place. There are a variety of different IT systems used in CPIs across the world ranging from sophisticated IT systems through to basic work flow systems and databases where relevant information is stored.
- Putting in place **training** for the stakeholders involved, installing a central **helpdesk** for discussion of complex problems, and collecting FAQs for further guidance.

Section 5.2 provides guidance on a possible roadmap and timelines that can be followed for the development of the elements mentioned above. Annex 14 provides information on guidance and tools developed by different countries; it also provides examples of countries that have set up an IT system and central helpdesk.

When developing implementation support measures, it is important to note that:

- ☑ Guidance for verifiers is essential not only on V&A specific issues but also on M&R specific issues because verifiers must be clear on how M&R specific issues need to be understood.
- ☑ M&R and V&A guidance, exemplars, and templates should be well aligned so that there are no discrepancies. Some M&R issues are highly connected to V&A issues such as addressing misstatements and noncompliance identified during the verification.

10 STEP V5

Ongoing management of the verification system

Ongoing management of the verification system is in principle done by oversight bodies that supervise the continued competence and performance of verifiers and their auditors, and that can impose sanctions if verifiers have not complied with the legislation. These elements are covered in section 11.

However there are other measures that a regulator can implement to manage the system, including:

- Checking the quality and consistency of reported data and verification outcomes;
- Ongoing capacity building and stakeholder engagement;
- Information exchange between different parties.

Each of these measures are discussed in the following sections.

FIGURE 16. **Elements in managing a verification system**

Source: authors

10.1 Ensuring the quality and consistency of verification outcomes

The regulator responsible for receiving reported data and associated verification reports can undertake several measures to guard the quality of verification. Options range from carrying out checks on the submitted reports to more in-depth assessments.

Options include:

1. **Basic checks** on submitted data and verification reports. Basic checks could include completeness checks and data checks such as trends, comparisons between similar entities/projects, and cross-time comparisons;
2. **Detailed checks on a sample** of data and verification reports. Detailed checks could entail compliance checks, cross checks with other data sources available to the regulator, checks between the reported data and verification reports, checks with earlier reports, checks of comments raised by verifiers, and so on. Sampling of such reports could be done on the basis of a risk assessment or other predefined criteria such as the size of emissions or emission reductions of the obligated entity, its history of compliance, and the complexity of the facility;
3. **Detailed checks on all** submitted data and verification reports;
4. All checks outlined in option 2 or 3 but combined with checks by the regulator on **verifiers' internal working papers and documentation**;
5. **Reverification** by a separate verifier or expert selected by the regulator, either on a sample basis or for all reports;
6. **On-site inspection** of the obligated entity by the regulator itself.

Whichever option is chosen strongly depends on the level of direct control the regulator wants to have over the quality of verification; available resources and how the verification system is set-up. If the regulator receiving the submitted reports is also the verifier oversight body, this process will be part of the supervision of the verifiers described in section 12.3. If this is not the case, the options above can be applied.

TABLE 18. **Approaches for ensuring the quality of the verification outcome**

Option	Considerations for policy makers
1 **Basic checks** on reported data and verification reports	**When is the option appropriate?** • This option is usually taken by countries with not many regulatory resources (i.e., personnel), in particular if these countries are at the start of a CPI and regulators are not involved in the approval of verifiers. • Countries that select this option usually rely on a robust verification system or have implemented other measures to check the quality of verification outcomes. **Examples of application:** In most CPIs basic checks on verified emissions reports are carried out by regulators (e.g., completeness checks).
	Advantages • Insight into whether all reports have been submitted and contain all required information, low level of resources needed, low implementation costs **Disadvantages** • Limited checks may not give a sufficient overview of the quality of the reported data and/or the quality of the process that resulted in the verification report
	Observations: • Regulator needs to implement procedures on how to do checks and which checks to make. The procedure can be simple where the basic checks are limited or the CPI is not complex. • Reporting templates and checklists will facilitate basic checks. • IT systems can support the process: automated completeness and sense checks could be possible.
2 **Detailed checks on a sample** of reports and verification reports	**When is the option appropriate?** • Usually applied by countries that want to have a reasonable level of confidence on the quality of verification but do not have sufficient resources to check all reports. • Usually carried out by countries that rely on a robust verification system but feel the need for additional review procedures because of the complexity of the scheme and/or the large number of obligated parties and/or the scheme is new. **Examples of application:** Some countries participating in the EU ETS regulators do detailed checks on a sample of emissions and verification reports to check the quality of reports (e.g., the Netherlands and the UK). Similar checks are often carried out in ETSs and offset mechanisms that have been running for a longer period of time.
	Advantages • Lower level of resources needed than in option 3, low implementation costs. • Facilitates follow-up of outstanding issues after verification, and the identification of trends in issues that might indicate further training/capacity building is required. **Disadvantages** • The disadvantages of this option depend on what method is chosen to select the reports to be checked in detail. • Random checks may not result in checks on obligated parties that need the most attention whereas a risk-based approach could be more appropriate, in particular if there are many facilities and sectors covered in the scheme.
	Observations: • See option 1. • The method chosen to select the entities whose reports will be checked in detail can vary, e.g., random checks, risk-based approaches, based on predefined criteria. Risk-based approaches are good practice and focus the regulator's attention on those reports that are likely to have high risks: e.g., because they contain issues reported by the verifier, relate to obligated parties that are large, or have a history of noncompliance and/or nonparticipation/engagement. • It is important to develop clear criteria for risk assessment procedures to select the reports to be assessed in detail. • It is important to have clear criteria on how to follow up on issues if any are identified in the review of reports – in terms of who will perform the follow-up, how it will be done, and what approaches will be taken to enforce corrective actions, etc. • Some CPIs have developed guidance and tools to support the selection and review of emissions data and verification reports (see annex 14).

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(Table 18 continued)

Option	Considerations for policy makers
3 **Detailed checks on all reported data** and verification reports	**When is the option appropriate?** • Usually applied in countries where the regulator wants to have detailed control over the quality of verification and where the regulator has resources to do a large number of detailed checks in a short period of time. • May also be applied in situations: – Where the scheme is small and not many obligated entities are involved so work for the regulator is limited; and – If the review is divided over multiple local regulators, although this would increase the need to coordinate and harmonise approaches between these regulators so more detailed guidance might be required. **Examples of application:** • Countries like Ireland and Germany in the EU ETS do detailed checks on all the reports.
	Advantages • Higher levels of control on the quality of reporting and associated verification. • Detailed checks can reveal potential omissions or mistakes and can provide more confidence in the accuracy of the reported data.
	Disadvantages • Increased administrative burden for the regulator, difficult to manage for regulators with less resources. • May require additional resources to coordinate and collate reviewed information if the work is distributed across multiple local regulators.
	Observations: • See option 1. • For consistency, it is important to have guidance and instructions on what and how to do detailed checks on reports. • It is important to have clear criteria on how to follow up on issues if any are identified in the review of reports – in terms of who will perform the follow-up, how it will be done, and what approaches will be taken to enforce corrective actions, etc.
4 **Detailed checks plus checks of internal verification working papers/ documentation**	**When is the option appropriate?** • Usually applied in countries where the regulator wants to have a high level of control over the quality of verification and where the regulator has resources and competence to do these checks. • May also be applied in situations where the scheme is small and not many obligated entities are involved so work levels for the regulator is more limited. **Examples of application:** In Finland (part of the EU ETS) a selection of internal verification documentation is checked by the regulator. However, the accreditation body that has accredited the verifier remains the responsible party for following up on issues related to the verifier and for imposing sanctions.
	Advantages • Higher level of control over the quality of verification for individual reports. • Checks on internal verification documentation may explain the verifier's interpretation of issues picked up during detailed checks on reported emissions data and associated verification report. Why something was apparently missed may be due, for example, to the way in which a verifier has assessed the verification risks associated with different parts of the monitoring process and how they have selected the sample of data for testing.[81]
	Disadvantages • Increased administrative burden for regulator. • Regulator may not be sufficiently knowledgeable to interpret work or findings documented in internal verification work papers, if they are not involved in actual supervision of verifiers. • Risk of blurring the boundary between the responsibilities of the regulator and those of the oversight body. • Administrative burden could be reduced by applying a check on internal verification documentation for a sample of verifiers based on a risk-based approach or only on request of the regulator when the regulator finds this necessary.

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Note 81 » *This would indicate that the omission was not negligent, for example.*

(Table 18 continued)

Option	Considerations for policy makers
	Observations: • See option 3. • Clear definition of roles and responsibilities between the regulator and oversight body is required. • A policy maker should understand confidentiality obligations of verifiers.[82]
5 **Reverification by another verifier**	**When is the option appropriate?** • Applied in countries that want to have a very high level of control over the quality of verification and/or where there are concerns about the competence of verifiers (in particular at the start of the CPI). **Examples of application:** In some Chinese ETS pilots reverification by another verifier is applied. The verifier is selected and paid by the regulator.
	Advantages • Higher control on the quality of verification. • Reverification can lead to more confidence in the accuracy of data (unless it results in different conclusions by the two verifiers). **Disadvantages** • Will lead to higher resources requirements if the secondary verifiers or experts are paid for by the regulator. • Is likely to be challenged by the obligated entity if regulators require them to pay for a second verification without due cause being demonstrated in advance. • Increases the need for competent verifier capacity. • Likely to be time-consuming and difficult to organise in view of potential reporting deadlines. • There is a risk that discrepancies between findings of the first verifier and second verifier can lead to confusion as to which verifier is correct in its findings and which opinion statement is therefore valid. • Could potentially be difficult to implement and lead to unnecessary duplication of effort. • Administrative burden could be reduced by requiring this approach for a selection of verifiers when necessary or based on a risk-based approach. Other concerns could be mitigated by defining criteria on how such a reverification would be selected.
	Observations: • Clear criteria are needed on when and how a reverification is carried out, as well as what to do if there are differences between the two verification opinions. • Clear criteria are needed on who can do reverification and how these verifiers are selected and paid for.
6 **Inspection by regulator**	**When is the option appropriate?** • In countries that have a tradition of inspection by the regulator. • Where the CPI lends itself to incorporation into existing inspection regimes for other environmental legislation. • In countries that have a CPI that has been operational for a longer time. Mostly applicable to ETSs. **Examples of application:** Multiple countries in the EU ETS and in European carbon tax systems have implemented an additional inspection and enforcement of the obligated entity.

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Note 82 » *I.e., the regulator would not be allowed to remove a copy of the work papers and evidence from the verifier's premises.*

(Table 18 continued)

Option	Considerations for policy makers	
	Advantages • Allows for regulators to inspect obligated entity procedures and evaluate the specific situation on site. • Regulator gets a good overview of the obligated entity's emission sources, application of monitoring methodology, metering equipment, etc. • High control by regulator over the quality of compliance (and reported data if detailed data checks are also done). • Can be built into existing programmes of inspection conducted for other environmental permitting reasons.	**Disadvantages** • Potentially higher administrative burden (although this can be mitigated by applying risk-based approaches in selecting obligated parties to be inspected). • When using 'standard regulatory inspectors' (e.g., those that inspect for environmental pollution permits) capacity building and training are required to develop competence specific to the CPI rather than competence related to the normal inspection activities.
	Observations: • In some countries that use this option, inspection is carried out by other regulatory agencies, departments, or functions within the regulator (e.g., those that are responsible for inspection activities under other environmental legislation). • Different approaches can be applied for inspection (risk-based approaches to selecting obligated entities to visit, what to inspect, frequency of inspection, etc.).	

For some CPIs and countries a combination of these options is applied. In the EU ETS, for example, countries such as the UK and the Netherlands use both options 2 and 6. Germany and Ireland are countries where options 3 and 6 are applied.

As a CPI generally involves large financial interests, it is good practice that the regulator does some additional checks on the emission report and verification report once the regulator has received them. At the start of the CPI, when designing the system, the regulator may often struggle with how to balance policy ambitions, the complexity of the CPI, and the available resources.

Option 1 (basic checks on reported data and verification reports) is therefore mostly implemented in this phase if the regulator and the verifier oversight body are not the same party. This also depends on the type of control the regulator wants to have over the process. In China's complex, multisectoral national ETS, provincial authorities will likely be more inclined to check emission reports verified by verifiers as they assess the competence of verifiers together with the China`s National Authority on Climate Change, which is since May 2018 the Ministry of Ecology and Environment. In complex ETS systems and offset mechanisms, countries are likely to be more inclined to implement more than one option. It often helps if the country can build on or connect to existing structures in place (for example, inspection for other environmental legislation).

Minimum requirements

There are no minimum requirements for ensuring the quality and consistency of verification outcomes. The regulator needs to consider whether to carry out this step. It can be an important part of ensuring quality of the MRV system where the regulator is not the oversight body.

The following can be considered in general by policy makers:

- ☑ In most CPIs where the regulator and the oversight body are separate parties, some type of approach mentioned in the table above is applied. Usually approaches are outlined in guidance and internal instructions.
- ☑ Some CPIs have developed guidance and tools to support the review of data reports and verification reports (see annex 14).
- ☑ Where countries have used IT systems, these facilitated the processes of review. Examples can be found in several countries such as Germany, UK, Finland, Western Climate Initiative.

10.2 Ongoing capacity building and stakeholder engagement

Stakeholder engagement is carried out at a number of stages in the design, implementation, and management of the verification system. Stakeholder engagement at the design stage and in the set-up of the legislative and institutional framework is elaborated further in section 5. However, even when the system has been designed, implemented, and is up and running, it is good practice to further train and involve stakeholders in the management of the CPI.

In several CPIs[83] examples can be found of ongoing training programmes that are provided to obligated entities and verifiers on how to understand and interpret M&R and V&A requirements. The frequency and scale of organising such training varies between countries. In some CPIs[84] there are official annual training/refresher programmes organised by the regulator or other authorities, whereas in other countries[85] ad hoc workshops are organised to discuss the interpretation of issues or challenges encountered during verifications.

An important factor for continued competence of verifier personnel is the requirement for verifiers to provide internal training and updates. Training organised by the regulator or other parties are often cascaded internally by the verifier to their auditors.[86] However, there are also examples where all auditors involved in a CPI are required to participate in formal refresher training.[87] Stakeholders can also be involved in other ways. Different approaches exist across CPIs depending on the scale and complexity of the CPI and the resources of the regulator. The table below provides some examples of this.

Example

The UK Emissions Trading Group (ETG)

The UK ETG is a formal, independent, not-for-profit member organisation open to anyone involved in emissions trading and other domestic carbon schemes. It provides an open forum for discussion and information exchange between the UK government (and by extension the European Commission) and all UK parties interested in, or participating in, the EU ETS and domestic emissions accounting, reporting, and taxation programmes.

Founded in the late 1990s and originally funded with corporate donations and some grant aid from the government, currently membership fees fund a small secretariat that acts as a hub for information exchange and which organises and records regular working groups covering different aspects of emissions trading and carbon/energy management – approximately six formal working group meetings and four board meetings are held each year supported by informal subgroups as required – all working group chairs and the board of directors are volunteers voted into role by the membership.

The working groups receive active participation from all relevant government departments which provide information, feedback, and listening to the discussions; further support is provided by the Business Department which provides free access to conference rooms where meetings are held.

Note 83 » *Countries in EU ETS, California Cap-and-Trade System, Tokyo Cap-and-Trade System, Australian Emission Reduction Fund*

Note 84 » *For example, the California Cap-and-Trade System*

Note 85 » *Most countries participating in EU ETS, however some have official working groups (see Table 19); Western Climate Initiative*

Note 86 » *A representative of the verifier attends the regulator delivered training session and then uses the materials/information from that session to train other auditors from within their organisation.*

Note 87 » *This is, for example, the case in the Tokyo Cap-and-Trade System.*

TABLE 19. **Stakeholder engagement on an ongoing basis**

Options	Who?	What is involved?	When and how to organise?	Effort involved
1 **Annual meetings**	• Regulators • Verifiers • Oversight bodies (if different from regulators)	• Discussing issues and trends identified in the review of emission reports or emission reduction reports by the regulator (see section 10.1) or general issues encountered during verification and approval activities. • Discussing developments in the legislation or interpretations of requirements by regulators. • Status updates in relation to accreditation peer reviews,[88] etc. • Obtaining feedback from verifiers on issues they have identified in relation to the regulator's work (e.g., inconsistencies in interpretation or application of rules at different sites/entities).	Usually organised by the regulator before the start of the next reporting cycle so that all participants can take on board lessons learnt from the previous cycle's verifications.	Relatively easy to organise and dates can be planned long in advance to ensure all relevant stakeholder representatives can attend.
	Examples of application: Multiple countries in the EU ETS hold annual meetings consisting of verifiers, oversight bodies, and regulators. In the California ETS regular meetings are organised between stakeholders including with counterparts in Canada (for linked programmes).			
2 **Ongoing stakeholder working group**	• Obligated entities • Regulators • Verifiers • Oversight bodies (if these are different from regulators) In countries where there are multiple regional or local authorities involved in the implementation of the CPI, these authorities can be included in the working group as well.	• Discussing implementation issues on M&R and V&A between stakeholders. • Discussing developments in policy, legislation, and guidance; or interpretations of requirements by regulators; and clarifications for obligated entities of what they should expect, and when, etc.	These may be organised on a regular but ad hoc basis as topics arise that require discussion. In the case of a formal organisation such as the UK ETG, there may be regular and formal working group meetings with participation by relevant government departments.	The level of effort required depends on whether such engagement is ad hoc or formalised. For some regulators the organisation is straight forward as they have access to rooms and resources that can be used for such working group meetings; for others, this may be more of a challenge and partnering with other organisations that can support meetings may be required.
	Examples of application: UK in the EU ETS (see the example box on the UK ETG). This is a combination of stakeholders: verifier, obligated entities, regulators, policy makers, market traders, etc. Spain in the EU ETS (there are multiple regulators involved in the implementation of the EU ETS). Regional regulators and the oversight body (the national accreditation body) convene in a working group organised by the central coordinating regulator responsible for the overall system).			

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Note 88 » *In peer reviews an accreditation body is evaluated on its competence and performance. This is usually organised by an IAF regional network/group.*

(Table 19 continued)

Options	Who?	What is involved?	When and how to organise?	Effort involved
3 **Other mechanisms where regulators can exchange information.**	• All stakeholders	• Discussing M&R and V&A implementation issues between stakeholders. • Discussing developments in the legislation or interpretation of requirements by regulators. • Providing feedback and knowledge exchange.	The organisation of these mechanisms differs between countries. It can be a virtual platform where stakeholders share information, one where stakeholders meet face to face or a combination of the two types.	Depending on the type of mechanism used, this type of stakeholder engagement may require more effort than other options discussed above; or could piggyback on existing mechanisms such as online discussion forums like private groups on LinkedIn.
	Examples of application: The EC Compliance Forum is a mechanism where regulators of countries participating in the EU ETS exchange information and share experiences on the implementation of MRVA for the EU ETS. There are different task forces involved, e.g., on monitoring, accreditation and verification, e-reporting, aviation, and carbon capture and storage. The Forum and its task forces support harmonisation between the different countries in the EU ETS.[89]			

At the start of the scheme, option 1 (annual meetings) is likely more appropriate as it is easy to implement. It is, however, recommended to communicate more frequently at the beginning of a CPI, in particular if that CPI is more complex and third-party verifiers are involved. The CPI is new to stakeholders, and it will facilitate implementation if there is regular contact in official or unofficial meetings or working groups. Over time, ongoing stakeholder engagement can evolve into other forms of engagement. Section 10.3 outlines the communication needed between regulators and the verifier oversight body when these are different parties.

Minimum requirements

It is essential to organise stakeholder engagement, as it promotes a common understanding of the requirements for the MRVA system of a CPI.

The following issues are important be considered by policy makers in setting up the V&A system:

- ☑ Stakeholder engagement is an essential part of the management of the system, and it is good practice to set up such engagement. Stakeholder engagement does not necessarily need to cost much effort, but does generally need planning well in advance.
- ☑ It is good practice to engage stakeholders on a regular basis so that verifiers and obligated entities are informed about the latest developments in legislation and guidance and can be trained in the specifics of MRV for different CPIs that apply within a country.
- ☑ It is essential to confront verifier personnel and lead auditors in training with practical case studies for discussion as this prepares them for actual verification work. The discussion of case studies can aid the agreement of harmonised interpretations and approaches by highlighting where there might be differences of opinion between regulators and verifiers.

10.3 Organise information exchange between regulators and oversight bodies

Information exchange can be a means for regulators and verifier oversight bodies to keep a close eye on the V&A process whilst not duplicating efforts. Where the regulator(s) responsible for implementation and enforcement of the CPI and the oversight body responsible for supervising verifiers are different organisations, it is good practice to organise formal information exchange lines between the two parties.

Note 89 » *More information can be found on: https://ec.europa.eu/clima/sites/clima/files/docs/0100/brochure_en.pdf*

It is vital, for example, that the regulator is informed if the oversight body imposes sanctions on a verifier so that the regulator knows whether a verifier is still entitled to conduct verification. For the oversight body, it is equally important to receive information from the regulator on issues that have been identified during the review of reported data that may indicate that the verifier has not been complying with the rules or is incompetent. The oversight body can then investigate and take further action, if necessary.

Information exchange can be organised in a number of different ways:

- On an **informal basis** through telephone calls, regulator meetings, or e-mail contact between the regulator and oversight body;

- On a more **formal basis** embedded in legislation, institutional structures or in addition to the legal framework.

The most appropriate approach to take will depend on the country's legal system, the nature and type of cooperation between regulators and the verifier oversight body, and the complexity of the CPI. Where there is frequent and informal contact between the regulators and verifier oversight body or the scheme is small, formalised information exchange is less common. It is recommended in that case to keep track of communication between both parties as it can impact their work.

In the case of sanctions being imposed on a verifier, it is good practice to share that information more widely than with just the regulator, in particular if a 'licence to operate' has been suspended or withdrawn. A more formal and public information exchange is appropriate in that case.

Minimum requirements

Policy makers should arrange for information exchange between the verifier oversight body and the regulator where these are separate parties and the information concerns the imposition of sanctions or the results of appeal.

The following issues are important for policy makers to consider:

☑ If multiple regulators are involved in implementation of the CPI (for example, regional or local authorities), it is good practice to arrange more formal information exchange lines to ensure key information is shared. It usually helps if there is a central coordinator that can liaise between relevant regional/local authorities to ensure communication processes function effectively.

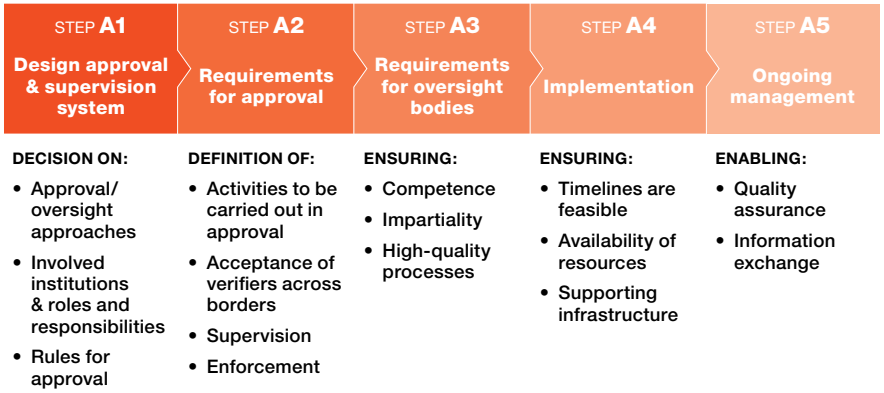
☑ In such cases, developing templates for information exchange can support implementation of any requirements and harmonise what and how different regional/local authorities and other parties communicate.

Part C

Setting up the approval system

If a decision is taken to implement a verification system, it is also important to define how and by whom verifiers will be approved and supervised. This section outlines the steps to be taken to design, implement, and manage a system for such approval and supervision of verifiers.

FIGURE 17. **Step by step through approval**



Source: authors

When designing the approval system it is important for policy makers to have a clear view on how to structure the system, including:

A1 Designing the approval and supervision system: this step includes decisions on what approach to approval and supervision is most appropriate, which parties to involve, whether to use existing or new institutions, the role of different parties in the CPI, and which rules to develop to manage the verification system;

A2 How to design requirements for approval: in this step policy makers define the activities to be carried out in the approval and supervision of verifiers. Decisions will need to be made on whether and how to accept verifiers from other countries, as well as the nature and type of sanctions to impose on verifiers and enforcement mechanisms to ensure compliance. It also includes information on what to include in legislation;

A3 How to design requirements for oversight bodies: this step is a key element in the design of the oversight system to ensure the competence and impartiality for entities and persons doing the approval and supervision of verifiers. It also discusses how to set up high-quality processes and organisational structures and identifies which elements should be included in legislation;

A4 How to implement the approval and supervision system: Once policy makers have a clear view on how the system will be designed, they will have to develop specific rules, set up the institutional framework, and take steps to ensure proper implementation of the approval and supervision system. This includes timely approval of verifiers and ensuring continued competence of the relevant parties.

A5 How to manage the system on an ongoing basis: As a last step it is important to manage the oversight system on an ongoing basis to ensure that parties involved in approval and supervision continue to be capable of assessing competence and impartiality of verifiers, and the system remains of high quality.

The objective of verifier approval is to ensure the verifier, its auditors, and other persons undertaking verification activities have the required competence, are impartial, and carry out the activities in accordance with the requirements of the CPI. Common principles underpin this objective. The principles apply to any approval system regardless of the type of CPI and the V&A system and provide the legal basis and framework for the more detailed requirements discussed in the following sections. In general, these principles are included either in international ISO standards or in national legislation. Annex 3 outlines the common principles that apply to both approval and verification processes.

11 STEP A1

Designing the approval and oversight system

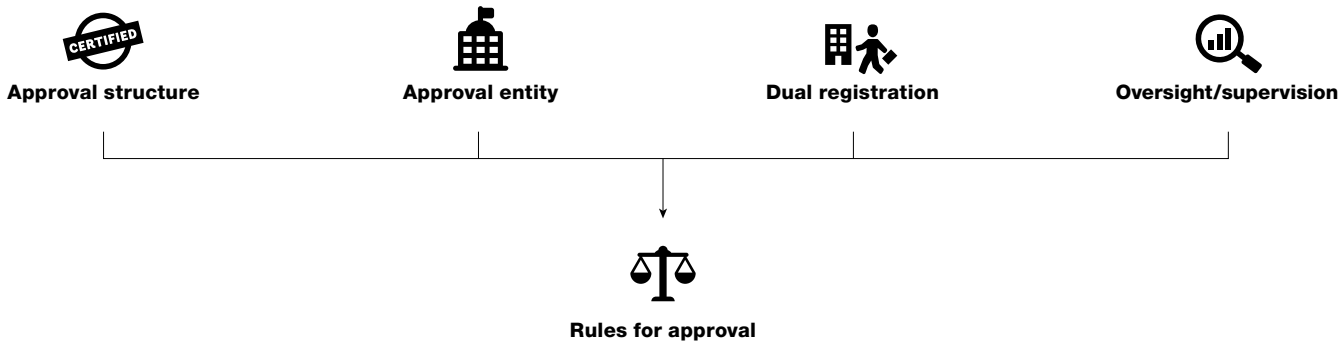
There are common features in the structure of an oversight system that apply to any CPI. However there are also some key choices that need to be made when designing the structure of an oversight system, each with its own implications. Which options are selected strongly depends on factors such as the legal system of a country, available resources, and the level of ambition as outlined in section 4.2. This section outlines the common features as well as the different types of oversight systems and their advantages and disadvantages.

When designing an approval and oversight system, the following common considerations should be taken into account for any CPI:

- A robust approval system ensures competent and independent verifiers and creates sufficient confidence in the output of the CPI;
- It can facilitate the design and implementation process if use is made of existing mechanisms and institutions. Regulators may, however, want to have more direct control over approval and supervision of verifiers and/or may not be familiar with the workings of such existing mechanisms or institutions;
- A clear legal framework is needed to approve and supervise verifiers regardless of the mechanism used: accreditation, certification, registration, authorisation, and so on;
- More specific rules are needed in secondary legislation tailored to the specific CPI;
- It is good practice for oversight bodies to assess the actual competence and performance of verifiers in practice, although this may be difficult in some cases where there are low levels of regulator/ oversight body resource.

This section describes the different approaches that a country can use to design and implement the oversight system.

FIGURE 18. **Elements in designing an approval system**



Source: authors

11.1 Options for designing the approval structure

One of the first choices for policy makers to make in designing the approval and oversight system is what method should be selected for approving verifiers. Different options are available depending on the extent to which the regulator responsible for the implementation of the CPI wants to have direct control over the V&A system, and the resources they have available. Options include:

1. **Regulator approval based on documentation/exams**: Approval of a verifier by a regulator based on an evaluation of documentation submitted by the verifier (such as education records and work experience) and/or examination of verifier personnel. However, examination does not entail an assessment of the verifier's procedures in practice nor the actual performance of that verifier or its individual auditors. In addition, as part of approval, the regulator would compile and maintain a list of approved verifiers;

2. **Regulator approval based on actual performance**: Authorisation of a verifier by a regulator based on an evaluation of documentation and a review of actual performance and competence of the verifier's personnel. In this case, the regulator would also issue the approval and compile a list of approved verifiers;

3. **Certification body approval**: Certification of individual auditors by a personnel certification body. This could include professional institutes that evaluate and certify the competence of individuals within a profession (for example, for engineers, accountants, and environmental auditors);

4. **Recognition**: By a recognised institute or supranational authority, not under the ISO standards framework (for example, by the Executive Board for CDM/JI);[90]

5. **Accreditation (ISO)**: By a recognised accreditation body according to the ISO standards framework (usually based on ISO 14065 and ISO 14064-3).

TABLE 20. **Options for approving verifiers**

Option	Considerations for policy makers
1 **Regulator approval based on documentation / examination**	**When would the option be appropriate?** Chosen by countries that do not have many resources and no existing infrastructure, do not have existing accreditation infrastructure, or are in early stages of a CPI and want to have direct control over the eligibility and competence of verifiers. **Examples of application:** Chinese pilot schemes had limited resources and no existing infrastructure to approve verifiers. Provincial authorities approved verifiers based on document review and/or examinations. The Tokyo Cap-and-Trade System approved verifiers using the Tokyo Metropolitan Government (TMG) through a registration process: lead auditors participate in a mandatory training programme followed by an examination. This option was selected because the CPI was not large and the TMG had limited resources to evaluate all lead auditors on site.
	Advantages • High direct control by regulators of the approval process. • Evaluation of documentation and examining auditors requires relatively limited resources from the regulator.
	Disadvantages • Evaluation of documentation and examination does not entail assessment of verifier's procedures in practice nor actual performance of that verifier or its individual auditors. The full scale of competence of the verifier cannot be assessed. • Difficult to test verifiers' competence in examinations: examination relates to individual auditors not to organisations. If examinations are based on basic training or basic questions, they test knowledge, not the application of skills and knowledge in practice. • This option may not ensure that there are sufficient competent verifiers in the marketplace if restrictions on the regulator's availability of time and resource mean that capacity is constrained.
	Observations: • It is good practice to organise training of auditors to prepare them for formalised examination. • See options 1 and 2 in section 9.2 for examples of how training can be organised. • It is good practice that training and exams not only focus on theory but also test practical application of theory using case studies and examples: e.g., what type of checks are carried out to see whether the emission factors have been determined correctly; how to check procedures, quality assurance, quality control, etc.

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Note 90 » *This is also called accreditation under UNFCCC CDM framework (non-ISO framework).*

(Table 20 continued)

Option	Considerations for policy makers
2 **Regulator approval based on actual performance**	**When would the option be appropriate?** • Chosen by countries that want to have direct control on the eligibility and competence of verifiers. This may form a second stage of evolution of a system after option 1 has been applied for a while and it is judged that performance evaluation through witnessing will tighten control over competence. In some cases parts of the process may be outsourced to other parties, e.g., technical experts. **Examples of application:** For California's ETS, the California Air Resources Board approves verifiers and individual auditors. Approval is carried out against ISO 14064-3 and ISO 14065 as well as CPI specific legislation (the GHG reporting regulation). Approval assessment includes a document review, assessment of procedures/systems, and witness audits. California selected this option because it wanted to have direct control over the quality of auditors carrying out verification. For the Korean ETS, the National Institute of Environmental Research approves verifiers by reviewing documents and on-site visits with auditors that have passed the mandatory exam to check that the appropriate competencies and management processes are actually in place. **Advantages** • High direct control by regulator of verifier approval process. • Assessing actual performance of individual auditors gives regulators a good insight into the quality and competence of a verifier and its auditors. **Disadvantages** • Approval of verifiers by regulators could result in increased administrative burden. • Without further training the regulator may itself not have relevant competencies to assess performance competencies of auditors or certain aspects of the verifier's procedures, processes, and documentation. • May not ensure that there are sufficient competent verifiers in the marketplace if restrictions on the regulator's availability of time and resource mean that capacity is constrained. **Observations:** • Regulator may need to set up internal procedures to approve and evaluate auditors doing verification activities. This may include ensuring separation of responsibilities for these activities and activities related to supervising obligated entities. Otherwise it could lead to a conflict of interest. However, in countries with limited resources it may not be possible to separate these responsibilities, so other mechanisms to ensure impartiality are required. • Training needs to be organised for regulator staff involved in the approval of verifiers and evaluation of their auditors. Experts could be hired to support the regulator in this process. • Tools and checklists could help the regulator with processes.
3 **Certification body**	**When would the option be appropriate?** • Can be applied if a country allows natural person auditors to do verification. Accreditation bodies working within the IAF ISO framework are not allowed to accredit individual auditors, but they can accredit organisations that perform personnel certification thus ensuring standards are maintained for individual staff. Individual auditors approved under such a certification process would be certified by certification bodies against international standards, or by recognised (professional) institutes in accordance with their professional standards. **Examples of application:** • Germany, in 2013 and 2014, approved individual registered EMAS auditors as EU ETS verifiers; • Alberta (Canada) nominated two eligible professions as approved to be verifiers: Engineers recognised under the Engineering & Geoscience Professions Act and Chartered Accountants recognised under the Chartered Professional Accountant Act. These professions are allowed under the condition that such individuals demonstrated they have technical knowledge of GHG quantification methods, audit and other relevant matters.

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(Table 20 continued)

Option	Considerations for policy makers	
	Advantages • Certification body takes care of approval of individual auditors against specifications laid down in the rules and guidance, so it requires less resources from the regulator. • Certification body has the expertise to evaluate knowledge, skills, and application of auditing competence of individuals. • Open market access to a personnel certification body would mean that auditors could apply and be evaluated at any time they need to become approved.	**Disadvantages** Without a structured programme specific scheme being agreed on with the regulator, it may be difficult for certification bodies to become familiar with CPI specific rules, focus assessment on these elements, and ensure harmonisation between different certification bodies (proper detailed competence specifications, training, and guidance is needed). However, once a structured scheme is developed it is possible to have certification bodies accredited for such schemes by an IAF accreditation body.
	Observations: • Detailed competence specifications, training, and guidance are needed for certification bodies to be able to do certification according to programme specific rules. • If a country allows both certification of individuals and approval of verifier organisations, it is good practice to require in legislation that individual auditors must meet the same requirements as organisations.	
4 **Recognition**	**When would the option be appropriate?** • Where this is required by international law or CPI specific rules. For example, CDM requires verifiers[91] to be accredited under the UNFCCC framework. • Can be applicable to offset mechanisms. Some domestic offset mechanisms are inspired by the CDM and allow use of designated operational entities that are recognised under the UNFCCC framework or they may (also) approve verifiers using their own national institutions. **Examples of application:** • CDM and JI use this system, but CDM verifiers (designated operational entities) are also allowed to verify in the China Certified Emission Reductions Scheme (CCER) (the Chinese offset mechanism); Japanese Joint Crediting Mechanism (JCM), South Africa carbon offset scheme linked with its carbon tax scheme.	
	Advantages • Reliance on international framework could give the regulator and other stakeholders confidence that the process functions well.	**Disadvantages** • Less direct control over approval of verifiers, depending on how the system is structured. • It is not possible to implement domestic specific elements without an additional process to overlay the UNFCCC process. • Subject to change at the international level without any information necessarily being provided pro-actively to the CPI country regulator.
	Observations: • Supranational bodies such as the CDM Executive Board are usually relatively well resourced and employ external experts to conduct assessments, etc.; this may not be replicable at a domestic level. • Piggybacking on their established procedures, institutions, and methodologies presents an efficient way of accessing that expertise and resource.	

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Note 91 » *Called Designated Operational Entities under CDM rules.*

(Table 20 continued)

Option	Considerations for policy makers
5 **Accreditation (ISO)**	**When would the option be appropriate?** • In more complex CPIs, such as ETS and offset mechanisms that cover many different sectors and/or have more complex M&R requirements. • If regulators have made the decision to implement international standards such as ISO 14064-3 and 14065 or have plans to do so in the future. • If the CPI is set-up for eventual linking with one or more compatible CPIs. • When the regulator considers it essential, for example, to increase the confidence of the public and/or the market in the data being reported. **Examples of application:** EU ETS, British Colombia, Ontario and Quebec (Canada) in Western Climate Initiative; Kazakhstan ETS; Korea ETS.
	Advantages • Minimal cost implication for regulators as costs of accreditation are borne by the accreditation body and verifiers seeking approval. • Robust accreditation scheme, using internationally defined and accepted standards developed under a multistakeholder process. • Open market process means that any verifier can apply at any time that suits them so they can respond to market demand for verification capability. • Makes it easy to connect with other CPIs using the same process as V&A approaches are harmonised. • Actual performance of verifier and its relevant personnel are checked before issuing an accreditation certificate. • Accreditation bodies have existing competence, processes and experience to assess verifiers' procedures, processes, and documentation; as well as individual auditors' performance.[92] • Most countries already have accreditation bodies[93] in place for other policies, which allows for the use of existing institutions. • Recognised accreditation bodies are generally members of the International Accreditation Forum (IAF) which harmonises application of ISO standards and peer review of the competence of accreditation bodies and their assessors. It also controls the multilateral agreements (MLA) that allow accreditation certificates to be recognised in any country that is a signatory of the MLA.
	Disadvantages • Less direct control by regulators on the verifier approval process, (although they can assert influence through specific supplementary domestic requirements). • Accreditation can take six to nine months to complete, depending on readiness of the verifier and its preexisting experience with accredited quality control systems, etc. • Timing of release of the list of accredited verifiers is critical to avoid one verifier cornering the market or driving prices down to the disadvantage of other verifiers (thus driving them out of the market). • Time and cost may be needed to bring accreditation assessors up to speed on CPI specific elements (e.g., the M&R rules) and establish work papers to record such assessment elements. • Lack of direct control by regulator could be mitigated by implementing good information exchange lines between the accreditation body and the regulator.
	Observations: • The process for accreditation needs to start early enough to ensure that there are sufficient competent verifiers • CPI specific requirements need to be defined because ISO standards are programme neutral. • Specific training and rules are needed to instruct accreditation bodies on CPI specific elements and to set up any programme specific procedures.

Note 92 » *Although they may well need to develop a specific programme related to the CPI selected; and which may incorporate specific domestic requirements on verifiers and auditors (e.g., specified mandatory training and/or exam).*

Note 93 » *Some national legislation recognises a single national accreditation body; other countries have several recognised bodies.*

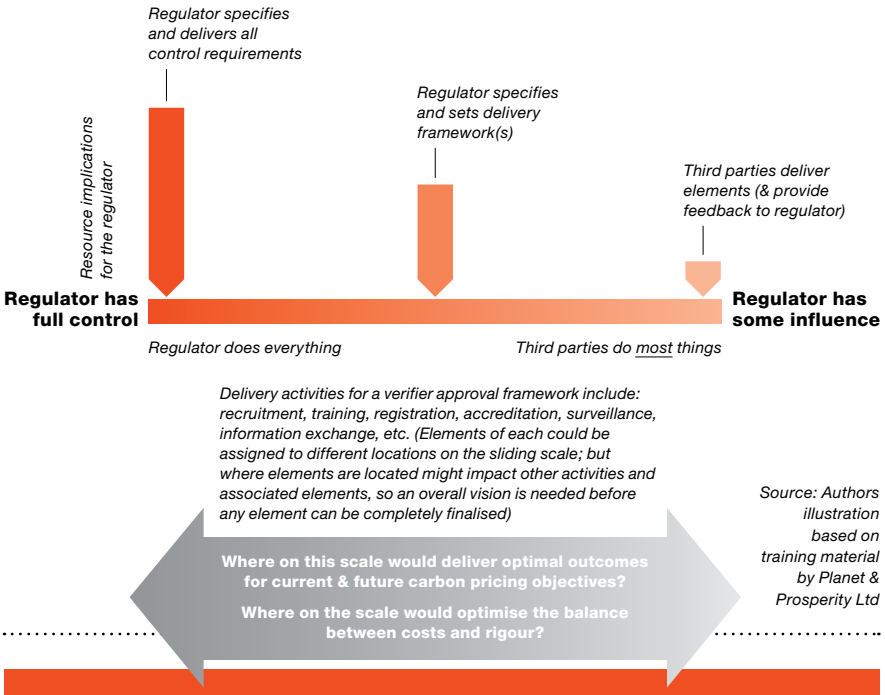
The extent to which the regulator wants to have direct control over the approval process is an important factor in determining design of the approval system. If there are a small number of obligated entities or there are limited resources it may not necessarily be efficient for the regulator to do the approval of the verifier. In order to be able to do so, the regulator needs to set up the system and all processes to assess verifiers and auditors. It needs to find regulatory staff with appropriate competencies and train them to understand the requirements of the CPI. Where the country has an existing accreditation body, it may be more useful to consider appointing that accreditation body as the oversight body for efficiency and effectiveness. In that case, relevant assessment procedures and systems will already be in place, although these may need to be made CPI specific.

Figure 19 shows that a regulator having full control (the left hand side of the diagram) implies it will carry out all activities by itself (e.g., approval, supervision, training, developing frameworks). A regulator relying on other bodies to carry out approval and supervision has less direct control but does not have to conduct all activities itself, reducing the associated resource requirements. Regulators can still have influence over the process through the way in which the V&A system is designed and specific rules that are required to be implemented.[94]

Where the regulator conducts verifier approvals, its personnel may also be responsible for regulating implementation of the CPI (e.g., approving obligated entity monitoring plans, issuing permits, receiving reports, or other requirements); or they may be part of a separate agency or department which gives some independence from the CPI M&R processes. It depends on the country's legal system and other factors, such as available resources and level of ambition. Having separate agencies or departments is better practice as it shows a clear separation of responsibilities and lessens the perception of conflict of interest.

The different options outlined in Table 18 can also be used to develop the system over time. Simpler procedures such as under option 1 may be applied at the early stages of a CPI, developing into more extensive and robust approaches as described in options 2, 3, or 5.

FIGURE 19. **Sliding scale of direct control of governance & delivery of verifier approvals**



Source: Authors illustration based on training material by Planet & Prosperity Ltd

Example

Development over time of the EU ETS

In the first trading period (2005-2007) and second trading period (2008-2012) some countries approved verifiers according to option 1 as European Legislation did not explicitly require verifiers to be accredited. The approval systems in EU countries varied from approval systems according to option 1 and 2 through to accreditation systems under the ISO framework according to international ISO standards. For the third trading period the European Commission developed a regulation on accreditation and verification. Verifiers are required to be accredited by a national accreditation body against EN ISO 14065 and the accreditation and verification regulation in order to carry out verification. The countries that were previously using option 1 either had to:

- Use their existing accreditation body and extend the procedures to EU ETS accreditation;
- Use the accreditation body of another country if they did not have a national accreditation body or did not want to extend the procedures to EU ETS accreditation;
- Only accept verifiers accredited by an accreditation body in another country (usually the case when the country is very small, has no accreditation body and few resources).

Note 94 » *For example, in addition to the oversight body assessing the verifier's processes for assessment of conflict of interest (CoI), the regulator could require that a CoI assessment for each verification be submitted to the regulator for review before work starts.*

11.2 Type of entity doing the approval of the verifiers

The approach selected for approving verifiers determines the type of body to be responsible for approving verifiers. When selecting the method for approving verifiers and therefore choosing the type of entity involved it is important to consider the elements outlined in table 21.

TABLE 21. **Considerations for choosing types of entities for approval**

Issue	Considerations for policy makers
Use existing institutions or create new ones?	• When opting for accreditation of verifiers according to ISO 14065 and where accreditation bodies exist, these existing institutions are likely to be used. • Where resources are limited and policy makers do not want to make the effort to set up new institutions, existing institutions are more likely to be used. Lessons learnt from CPIs show that the use of existing institutions is recommended to keep implementation of the scheme simple and to build on existing expertise and skills. • In some CPIs such as the CDM, or offset mechanisms that are based on CDM rules, the approval system is preset. Existing institutions under CDM are used in that case. • In some CPIs where multiple regulators are responsible for implementing the CPI, policy makers need to decide which institution to appoint as the responsible party approving verifiers, how other regulators will be involved in the V&A system, and whether information exchange lines need to be established or adapted. **Important to note:** • Even where an existing institution is used, it may need to develop or adapt existing procedures and internal rules to accommodate CPI specific issues. Under the EU ETS some countries used their existing accreditation bodies from the start of the CPI (e.g., the UK, Sweden, and Denmark). Rules and procedures needed to be developed. Assessors of the accreditation body had to be trained in EU ETS specific requirements, checklists and documentation that are used during assessments needed to be adjusted to incorporate the CPI specific issues, firm criteria needed to be developed for the assessment, etc.
Should the institutions have public authority?	Regulators have public authority. However, it may be that accreditation bodies and certification bodies are private institutions and may need to be authorised to act with public authority.[95] This can have an effect on the verifier approval process and the rules that may be applicable to the approval and oversight of verifiers. Depending on the legal system of the country concerned, national rules for institutions with public authority can differ from national rules for institutions of a private nature. For example: • Law on public access to information could be applicable to public authorities. • Special rules on appeals to sanctions imposed by accreditation bodies that have public authority can be different from appeal procedures for organisations of a private nature.

11.3 Whether to design a dual approval (registration) system

In some CPIs both the verifiers and each individual auditor need to be approved directly. This is often called 'dual registration'. In this process the oversight body evaluates the processes, documentation and competencies of the verifier as a whole and assesses individual auditors. Assessing individual auditors will be done either by evaluating education and work experience records, conducting formal examinations, and/or assessing their actual performance by witnessing verification activities on site as part of the assessment.

Example

Dual registration systems

In the California ETS both the verifier as a whole and each individual auditor of that verifier that will carry out verification under the ETS must be approved. This means, for the verifier, that their procedures, management systems, and documentation are assessed. For the individual auditors, their performance is assessed in a witness audit on site. They also have to undergo mandatory training and pass an exam.

Note 95 » *For example, the UK Accreditation Service (UKAS) is a not-for-profit private limited company that acts on behalf of the UK government under legislation (The Accreditation Regulations 2009) and a Memorandum of Agreement that recognises it is providing a public authority service. Whereas the Irish National Accreditation Board (INAB) is part of a government agency.*

The approaches vary between countries. In a dual registration system both the verifier and the list of individual auditors are registered as eligible. Sanctions such as suspension and withdrawal of registration can be imposed on the verifiers and/or individual auditors. Section 6.2 describes a system where individual auditors are approved independent of a verifier.

It is important to consider the following as a policy maker:

☑ It is good practice to define clear criteria on the approval of verifiers and individual auditors. Most CPIs that have a dual registration system also have separate sanctions for verifiers and auditors.

11.4 Oversight of the verifier

Once the approval system is in place and verifiers are approved, it is important to monitor and supervise them on an ongoing basis to ensure that they retain the required capability. Policy makers can make different choices on how to organise this supervision of verifiers. A main factor in the design of the supervision is which party is responsible for supervising the verifier: whether it is the same body as the one approving verifiers (the situation in most cases) or a different one. Options for operationalising supervision include:

1. **Review of emission and verification reports**: The regulator responsible for receiving reported data and associated verification reports subjects them to some checks. Technically this is not considered supervision of the verifier as the competence and performance of verifiers is not assessed directly. However, in some CPIs the regulator fully bases their judgment of the quality of the verification as demonstrated through the verification report. This is similar to the review of emission and verification reports documented in section 10.1.

2. **Training and reexamination**: Regular (re)training and examination of individual auditors.

3. **Assessment of updated documentation**: The verifier is required to submit updated documentation on its personnel's education, work experience, impartiality, and so on. The responsible oversight body checks this documentation.

4. **Assessment of internal verification documentation**: Option 3 in the table below together with the review of verifiers' internal documentation, workpapers, and procedures of the verifier (either a selection of audit files or all audit files).

5. **Document review, office visit, and witness audit**: Evaluation of actual performance of a verifier through visiting the offices of the verifier to interview staff and check records, accompanying individual auditors to the site of an obligated entity, and witnessing how they conduct verification. This includes, for example, reviewing plans for the work and witnessing how interviews and inspections are conducted, and reviewing the auditor's documentation of the work after the visit.

TABLE 22. **Options related to supervision and oversight systems**

Option	Considerations for policy makers	
1 **Review of verification reports**	**When would the option be appropriate?** • Usually chosen by countries that do not have many resources or are in the early stages of a CPI. • Can be selected by countries that do not have existing accreditation infrastructure and rely on foreign verifiers. The regulator relies on the supervision of the verifier by the oversight body that has approved that specific foreign verifier. **Examples of application:** In the Swiss ETS scheme the regulator relies on the supervision system of the accreditation body that has accredited a foreign verifier. The Swiss regulator does check the emission report of the obligated entity and the corresponding verification report.	
	Advantages • Additional checks by regulators on the accuracy of data and compliance, low level of resources needed compared to the options below, low implementation costs.	**Disadvantages** • No actual monitoring of the performance and competence of the verifier or of its individual auditors. • It may be difficult for the regulator to evaluate the verifier based on review of reported data and verification report (reporting is usually a short summary and is only one element of the whole verification process). • No proper assessment of verifiers' procedures, documentation, and operation is made in practice.

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(Table 22 continued)

Option	Considerations for policy makers
	Observations: • It is important for the regulator to implement procedures and training on how to check and evaluate data reports. • It is important for the regulator to realise that identifying issues from the review of reports and verification reports is only feasible to a limited extent.
2 **Training and reexamination**	**When would the option be appropriate?** • Usually chosen by countries that do not have many resources, do not have existing accreditation infrastructure, or that are in the early stages of a CPI. • Usually applied if the regulator has also done the approval of verifiers. **Examples of application:** In the Tokyo Cap-and-Trade System the individual auditors undergo regular training and reexamination to ensure their continued competence.
	Advantages • May be less costly in terms of implementation and resources than option 5.
	Disadvantages • Only likely to cover updated information (e.g., rules changes, etc.), not skills and competence. • The competence of the verifier as an organisation cannot be tested. Only the competence of the individual auditors will be checked. It is important that the application of skills and knowledge of an auditor is also tested. • It is difficult to test competence in examinations, in particular if those examinations are based on basic training or basic questions not covering verification in practice by development of, for example, practical case studies. • No proper assessment of verifiers' procedures, documentation, and operation in practice.
	Observations: • See section 9.2 on approaches for training. • It is good practice that training and exams do not only focus on theory but also test the practical application of theory using case studies and examples. • Clear instructions or requirements on the frequency of training, reexamination, and consequences if an auditor does not pass the exam are important.
3 **Assessment of updated documentation**	**When would the option be appropriate?** • Usually in combination with option 2, although there are CPIs where only option 3 is implemented. • Usually done if the regulator is also doing the approval of verifiers. **Examples of application:** • The Australian Emission Reduction Fund uses individual auditors from the financial accountancy world. Auditors have to submit documentation to the regulator which checks the documentation for completeness and whether they meet the eligibility criteria laid down in legislation.
	Advantages • Low resources needed, low implementation costs
	Disadvantages • It may be difficult to assess the competence of individual auditors and verifier based only on documentation of individuals. • No proper assessment of verifiers' procedures, documentation, and operation in practice.

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(Table 22 continued)

Option	Considerations for policy makers
	Observations: • Clear eligibility criteria for verifiers and auditors based on which the regulator checks updated documentation are important: e.g., the auditor must have appropriate kind and appropriate period of experience of auditing and preparing audit reports. Clear requirements in legislation on the frequency with which updated documentation must be submitted to the regulator and what type of documentation must be submitted. • Clear requirements need to be formulated on consequences if the evaluation shows that the verifier or auditor no longer meets the eligibility criteria. This includes rules on sanctions. • A checklist and other tools may help the regulator to check the documentation.
4 **Assessment of internal verification documentation**	**When would the option be appropriate?** • Applied in countries where the regulator approves the verifier and that regulator has the resources and competencies to check internal verification work papers/documentation. This can be done for a sample of the documentation. Accreditation bodies will also take this approach. • Countries where the regulator approves the verifier but does not monitor the verifier's performance on the obligated entity's site. The regulator wants to have a higher confidence and control over the quality of the verification. **Examples of application:** In the Chinese pilot schemes experts were hired by provincial authorities to check the verifier's internal verification documentation. These experts were often other verifiers or professional institutes.
	Advantages • Better overview of the quality of verification through review of internal verification documentation as this will cover all elements of the work and the rationale for selecting what to test and the outcome of tests. It also includes documenting the type of evidence obtained as the basis for conclusions.
	Disadvantages • It may be difficult to assess the verifier only based on documentation associated with an individual auditor's verification work. • No proper assessment of verifiers' procedures, documentation, and operation in practice; unless combined with a review of records associated with the application of verifier processes (e.g., competence assessment, costing of verifications, technical review). • Oversight body will have to go to the verifier's offices to review work papers as they are likely to be bound by a client confidentiality arrangement and cannot be copied. This is usually included in the contract with the obligated entity.
	Observations: • See option 3, though the detail of the requirements can differ because the review of internal working papers is different from assessing updated documentation under option 3. • A checklist, other tools, and IT systems may help the regulator to check documentation.
5 **Document review, office visit, and witness audit**	**When would the option be appropriate?** • Required in CDM accreditation under the UNFCCC framework. • Required in accreditation according to ISO 14065. • Required in certification using ISO processes. • Can be applied in approval systems where the regulator approves the verifier by assessing actual performance of individual auditors in witness audits such as in California ETS. This is usually the case where countries have larger resources and prefer a high level of direct control over quality of verifiers. **Examples of application:** Any programme that established an ISO accreditation scheme, such as EU ETS and Canada (Ontario, Quebec, British Columbia). In Japan's joint crediting mechanism, a verifier accredited according to ISO 14065 is accepted as a verifier for the JCM. However, the Joint Committee does not rely solely on the supervision of the verifier's accreditation body. The Joint Committee can still carry out document review and on-site assessment of those verifiers that are carrying out validation and verification under the JCM. In the Californian ETS the regulator supervises the verifier and checks whether the verifiers and its auditors continue to meet requirements. Some CPIs are in the process of implementing such a system: South Africa (planned); Korea (in transition); Kazakhstan (in transition).

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(Table 22 continued)

Option	Considerations for policy makers	
	Advantages • Robust accreditation scheme, use of international standards which makes it easy to link with other CPIs subject to the same requirements. • Actual performance of the verifier and its personnel is monitored based on set criteria, through inspections, record checks, and witnessing. • Required in some cases by international or regional law (e.g., the EU). • Less cost and resources needed for regulators if accreditation or certification is applied.	**Disadvantages** • For accreditation and certification there may be less direct control by the regulator over the process of monitoring and supervising verifiers than if the regulator is doing it personally. However, the regulator can influence the process through specific domestic requirements and information exchange with the accreditation body. • Time and cost funding may be needed to bring accreditation assessors up to speed on CPI specific elements (e.g., the M&R and V&A rules).
	Observations: • It is important to have clear CPI specific requirements on areas where the international standards leave room for interpretation or where more specification is needed. • Oversight bodies should ensure that they have the competence and experience to assess the design and implementation of verifiers' procedures and processes, as well as the competence to evaluate auditors' work in practice.	

The extent to which the regulator wants to have direct control over the ongoing supervision of verifiers is an important factor in determining the design of the system. As with the approval process outlined in the previous section, ongoing supervision normally needs to be done by the same party that approves the verifiers. The reason for this is that the oversight body needs to gather evidence of whether the approval can be maintained and retained. Technically the supervision task could be outsourced, in particular if there is no ISO framework, but this is not always efficient unless there are good protocols for information exchange.

Approval and supervision are not always conducted by the same party (for example, in countries that have multiple regulators covering different regions). In such a case it could be that the party approving verifiers may rely on regional/local authorities to support the monitoring of verifier performance. If this is the case, it is good practice for policy makers to consider clear rules in legislation on the responsibilities of the different parties involved and formal information exchange (for example, which party is allowed to impose sanctions and what information to exchange).

Where the accreditation scheme is to be based on ISO standards, certain aspects for the supervision of verifiers are already defined in international standards (for example, the requirement to check the implementation of verifier procedures, processes, and records at the verifier's premises and the witnessing of individual auditors).

It is noted that the system can evolve over time from a basic oversight system using document review to a scheme that adopts international standards where the actual performance and competence of verifiers are assessed.

11.5 Type of rules to regulate approval and supervisions of verifiers

Domestic legislation

The oversight structure needs to be embedded in a strong legislative framework to ensure approval and supervision are carried out in accordance with the rules and that there is sufficient legal basis for imposing sanctions by the oversight body on a verifier. Usually the rules for the verification system are developed in the same type of legislation as the rules for the approval and supervision of verifiers. This means decisions on what to include in the primary and secondary (delegated) legislation can be taken at the same time as when the verification rules are drafted.

The type of rules selected will have an influence on how the system is designed and vice versa. When understanding the design and making choices, it is therefore important to assess which types of rules are appropriate. Figure 9 in section 6.4 shows that the application of international standards predefines certain choices to be made in the core requirements for approval and supervision of verifiers for a domestic CPI.

A key factor determining the type of rules is the legal system of the implementing country. Lessons learnt indicate that it is important to include requirements for approval and supervision of verifiers in mandatory rules so that these requirements can be enforced if verifiers or oversight bodies do not comply with the legislation.

Application of internationally recognised standards

The same considerations on the application of international standards for verification and their use in domestic context can be made for international standards that are applicable to oversight bodies. Section 6.4 is thus also applicable to the approval and supervision system. Annex 5 outlines examples of these international standards: one of which is ISO 17011 and relevant guidance from the International Accreditation Forum (IAF). As with ISO 14065, ISO 17011 contains general requirements that are not tailored to any specific CPI.

This means that it is necessary to include programme specific requirements in relation to concepts and specific procedures for approval and supervision where the international standard leaves choices or where CPI specific requirements are more relevant. CPI specific requirements could, for example, include requirements on the length of validity of the accreditation certificate, specific competence, and impartiality requirements.

Example

Provisions in ISO 17011

ISO 17011 provides a choice between reassessment alone, in which case reassessment should take place every two years, or a combination of reassessment and surveillance. In the latter case the reassessment should take place at least every five years, and the period between surveillance on-site assessments should not exceed two years.

CPI specific requirements in EU ETS

For the EU ETS, harmonised standard EN ISO 17011 is prescribed in the EC's regulation on accreditation and verification. Article 49 of the Accreditation and Verification Regulation (AVR) requires the national accreditation body to carry out annual surveillance for EU ETS verifiers. Furthermore, the accreditation certificate of a verifier is valid for a period not exceeding five years after the date on which the certificate is issued (Article 48(2) AVR). Before the accreditation certificate expires the national accreditation body must carry out a full reassessment of the verifier according to Article 49 AVR.

12 STEP A2

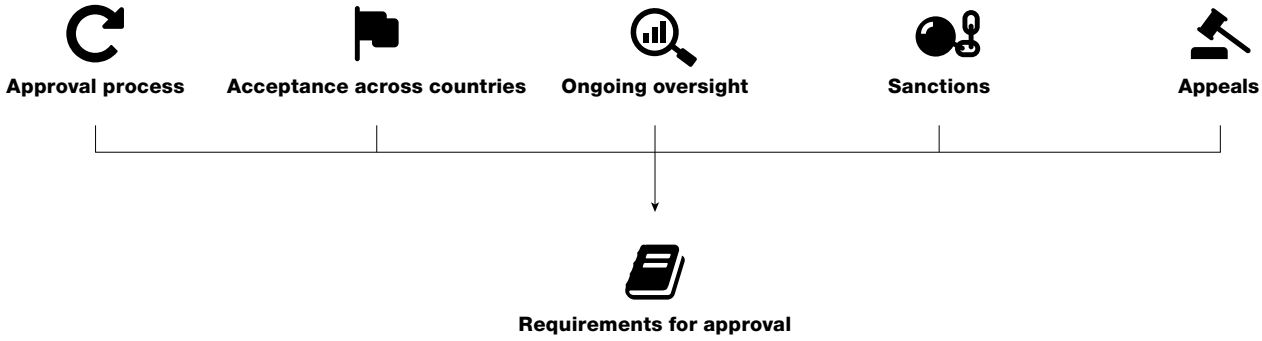
Designing requirements for approval

Policy makers need to be familiar with the concepts and processes of the approval and oversight of verifiers and/or auditors. Although there are commonalities in basic principles and requirements for approving and supervising verifiers for CPIs around the world, there are differences in the detail of approaches and choices that can be made from the options available. In particular, choices can be made related to the following concepts:

- **Approval process**: Within the approval process, there are different elements that require decisions:
  - **Sector scopes**: Scope of approval – this is very much influenced by the sectors covered by the selected CPI;
  - **Eligibility**: Specific eligibility criteria for verifiers before they can submit an application for approval;
  - **Activities**: How the steps in the approval process are carried out;
- **Acceptance across countries**: Whether to accept verifiers from other CPI or other countries;
- **Ongoing oversight**: How the steps in the oversight process are carried out.
- **Sanctions**: Specific sanctions, and infringements for which sanctions can be imposed.
- **Appeals**: How appeal procedures are set-up.

The differences and options are explained in the steps and sections below.

FIGURE 20. **Defining requirements for an approval system**



Source: authors

12.1 Activities in the approval and oversight process

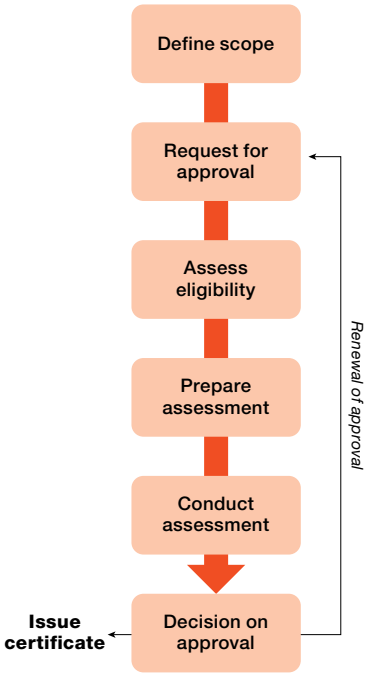
The approval process consists of several steps that are interconnected and interdependent. Although the basic steps are largely the same in most CPIs, the type of approval process affects the specifics of the various steps and the precise activities to be carried out in the process.

Define scope of approval

Where CPIs cover several different sectors, these sectors represent different technical scopes for which verifiers may need to be approved. In most CPIs verifiers have to be approved for each sector scope in which that verifier wants to carry out verification. In CDM the designated operational entity must be accredited in the sectoral scope of the methodologies applied by the project activity or the PoA. Similar approaches apply in other domestic offset mechanisms and in the voluntary mechanisms.[96]

☑ When designing the V&A system of a CPI it is good practice to include different scopes of approval. This prevents a verifier that is only knowledgeable and experienced in the verification of one specific sector from doing work in another sector, requiring different background and expertise. Approval for a specific scope of activities means that the verifier only has a 'licence' to carry out verification in that sector. If the verifier wants to carry out verification in more than one sector, it must get separate approval for each of these sector scopes individually.

FIGURE 21. **Activities in the approval process**



Source: authors

Separate approval for specific scopes is important because the verification of, for example, a combustion installation requires different competence and expertise than verifying data from a landfill site or activities in the forestry sector. If CPIs use scopes in approval, specific competence requirements are defined for each scope.

Submitting a request for approval to the body approving verifiers

Each approval process starts with a request for approval by the verifier. In some CPIs eligibility criteria are defined in legislation (e.g, verifiers need to be established in a specific country or region to be able to submit a request for approval,[97] individual auditors may need to have a certain number of years of relevant experience or a specific education). The specific requirements depend on the CPI and how the approval system is designed.

When submitting a request for approval the verifier will need to provide certain documentation and evidence which usually includes:

- General data and information on the verifier: for example, contact details, activities, and relationships in a larger corporate entity;
- A statement on which scope of activities/sectors the verifier is seeking approval;
- Evidence of the competence and impartiality of individual auditors as well as other personnel that are key to the overall verification process (such as technical experts or independent reviewers);

Example

EU ETS requirements for requests for approval

Accreditation and Verification Regulation Article 45 states that the request for approval shall include at least:

- Information requested by the accreditation body and information required by ISO 17011
- Procedures and information on processes and management systems
- Competence criteria, results of competence process, and information on the process for ensuring continued competence
- Records on competence and impartiality, and the process for ensuring continued impartiality
- Information on technical experts and key personnel involved in the verification
- System and process for ensuring appropriate internal verification documentation.

Note 96 » *Under the Voluntary Carbon Standard verifiers must be approved for the scope of the methodologies that apply for a project. When the methodology falls under more than one technical area/sectoral scope, then the approval must cover all relevant scopes.*

Note 97 » *Tokyo Cap-and-Trade System.*

- Information on quality controls, including management systems and procedures/processes;
- Other relevant records (for example, information on contracted personnel and information on changes to procedures);
- Other information that is relevant to assessing the competence and experience of the verifier and its personnel involved in verification activities.

☑ It is good practice to outline in legislation the required documentation that the verifier must submit with its application for approval. The precise CPI specific requirements will depend on the legal system, the approval process, and how the verifier is assessed by the body responsible for approving verifiers. Where the actual performance is evaluated by the oversight body, additional documentation may be needed compared to situations where competence is assessed based only on education records and work history.

☑ Where the CDM accreditation standard or ISO 17011 is applicable, requirements are included in those standards. However, further programme specific requirements will be necessary.

Assessing the eligibility of the verifier

The body responsible for approving the verifier will review the application and associated documentation. A checklist for evaluation of the application can support the assessment process. In general, the oversight body will check the completeness of information and documentation and see whether eligibility criteria have been met, for example, by checking whether education and competence records meet the requirements. It should be possible for an oversight body to request further documentation from the applicant verifier if there are gaps in the information or issues need to be clarified.

☑ It is good practice to use checklists for evaluation of applications; these should include minimum eligibility criteria. It is good practice to include in legislation the option to request further documentation from the applicant.

Preparation for assessment

In a formal accreditation process under the ISO framework this step is specifically outlined in ISO 17011. The accreditation body develops an assessment plan which outlines the activities planned for assessing the verifier, the selection of a competent and impartial assessment team, as well as the sample of procedures/elements to check.

Where the regulator approves verifiers based on examinations or review of documentation (see option 1 in Table 20 of section 11.1), this preparation step consists of different and more basic activities (for example, preparing exams and preparing to review documentation for verifiers as a whole as well as for individual auditors). In this case, the actual performance of individual auditors is not assessed and no formal assessment team is necessarily established.

Where the oversight body assesses the actual performance and competence of the verifier, it usually prepares an assessment plan. When preparing such a plan, the oversight body will consider the complexity of the scope of activities for which approval is sought, the complexity of procedures, and geographical areas. The more complex the procedures are, the more extensive the assessment plan will be.

Assessment

How the assessment is done, again, depends on the type of approval process. In a process that is focused on examination of individual auditors[98] or a review of work experience, education, and competence records (see option 1 in Table 20 of section 11.1), the assessment is straightforward:

- Where examination is used for assessment, this involves testing whether individual auditors are knowledgeable about the CPI specific elements as well as auditing techniques. It is good practice to arrange for (mandatory) training before examinations are held.
- Where the assessment involves checking whether documentation submitted by the verifier meets the eligibility criteria and requirements, the assessment is done based on the documents submitted.

An assessment that includes evaluation of the verifier's and auditor's performance and competence in actual practice (such as the case in option 2, 3, 4, and 5 in Table 20 of section 11.1) requires a more detailed approach. In general, it will consist of a number of different parts:

- **Review of documentation submitted by the verifier (desk review)**: this concerns documentation that is submitted together with the application for approval. The oversight body will check the documentation against the CPI specific requirements;
- **Visit to the verifier's premises**: to assess the verifier's procedures, management system, internal records, and documentation (for both design and implementation).
- **Witness audit**: accompanying an auditor during the site visit to an obligated entity whose report is being verified. The oversight body will check the auditor's performance and competence against the requirements

Note 98 » *Employed or subcontracted by the verifier.*

and specific sector scope for which approval has been requested. A witness audit will allow the regulator or accreditation body doing the approval to see how the verifier and its (lead) auditors are carrying out specific verification activities (for example, how they do data sampling and how they assess the monitoring equipment of an obligated entity). Assessments will usually be done by an assessment team checking whether the verifier and its auditors, lead auditors, and experts are meeting requirements and are competent. It depends on the set-up of the system as to what level of detail these steps will be conducted, what checks will be carried out, and how these checks will be done.

In some cases, it will not be possible to review all procedures and documents, which means some type of sampling will be applied. Where accreditation is done according to the ISO 17011 framework, certification or CDM accreditation is prescribed for the V&A system in a CPI, specific guidance[99] is available to help accreditation bodies, certification bodies, or other bodies determine how a representative sample of documentation to be checked can be taken and what these bodies should consider in the assessment.

Decision on approval

A positive decision on the approval of a verifier is taken when the oversight body has obtained sufficient evidence that the verifier is competent and meeting requirements. Usually the persons or institutions taking the decision on whether or not to grant approval are not the ones that were involved in the actual assessment of the verifier. Those persons and institutions take the decision based on recommendations of the assessment team.[100] Where ISO 17011 for accreditation or ISO 17024 for personnel certification is prescribed, the decision must be taken by an individual person not involved in the assessment.

In accreditation or approval in specific programmes such as the CDM[101] and the voluntary carbon standard specific procedures on decisions for approval apply as specific institutions are responsible for approving verifiers. What decision-making procedures apply depends on the specific CPI that is applicable.

If the decision is to grant the verifier approval, the oversight body issues the verifier with a certificate or an authorisation. In an accreditation or personnel certification system the content of the certificate is outlined in standards[102] or legislation. In general, it contains the name and logo of the accreditation or certification body that issued the certificate, confirmation on whether that verifier meets the requirements, the scope for which accreditation or certification is issued, standards that have been applied in the accreditation or certification, and the date of issue and expiry of the certificate.

This information is also available in public databases of the relevant accreditation or personnel certification body.[103] Where the verifier is approved by a regulator or where the regulator accepts verifiers from other countries or CPIs, the verifier is put on a list of verifiers approved for the CPI and eligible to carry out verification. This list is usually published on the website of the regulator. This is also the case where the general approval process is done by an oversight body but the regulator maintains the approved list.

☑ It is good practice that the validity of the approval certificate is time limited and that the verifier must undergo regular reapproval. This is one of the measures to ensure continued competence and compliance of the verifier with the standards and legislation.

In accreditation or personnel certification, the time period for the validity of the certificate varies, but generally it ranges from three[104] to five years, although there are CPIs with longer validity periods.[105] Lessons learnt in various CPI show that V&A systems with an unlimited validity period for the certificate can cause problems as the competence of the verifier is not regularly checked. If standards such as ISO 17011 or ISO 17024 are applicable to the approval process, the certificate must have a limited validity.

Renewal of verifier approval

It is good practice to renew the verifier's approval licence/certificate on a regular basis following a full reassessment of documentation, internal procedures and processes, quality management systems, and the actual performance of a verifier and its auditors. In such a reapproval process similar steps are taken as in the initial approval process. Where the

☑ It is good practice to carry out reapproval before the verifier's approval 'licence'/certificate expires, although this is not required in all CPIs. For some, reapproval takes place after expiration. The disadvantage of such a process is that the verifier cannot demonstrate approval in the period between expiration of the 'licence'/ certificate and reapproval which can cause complications for contracts and verification activities.

Note 99 » *This is usually available from the International Accreditation Forum, regional accreditation organisations, or the CDM's website.*

Note 100 » *For CDM this is the accreditation panel.*

Note 101 » *The CDM Board will take the decision on whether or not to grant the approval based on the report of the team compiled by the accreditation panel that actually assessed the verifier.*

Note 102 » *ISO 17011 and ISO 17024.*

Note 103 » *For EU ETS the websites and databases of the accreditation bodies can be found by accessing the following link: https://european-accreditation.org/national-accreditation-bodies-having-successfully-undergone-peer-evaluation-by-ea/*

Note 104 » *For CDM the validity of the certificate is three years after the date of designation by the relevant decision-making bodies of the UNFCCC. For accreditation and certification scheme under the ISO framework the possible validity periods are mentioned in the ISO standards.*

Note 105 » *In the Australian Reduction Fund the validity of the certificate is indefinite unless it is withdrawn.*

approval was based on examination and assessment of documentation, this means resubmission of documentation and reexamination. For the other options for approving verifiers requiring assessment of the actual performance of verifiers, this means a combination of document review, visits to the verifier's office to check out procedures, and witness audits. Section 11.1 provides more information on the different choices.

A reapproval is thus more comprehensive than surveillance as described in section 12.3. The verifier has to submit the same type of documentation to the oversight body as is done in the initial approval process, including any changes that have occurred since the approval of the verifier.

Extension of scope

Where the verifier wants to carry out verification in a sector for which it does not yet have an approval, the verifier must submit an application to extend the scope of approval. Usually some efficiency can be gained since internal procedures will already have been evaluated in the original approval process and during ongoing surveillance of the verifier (where applicable).

The extension assessment will thus focus on those issues that are specific to the additional sector scope being requested, including: competence records, actual competence of individual auditors operating in that sector, technical knowledge and experience of the sector, and so on. However, if it appears that the verifier is struggling to meet the requirements of the scope(s) for which it is already approved, this should be taken into account in the assessment on whether scope can be extended to another sector.

12.2 Acceptance of verifiers across borders

In some CPIs verifiers from other regions, countries, or other CPIs are accepted as eligible verifiers. Section 9.2 identifies some of the key issues that a policy maker should consider when accepting verifiers across borders. Table 23 presents good practice identified in different CPIs that accept foreign verifiers and through these practices show how key issues can be addressed.

TABLE 23. **Good practice concerning acceptance of verifiers across borders**

Key issues	Good practice
Informing verifiers about domestic rules and requirements	**For the regulator:** The regulator should inform the verifier about domestic and CPI specific rules and requirements. This can be done on its website, through documentation from the regulator, or through training activities. For some CPIs a separate registration and notification process is implemented so that the regulator knows a foreign verifier is proactively in the country and can actively inform the verifier of domestic rules and requirements. This, for example, is the case in Switzerland for the domestic offset mechanism and the ETS, as well as for the Japanese Joint Crediting Mechanism. It depends on the legal system of a country what procedures are most appropriate for informing verifiers. In any case, it is important for the verifier to be aware that it must use the domestic rules and requirements as one of its verification criteria. The verifier takes these criteria into account in checking compliance of the obligated entity and the accuracy of the data. In general, domestic rules and requirements will need to be listed as the verification criteria in the verification report. It is good practice for the regulator to include requirements on the content of the verification report in the legislation and to prescribe a template. This will facilitate harmonised reporting between verifiers.
Measures to support compliance with national requirements	In most CPIs verification activities and resulting verification reports have to be delivered in the national (or regional) language. Foreign verifiers can meet this requirement by involving a technical translator/interpreter as a technical expert on the team and ensuring communication and reporting are in the relevant language. In most CPIs that accept foreign verifiers this is allowed. It is important for the regulator to be aware that a foreign verifier can take such measures.
Differentiating between foreign and national verifier	It is good practice for a foreign verifier to meet the same competence requirements as national verifiers. This also applies to other requirements such as impartiality, procedures, and requirements on the verification itself. In the EU ETS this is regulated in legislation. Verifiers from an EU country that want to carry out verification in another EU country must meet the same requirements. This is an important point to consider for a regulator, in particular if both national and foreign verifiers are active in a country.

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(Table 23 continued)

Key issues	Good practice
Supervision of foreign verifiers	Regulators may want to keep a close eye on the quality of verification carried out by foreign verifiers. This can be done in the review of reported data but also through additional supervision. With foreign verifiers or verifiers from different CPIs the problem is that another oversight body has approved that verifier. The regulator of the country in which those foreign verifiers are carrying out work may have not only the verifier to deal with but also the foreign oversight body that has approved that verifier. Several approaches are applicable with respect to the supervision of such verifiers: **Accepting foreign verifiers without a separate registration or acceptance process:** • Where it concerns a verifier accredited by an ISO accreditation body, that accreditation body remains the responsible party for supervising the verifier. Two options are available: – The country in which the verifier is carrying out verification has an accreditation body: the foreign accreditation body that has accredited the verifier can ask the domestic accreditation body of the country where the verifier is carrying out work to perform some of the supervision activities: e.g., performing a witness audit (see section 11.4). The latter domestic accreditation body would report back to the foreign accreditation body which will then be the responsible party for further assessment, taking decisions, and, if applicable, imposing sanctions.[106] – The country in which the verifier is carrying out work has no accreditation body or that body is not used as a verifier oversight body for the CPI: the regulator can take measures itself to monitor the performance of the verifier when it is conducting verification activities locally.[107] • Where it concerns a verifier approved in another CPI, such as CDM verifiers, that oversight system is applicable. However the regulator can take measures itself to monitor the performance of the verifier.[108] **Accepting foreign verifiers with a separate national registration or acceptance process** • The regulator can select different options: – The regulator can decide to take additional measures to monitor the performance of the verifier when it is conducting activities locally. These supervision activities may be similar as for domestic verifiers (e.g., requiring foreign verifiers to participate in training or do examinations, evaluating documentation of all verifiers). However, this is not necessarily the case if the regulator, for example, decides to rely partly on the oversight body from the other country or CPI that has approved the verifier. – The oversight body appointed to normally supervise verifiers in the CPI can rely on the original oversight body that approved the foreign verifier for the other CPI and make arrangements with that body for updated information (e.g., on any sanctions). – The domestic oversight body can arrange to supervise the activities of those verifiers on the ground and report back to the original approval body, which has the right to impose sanctions when complaints are made about a verifier's performance.
Confirming that the foreign verifier is accredited or meets other eligibility criteria	In some CPIs foreign verifiers have to register with the regulator which does a check on whether the verifier meets all eligibility criteria.[109] In other CPIs, verifiers have to notify the regulator or the original approval body of their planned verifications. In those cases they will usually have to show the formal approval certificate. This certificate shows for what sector scope the verifier is approved and for how long the certificate of approval is valid.

Note 106 » *Where these accreditation parties are part of the IAF framework and regional authorities, specific guidance and rules are applicable. In EU ETS there is mutual acceptance of verifiers.*

Note 107 » *In European countries that do not have an accreditation body or do not use it for EU ETS accreditation, regulators review emission reports of obligated entities (option 2 or 3 in section 10.1). In some of these countries the regulators also join the accreditation body in a witness audit.*

Note 108 » *In the Japanese Joint Crediting Mechanism the Joint Committee can monitor the performance of verifiers by carrying out on-site visits.*

Note 109 » *Tokyo Cap-and-Trade System and Japanese Joint Crediting Mechanism.*

12.3 Periodic ongoing surveillance and oversight of verifiers

As outlined in section 11.4 there are different forms of supervision of verifiers. Table 24 shows some examples of what to consider when designing supervision and oversight of verifiers for the different options.

TABLE 24. **Surveillance and oversight of verifiers**

Options	What to consider
Review of reported data and verification reports	• As described in section 11.4 this option is limited in terms of supervision as it does not allow proper assessment of the performance of a verifier and its auditors in practice. • Decisions need to be made on what checks to carry out on reports, how to carry out checks, whether to check all reports or only a selection, where a selection is made, and what approach is used to select reports for review.
Regular training and reexamination	• Decisions need to be made on the frequency with which individual auditors are reexamined, what to cover in the exams and how exams are prepared, and how to test competence of auditors effectively. • Section 9.2 provides information on what type of training can be organised. It is good practice to arrange for practical training (e.g., through case studies or field visits) in order to test the competence of the verifier's auditors in the field.
Document review based on evidence of work experience, education records, and other relevant information from the request for approval	• Decisions need to be made on the frequency with which documentation is checked and what documentation is to be provided to the oversight body or regulator on a regular basis (e.g., education records, work experience, evidence that eligibility criteria have been met). It depends on the CPI specific requirements what checks need to be carried out on documentation to confirm eligibility and competence.[110] • Clear specifications and criteria are needed on eligibility, competence, and impartiality. These need to be laid down in legislation to ensure enforceability. • Development of checklist(s) could be useful to support harmonised document review by different oversight body staff.
Document review based on evidence submitted and internal verification work papers	• Decisions need to be made on the frequency with which documentation and the verifier's internal verification work papers are checked.[111] • Checking every verifier's total set of internal verification work papers is unlikely to be feasible. This means a selection may need to be made; so decisions will be needed on the sample to be selected, the approach to selection, and how to take a representative sample of documentation. A risk-based approach is generally considered good practice. Key factors in a risk-based approach could include findings from previous document review, changes in key personnel and procedures, whether noncompliance has been detected, risks and complexity of verification activities, and adequacy of the verifier's internal competence and impartiality processes. • Every element in internal verification work papers should be checked over time: competence evaluations, time allocations, completeness of verifications (including whether misstatements and noncompliance issues have been closed out), whether verification opinion statements are based on sufficient (and robust) evidence, etc. It is noted that it is likely to be difficult to check such documentation without a visit to the verifier's office to actually see processes and procedures implemented and to interview personnel. • Where such a visit is not possible, it is essential to ensure that all documentation an oversight body needs to assess can be submitted to the oversight body without breaking confidentiality arrangements. However, the disadvantage of this option is that it is unlikely that verifier will submit copies of work papers to the oversight body because these may contain confidential or proprietary information and once in the hands of a public authority may become subject to freedom of information requests. This means that verifiers will put less information into documents and will not retain evidence that could be considered confidential leading to incomplete work papers. It is therefore good practice to include specific requirements in legislation related to internal verification documentation (see section 7.4 step 11 for further information). • Development of checklist(s) to support harmonised document review and review of internal verification work papers by different oversight body staff.

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Note 110 » *In New Zealand individual auditors are monitored through periodic review of documentation by the Environmental Protection Agency. For that reason the verifier must ensure that reliable, accurate, and complete documentation is kept. This documentation not only includes evidence on the specific verification engagements but also on whether the verification is carried out in accordance with requirements. The documentation must be made available to the EPA for performance assessments, and the EPA does detailed checks on the documentation.*

Note 111 » *Note, these are often confidential internal documents, which means that checks need to be made at the verifier's offices as they cannot release copies without breaking confidentiality requirements.*

(Table 24 continued)

Options	What to consider
Evaluation of verifiers' and auditors' performance through document review, verifier's office visit, and witness audit	• Clear criteria are needed on what elements to check during the document review, verifier's office visit, and witness audit. • Evaluation of the actual performance is an assessment by the assessment team based on individual circumstances. However, there are general principles and requirements applicable, in particular if international standards are applied. • It depends on the individual risks and circumstances what locations are visited during the verifier's office visit and witness audit. Taking a representative sample of procedures/processes and documentation to be checked is dependent on certain risk-based factors, including findings from previous document review, changes in key personnel and procedures, whether noncompliance has been detected before, risks and complexity of the verification activities, adequacy of competence and impartiality processes. Similar factors are taken into account when assessing which (lead) auditors and other verifier personnel – and which activities of those persons – are evaluated. In a dual registration system or a system that approves individual auditors, all auditors will be evaluated. If there is no dual system, auditors are assessed not only as part of checks on the verifier's own competence management process but also in the supervision of the verifiers by the oversight body. However, the oversight body may decide to focus its attention on particular auditors and assess a representative number of them during each visit, so that all of them are assessed over the cycle of approval during supervision activities. Standards such as ISO 17011 as well as CDM rules[112] prescribe some of these steps in detail.

A key element in all of the options is the **frequency of oversight**. If ISO 17011 is applicable then the policy maker can choose between the two options that are listed in the standard. Usually this option is further defined in legislation. With other options for supervision the frequency varies between CPIs. It is not always predefined in legislation and in some cases is dependent on circumstances.

During the surveillance assessment the oversight body assessor analyses evidence obtained and information collected during the assessment. If it finds noncompliance with requirements during the assessment, these need to be corrected by the verifier and can then be closed. How this process is carried out will depend on the applicable option.

Where noncompliance issues are not corrected, further investigation is done by the oversight body and follow-up of outstanding issue(s) is required. This could mean further investigation or ultimately imposing sanctions. It is essential for ongoing surveillance to document all actions taken, evidence collected, as well as findings.

In addition, an assessment can be initiated based on the need to investigate a complaint made about the verifier, an appeal against a verifier's conclusions, significant changes in the verifier's organisation, follow-up of corrective action, or negative information received from the public.

☑ It is recommended for the regulator to specify the frequency of surveillance in legislation or to clearly define this in guidance.

12.4 Sanctions

There are some sanctions that are universal for any V&A system, such as suspension and withdrawal of the 'licence'/certificate. The table below explains possible sanctions that can be imposed on verifiers. The infringements against which sanctions can be imposed vary between countries and CPIs, but again there are some commonalities to be found.

Note 112 » *Procedure for accrediting operational entities by the CDM Executive Board.*

TABLE 25. **Type of sanctions**

Sanction	Further information
Suspension	**What is suspension?** The verifier's approval is maintained but the verifier is temporarily not allowed to carry out verification activities in full or for part of the scope of approval. After termination of the suspension the verifier is again allowed to carry out verification. In a dual registration system suspension can also be imposed on individual auditors. **For which infringements can suspension be imposed?** This varies depending on the CPI although there are some commonalities. In general, suspension is imposed where the verifier has committed a serious breach of the requirements, where the verifier has persistently failed to meet requirements, where the verifier has leaked confidential information, etc. **Procedure for imposing suspension** The oversight body takes the decision to suspend the verifier and informs the verifier. The oversight body will be clear on what corrective action the verifier must take to address the issue and get the suspension lifted. Usually a time period is defined within which the issue must be addressed. It is normal for a suspension to be made public so that obligated entities are aware of verifiers they may not use. **Consequence of suspension** The verifier cannot carry out verification. If the suspension is imposed during a specific verification, the obligated entity whose report is being verified must find another verifier or wait until the suspension is lifted for the work to be completed. The latter possibility will likely not be possible where the deadlines for submitting verified reported data are tight.
Withdrawal of the certificate or registration	**What is a withdrawal of certificate or registration?** The approval is canceled in full which means that the verifier loses its 'licence to operate' and cannot carry out any verification activities. In a dual registration system this sanction can also be imposed on individual auditors. **For which infringements can withdrawal of the certificate be imposed?** This varies depending on the CPI although there are some commonalities. In general, withdrawal is imposed where the verifier has failed to remedy the grounds for suspension, committed fraud, intentionally provided false information, or released confidential information without authorisation. **Procedure for withdrawing the certificate or registration** The oversight body takes the decision to withdraw the 'licence'/certificate or registration and informs the verifier of the decision. It is normal for a withdrawn approval to be notified in public so that obligated entities are aware of verifiers they cannot use. **Consequence of withdrawal of the certificate or registration** The verifier loses its 'licence'/certificate to carry out verification and has to submit a new application for approval if it wants to carry out verification in the future. Where such a sanction is imposed on the verifier during verification of an obligated entity's report, the obligated entity must find another verifier to obtain an acceptable verified report. Depending on the rules, the regulator responsible for receiving a report can in that case determine the reportable data itself by inspection or conservative[113] estimation from relevant data; or it can order the obligated entity to have its data verified by another verifier or institution. This usually means that the verification will need to start again from the beginning as the new verifier will not have the information and evidence from the original verification, nor would it place reliance on another verifier's work, especially if that verifier has had its approval withdrawn. Regulators should be aware that reports from obligated entities that have been verified by verifiers whose approval has been withdrawn after the verified reported data have been officially submitted to the regulator could warrant some additional review.
Reduction of scope	**What is a reduction of scope?** The approval is canceled for part of the scope which means that the verifier loses its 'licence'/certificate to operate in a particular sector scope but maintains the approval in other scopes for which it has approval. In a dual registration system such a sanction can be imposed on individual auditors. This sanction does not appear in all CPIs but it could be effective where CPIs have different sector scopes of approval.

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Note 113 » *For baselines this means an underestimate (especially where baselines are used as the basis of allowances for trading or crediting); and for annual data this means overstating.*

(Table 25 continued)

Sanction	Further information
	For which infringements can reduction of scope be imposed? This varies depending on the CPI, though there are some commonalities. In general, a reduction of scope is imposed when the infringements are specific to the sector scope. It should be noted that where the verifier's noncompliance leads to a reduction of scope in a particular sector, it should also be assessed whether the issue affects other sector scope approvals. If the noncompliance relates to general procedures and processes that can affect all sector scopes it may be more appropriate to suspend or withdraw the approval for all sector scopes. **Procedure for imposing a reduction of scope** The oversight body takes the decision to reduce the scope and informs the verifier of the decision. It should be clear for which scope the verifier has lost its approval, and this should be communicated publically. **Consequence of reduction of scope** The verifier loses its 'licence'/certificate to carry out verification for that particular scope, and it has to submit an application for approval again if it wants to carry out verification for that scope in the future. The approval for the other scopes stays the same although the verifier will likely be more closely looked at during surveillance activities over some future period of time. Where such a sanction is imposed on the verifier during verification of an obligated entity's report that falls into the relevant sector scope, the obligated entity must find another verifier to verify its reported data. A report verified by a verifier that has lost its approval to operate cannot be accepted as a verified report. The regulator responsible for receiving a report can in that case determine the reported emissions themselves by inspection or conservatively estimating emissions, or order the obligated entity to have it verified by another verifier or institution. Verified reports from obligated entities whose verifier has had its approval withdrawn after the verified reported data have been officially submitted to the regulator could warrant some additional checking by the regulator.
Fines	**What are fines?** Fines do not affect the approval status of a verifier, but are monetary sanctions that can be imposed as a result of noncompliance with requirements. In a dual registration system fines can also be imposed on individual auditors.[114] The level of fines varies per CPI, and fines are not levied by all CPIs.[115] Usually this type of sanction is implemented to allow an oversight body to impose swifter and potentially less onerous sanctions for infringements that are not sufficiently serious to warrant withdrawal of approval by other means. It depends on the legal system and the design of the V&A system whether such financial sanctions can be imposed and how they are imposed. When defining the level of fines, a policy maker should find an appropriate balance, i.e., defining high enough fines to discourage noncompliance issues and to ensure enforceability of requirements whilst not so high as to make the verifier incapable of continuing in business. Decisions also need to be made as to how revenue from fines is used, especially if the oversight body is separate from the regulator; and in the latter case whether fines are paid to the general government fund or ring-fenced to fund specific activities. **For which infringements can fines be imposed** This varies depending on the CPI although there are some commonalities. In general, fines are imposed when there is noncompliance with requirements but these are less serious than ones for which suspension or withdrawal of approval is imposed. However, there are some CPIs where fines are more common and different levels of fines are formulated for different types of infringements. It is good practice to have clear definitions in legislation of what infringements can result in fines of a particular level. **Procedure for imposing fines** The oversight body takes the decision to impose fines on the verifier and informs the verifier. Often this decision is combined with the requirement by the oversight body for the verifier to correct the relevant noncompliance issues and to improve procedures/processes, etc. Usually a time period is defined within which the issue must be addressed. **Consequence of imposing fines** The verifier can carry out verification as the fine does not impact the approval to carry out verification activities. However, it can be an indicator for regulators to look more closely at verified reports from obligated entities that use verifiers subject to such penalties.

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Note 114 » *This is, for example, the case in the Tokyo Cap-and-Trade System.*

Note 115 » *CPIs that have implemented a system for imposing fines on verifiers include Tokyo Cap-and-Trade System, Chinese pilot ETS schemes, Chinese national system.*

(Table 25 continued)

Sanction	Further information
CPI specific sanctions	Some CPIs have specific sanctions that have been implemented because of cultural and CPI specific backgrounds. Examples include: • Imprisonment of auditors in the case of serious fraud (usually implemented through general legislation on fraud). • Putting auditors on a blacklist if they show no respect for authorities and complying with the rules or if their social conduct is not appropriate.[116]

In most cases a sanction would have immediate effect once the decision is made to impose it. Normally this is regulated in national legislation. The advantage of this is that it is easier to enforce, and there is more legal certainty. However, it depends on the country's legal system whether this is the preferred approach. In most CPIs a verifier has the right to launch an appeal if it does not agree with the sanction.

Once a penalty is imposed it is essential to exchange related information with the regulator responsible for implementing the CPI, where that regulator is different from the oversight body that is imposing a sanction. It is equally important to share information with the public, obligated entities, other regulators, and other stakeholders concerned with the CPI. This is especially true if the verifier is suspended or approval is withdrawn because in that case the verifier is not allowed to carry out verification activities.

Where the verifier no longer wants to operate as a verifier, it can ask for its approval to be withdrawn. From the moment of withdrawal the verifier can no longer carry out verification.

12.5 Appeals

In most cases an oversight body (regardless of type) has a procedure for appeals, meaning that decisions from the oversight body that adversely impact the verifier can be appealed. This can concern decisions on (re)approval of the verifier or decisions to impose sanctions. Appeal procedures may differ depending on the design of the approval system.

TABLE 26. **Appeals processes for different approval systems**

Type of approval system	Considerations
Regulator approves the verifier based on documentation, exams, and/or actual performance (option 1 or 2 in section 11.1)	• In most of these approval systems there is alignment with the appeal procedures a regulator normally follows under general administrative law. • Timelines for appeal are dependent on general law. • Often there are legislative and internal rules on communication with verifiers about appeal procedures and processes.
Personnel certification body certifies verifier (option 3 in section 11.1)	• International standards such as ISO 17024 apply. • Standard specifies that certification bodies must implement appeal procedures. • Programme specific requirements may be needed.
Recognition (non-ISO) (option 4 in section 11.1)	• For CDM/JI there are specific appeal procedures. • These procedures must cover specific elements outlined in the standard and be publically available.

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Note 116 » *Japanese Crediting Mechanism, some of the Chinese ETS pilot systems, Tokyo Cap-and-Trade System.*

(Table 26 continued)

Sanction	Further information
Accreditation body accredits verifier (ISO) (option 5 in section 11.1)	• International standards such as ISO 17011 apply. • Standard specifies that accreditation bodies must implement appeal procedures, not only for sanctions but also appeals related to other decisions of the accreditation body. • ISO 17011 requires the accreditation body to decide on the validity of appeal, communicate final decisions to verifiers, take follow-up actions if needed, and keep records of appeals and actions taken. • Programme specific requirements may be needed, e.g., whether decisions have immediate effect or only after the time for appeals has passed, communication with parties, timelines.

- ☑ It is good practice to have clear communication and legal rules on appeals, procedures, and legal effects of appeal decisions.
- ☑ It is good practice to specify in law in which cases appeals can be raised, the timelines for procedures, as well as the requirement for oversight bodies to set up procedures for appeal.
- ☑ It is good practice to exchange information on the outcome of appeals with other parties: in particular when decisions on sanctions or approval have been overturned in appeal.

12.6 What needs to be considered when defining the rules for approval and oversight

The previous sections outline key design elements of an approval and oversight system. This section explains what policy makers need to consider when drafting the legislation itself.

TABLE 27. **Defining the rules for approval and oversight**

Considerations	Observations
What to include in primary legislation and in secondary legislation	The primary legislation should outline the roles and responsibilities of the oversight body, any sanctions that can be imposed, and associated infringements. It is also good practice to require a formal process of information exchange between an oversight body and regulators responsible for CPI activities (if different). In particular, this is true for information exchange on sanctions. Generally, there needs to be in primary legislation a legal basis for further detailed requirements in secondary implementing legislation or guidance. It depends on the specific CPI and the implementing country's legal system as to what detail will be included in primary legislation. It is however important to ensure that primary legislation is mandatory and provides a sufficient legal basis. It is good practice to regulate specific requirements in secondary legislation, including: • What type of assessment is applied. • Whether approval has a certain validity period. • What to include in the 'licence'/certificate or other document that demonstrates approval. • Whether foreign verifiers or verifiers from other regions can be used. • Eligibility criteria and documentation to be provided in the application of approval. • The frequency and type of surveillance and supervision of verifiers. • Appeal procedures.

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(Table 27 continued)

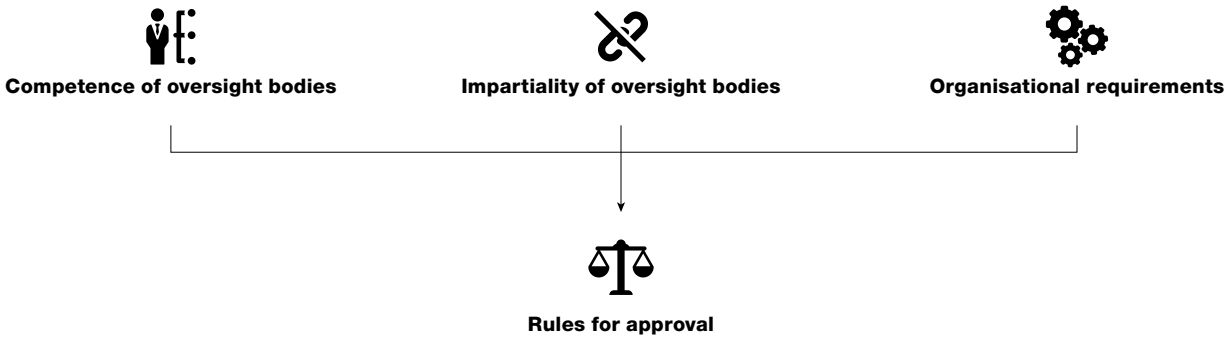
Considerations	Observations
	Specific requirements may be set in primary or secondary legislation depending on the nature and complexity of the CPI, its ambitions and objective, and its coverage and M&R processes. Although secondary legislation is of a lower status, it is important to use mandatory legislation for such rules.
Whether or not to apply international standards	See section 6.4 on application of international standards. Usually a reference to ISO 17011 or other standards is included in legislation. However, additional programme specific requirements need to be incorporated in legislation as these standards are programme neutral and provide a general framework.
What measures can be taken to minimise costs?	Different measures can be taken to minimise costs for regulators and other stakeholders. However, it should be noted that the robustness of the approval and oversight system is not affected by a reduction in cost – the required amount of time should be applied regardless of the fee rate that is charged to verifiers. Measures that can be taken to minimise costs include: • Using existing institutions that already have in place systems, processes, and competence to evaluate organisations and individuals. • Providing clear guidance on how the process of approval will be conducted and what needs to be in place, enabling verifiers to be well prepared (e.g., The Climate Registry's Guide to Accreditation). • Mutual recognition of verifiers.
How much control the regulator wants to have on the system	The amount of direct control the regulator wants to have over the system not only affects the type of approval and supervision system designed, it also determines the type of legislation to be developed, what rules to develop, and what to include in those rules.
Whether transition periods are necessary to implement the system	Measures need to be taken to ensure that verifiers are approved before the first verification report needs to be issued to an obligated entity. That means that policy makers need to take reporting timelines into account when designing the timeline and specific steps for the approval process, and also when developing rules on approval and building the associated institutional framework. In some cases a transition period may be necessary where the system evolves over time.

13 STEP A3

Designing requirements for oversight bodies

To ensure that the activities to be carried out in approval and oversight are performed effectively by competent and impartial personnel, it is important to design requirements for procedures and processes that oversight bodies must implement and to establish specific requirements that should be imposed on the personnel involved in approval and supervision activities.

FIGURE 22. **Steps in designing requirements for oversight bodies and their personnel**



Source: authors

13.1 Ensuring competence of approval and oversight bodies and their personnel

One of the key requirements is that the personnel of an oversight body involved in approval and supervision of verifiers must be competent to carry out the tasks assigned to them. This is true regardless of the type of oversight body – whether a regulator, an accreditation body, a personnel certification body, or another institution.

Competence requirements not only apply to personnel involved in the approval and supervision process but also to technical experts that are hired by the oversight body. The requirements are dependent on the manner in which the associated V&A system is set-up. Where the approval and supervision process consists of a simple document review or examination of individuals, the competence requirements are different from those required for assessing the actual performance of the verifier and its individual auditors (e.g., by interview and witnessing).

The table below outlines the type of competence requirements that may be relevant for different types of approval and supervision systems. It shows that a simple approval system may require less detailed knowledge and skills from the persons doing a full evaluation.

TABLE 28. **Competence requirements for oversight body and personnel**

Type of system	Type of competence requirements
Document review and examination	The oversight body and its personnel need to possess: • Knowledge of CPI specific legislation, including technical, sector, and M&R aspects. • Knowledge of verification activities to be carried out. • Basic knowledge of data and information auditing techniques. • Basic knowledge of the type of quality assurance/controls that might be applied to verification activities, e.g., a quality management system. Regulator personnel must have sufficient knowledge to assess compliance with eligibility criteria and to develop questions for an examination. They can also outsource the development of training and exam material (see section 9.2).
Document review/ review of internal verification documentation	The oversight body and its personnel need to possess: • Knowledge of CPI specific legislation, including technical, sector, and M&R aspects. • Knowledge of verification activities to be carried out. • Knowledge of data and information auditing techniques (more than basic knowledge). • Knowledge of the type of quality assurance/controls that might be applied to verification activities, e.g., a quality management system (more than basic knowledge). This knowledge is necessary to enable the assessor to evaluate properly the internal verifier documentation / work papers.
Assessing actual performance of the verifier and its personnel	The oversight body and its personnel need to possess: • Familiarity with approval procedures, criteria, and other requirements. • Training for relevant assessment personnel in assessment and, potentially, verification activities. • Thorough knowledge of assessment methods. • Ability to communicate effectively in the required language. • Demonstrate appropriate personal attributes, e.g., being observant, ethical, decisive, self-reliant. • Knowledge of CPI specific legislation, including technical, sector specific, and M&R aspects. • Detailed knowledge of verification activities to be carried out and, specifically, knowledge and experience of data and information auditing techniques. This will enable the assessor to evaluate the actual performance of auditors. • Knowledge and experience of the type of quality assurance/controls that might be applied to verification activities, e.g., a quality management system. Depending on the scale of the assessment, an actual assessment exercise can be carried out by a team consisting of assessors, a lead assessor, and technical expert(s). The lead assessor should have the competence to lead the team. Technical experts should have sufficient competence to understand verification activities, knowledge of CPI specific rules, and competence to support the (lead) assessor on the specific subject matter for which they are selected. Where the assessment is carried out by a team, at least one person of the team needs to have knowledge of GHG emission M&R that is relevant for the scope of approval. If the team does not understand the technical scope, it will not know what to look for during the assessment and will not be able to assess the actual performance of individual auditors in practice. A technical expert can be used to assist with this.

It is good practice for the oversight body to establish, implement, and maintain procedures for monitoring the performance and competence of its own personnel involved in the relevant process. These internal procedures could include internal training, internal evaluation of personnel, and other methods to ensure and improve personnel performance, including taking follow-up action if competence can (or needs to) be improved. Where standards such as ISO 17011 apply, there are specific requirements.

Based on experience across the CPIs, a number of good practices can be identified for specifying competence requirements:

- ☑ Personnel involved in approval and supervision of verifiers should have knowledge and understanding not only of the V&A system but also of the requirements of the M&R system as they are being asked to evaluate whether the verifier is capable of checking this for obligated entities.
- ☑ The more complex the CPI is (for example, depending on the type of sectors involved), the more complex the M&R rules are. This has an effect on the verification. More stringent technical knowledge will be required of assessors evaluating the competence and actual performance of verifiers in such CPIs.
- ☑ Technical experts can support (lead) assessors on specific subject matters (for example, language and technical issues such as GHG accounting, understanding of metering equipment, or laboratory requirements). Technical experts are operating under the direct control of the lead assessor and should be competent on their subject matter but do not need to understand the assessment process on anything other than a general level.
- ☑ Where standards such as ISO 17011 are applied, it should be noted that this is a programme neutral standard which may require the inclusion of CPI specific requirements on competence in legislation if there are aspects of programme design and rules that cannot be covered by the general specification in the standard.
- ☑ Lessons learnt show it is better to intensively train a select group of persons to carry out assessment at the start of the CPI rather than giving basic training to a large group. Assessors need to have detailed knowledge to be able to do actual assessment of the verifier properly.
- ☑ It is good practice for oversight bodies to organise periodic update/refresher training of personnel involved in the approval and supervision of verifiers. One of the main challenges encountered in the majority of CPIs is in arranging for qualified personnel to evaluate verifiers.

13.2 Ensure impartiality of approval and oversight bodies and their personnel

The oversight body approving and supervising a verifier needs to be impartial and independent from that verifier. This applies to any oversight body whether it is a regulator, an accreditation body or personnel certification body, and so on. Impartiality and independence is not only a prerequisite for the oversight body itself; individual personnel involved in approval and supervision activities should also be impartial and free of bias.

Specific impartiality requirements should apply to the oversight body itself, its assessors and lead assessors involved in the process of approval and supervision, as well as technical experts and personnel involved in decision making. The specific requirements are dependent on the CPI. However, there are some commonalities to be found in any CPI. The table below explains what type of impartiality requirements may be relevant for the oversight body and its personnel.

TABLE 29. **Impartiality of oversight body and personnel**

Subject	Type of impartiality requirements
Oversight body	• The oversight body should be independent from the verifier, e.g., the oversight body must have no relations with the verifier (not owning shares in the verifier's company, not being in top management, etc.). • Oversight bodies' policies and procedures should be nondiscriminatory for all parties. This does not mean that there cannot be eligibility criteria for the approval of the verifier, however these criteria must be applied fairly and equally to all parties. **Application of international standards:** • Where the oversight body is an ISO accreditation body or personnel certification body, additional requirements apply according to applicable standards (ISO 17011 on accreditation, ISO 17024 on certification). This includes, for example, limitations on offering certain types of consultancy and training activities. • Special requirements and procedures apply to the Accreditation Panel and Executive Board involved in CDM accreditation.

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(Table 29 continued)

Subject	Type of impartiality requirements
	CPI specific elements • For some CPIs, the oversight body must be separate from the CPI regulator (e.g., the regulator that approves monitoring plans and receives reported data and associated verification reports). The advantage of this approach is that the oversight body can have a totally separate and independent view on the quality and competence of verifiers without being distracted or influenced by other sources. The disadvantage of this approach is that it may not be possible to implement this for countries that: – Have less resources available and want to use one institution for all activities related to the CPI because they see efficiency merits in one body (e.g., a regulator) having complete overview of the quality of MRV. There could however be a risk to impartiality of the persons making independent decisions on the competence of verifiers. It is important for the regulator to be aware of such risks. – Have made a deliberate decision for the regulator to have direct control over the quality and competence of verifiers. In some cases the risks to impartiality are mitigated by having clearly separated departments within the same regulator dealing with either the M&R implementation or the approval and supervision of verifiers. – Have a simple V&A system consisting of document review or examination only (recognising that this does not constitute a verifier competency assessment). In most CPIs there are limitations on outsourcing activities of approval or supervision.
Personnel involved in approval and supervision process	• All personnel that could influence the approval and supervision process must act objectively, be impartial, and be free from commercial, financial, or other pressures that could cause risks to the impartiality of the oversight body. • In most CPIs, in particular the ones applying ISO accreditation, the person taking the final decision on the approval should not be part of the assessment team. • These requirements would apply not only to staff working at institutions that are involved in approval and supervision of verifiers but also to contracted personnel, such as technical experts.

It is good practice for the oversight body to establish, implement, and maintain procedures for ensuring continued impartiality. As part of this process the oversight body should identify, analyse, and document potential conflicts of interest, not only for the oversight body itself but also for its own personnel and contracted staff. How such procedures are set up depends on the type of oversight body. A simple approval system does not require a complex procedure.

Based on experience across the CPIs, good practices for specifying impartiality requirements include:

- ☑ Where standards such as ISO 17011 are applied, it should be noted that these are programme neutral; they set out a framework for control but do not specify every detail. This means that if policy makers want to cover specific impartiality requirements this needs to be included in the CPI legislation, design, and/or rules.
- ☑ It is good practice that persons involved in the evaluation of verifiers are not the same persons that take the final decisions on approval of verifiers

13.3 Define key organisational and procedural requirements

To ensure that an oversight body can perform approval and supervision activities effectively, it should implement some key organisational and procedural elements. Organisational elements do not relate to the structural organisation of the oversight body but to the quality management and procedural aspects of a verifier oversight body. Depending on the design of the approval and supervision system and any rules specified by the CPI, different organisational and procedural elements may be important.

TABLE 30. **Key organisational and procedural requirements**

Requirements	Explanation
Any approval and supervision system	It is good practice for the oversight body to: • Make general information on the approval process available publically, e.g., eligibility criteria for submitting an application, documentation required for application, information on sanctions imposed. • Take measures and implement procedures to ensure confidential information is safeguarded. • Implement procedures for addressing complaints and appeals. • Have procedures on how to manage subcontracted personnel ensuring that they are working under the responsibility of the oversight body. • Require assessors to correct identified noncompliance issues or address issues that can be improved. • Keep formal records of its findings and decisions.
Document review and examination	Procedural and organisational requirements can be rather simple and may focus in particular on the requirements outlined in row 1 above. Other procedures can include: • How to do document review (e.g., checklist, what information to check, how to check, who to check) • Preparation of exam questions (e.g., a question bank to ensure that the exam changes over time); how to monitor, mark, and moderate exams to ensure that they are fair.
Document review/ review of internal verification documentation	The procedural and organisational requirements can be simple and may focus in particular on the requirements outlined in row 1 above. Other additional procedures can include: • How to do checks on internal verification documentation (e.g., checklist, what information to check – critical and noncritical – how to check, who to check); guidance on minimum expectations.
Assessing actual performance of the verifier and its personnel	The approval and supervision system in this case is likely to be more extensive and need more specific procedural and organisational elements. Additional procedures for this type of assessment can include: • A formal quality management system and procedures for controlling all documents and records. • Procedures for identification and management of noncompliance and corrective actions. • Contract terms requiring obligated entities to allow assessors to accompany the verification team.[117] The type of CPI system and its associated V&A process will determine the details of requirements.

13.4 What needs to be considered when defining rules concerning approval and oversight bodies

The previous sections outline key design elements for an approval and supervision system. This section explains what policy makers need to consider when drafting the legislation itself.

Note 117 » *It is often required for the verifier to include a relevant clause in its contract signed by the obligated entity.*

TABLE 31. **Defining the rules for approval and oversight bodies**

Considerations	Observations concerning the considerations
What to include in primary legislation and in secondary legislation	The primary legislation should outline the general rule that assessors and other personnel involved in verifier approval or supervision must be competent and impartial. Depending on the specific CPI and the country's legal system, different detail may be included in primary legislation, and different types of primary legislation will be used. Where the CPI regulator is itself the verifier oversight body, only the key principles of competence and impartiality are likely to be included in primary legislation, and internal rules will outline specific competence and impartiality criteria and how they are assessed. It is important to ensure that the primary legislation is mandatory and provides a sufficient legal basis for enforcement. It is good practice to regulate in secondary legislation: • Competence requirements for lead assessors, assessors, persons taking decisions on approval and imposing sanctions, and technical experts. • Competence requirements that should be covered by the assessment team as a whole. • Impartiality requirements depending on CPI specific elements. • Requirements on public access to information and confidentiality. • If not covered by standards, certain procedural requirements. The detailed requirements depend on the specific CPI, the ambition level of the country, and the design of its V&A system. It is important that secondary legislation is also mandatory.
How can complexity of the CPI system influence the type of requirements	Where the CPI and its coverage is simple and relates to straightforward or simple sectors, the required expertise of an assessor may be less stringent. A facility that uses only combustion of natural gas with standard emission factors and fuel consumption based on invoices requires less detailed technical knowledge to assess the monitoring methodology and how the verifier evaluates it. However, for complex sectors (e.g., large chemical plants and refineries), more detailed technical knowledge may be needed within the assessment team as a whole to understand required M&R processes and methodologies that form part of what they are evaluating in the verifier's performance. This may include, for example, sector technology (to understand energy flows/emissions sources, etc.), instrumentation, and its quality control; fuel and materials sampling, laboratory analysis, and its quality control; control of information and information security. The assessor team must have sufficient competence in order to be able to assess the verifier's competence and performance on such sector specific issues. The detail and type of competence requirements highly depends on how the approval and supervision system is designed.

14 STEP A4

Implementation of the approval and oversight system

Once the approval system is designed, it needs to be implemented and maintained. To ensure proper implementation the following elements need to be addressed:

- It needs to be ensured that timelines are feasible and allow timely delivery of approvals within the overall time frame for obligated entity reporting;
- The oversight body and its personnel need to be sufficiently prepared, including training staff and providing required resources;
- Taking measures to facilitate the implementation and evolution of the V&A system.

FIGURE 23. **Elements in implementing approval and oversight systems**

Source: authors

14.1 Timelines for approving verifiers

When designing the approval system policy makers should be aware that a verifier needs to be approved sufficiently far in advance of the verification report needing to be submitted to the regulator to give the obligated entity confidence that they can comply with rules on verification. To ensure sufficient competent and approved verifiers by the required deadline it is important for policy makers to consider an adequate timeline and roadmap for approving verifiers.

The design of the approval system determines what timelines could be appropriate. The timeline for an approval system where only documentation submitted by the verifier is reviewed or an examination is held is likely to be shorter than the timeline for an approval system where a document review, visit to the verifier's offices, and a witness audit is planned (full scope approval).

For a full scope approval system it is important to consider the following:

- It is best if the verifiers submit their request for application sufficiently early for the oversight body to complete the whole process in time.
- An approval process in which full evaluation of actual performance through witness audits is planned could take 6 to 12 months, depending on the complexity of the verifier's scope, the number of scopes for which approval is requested, the extent to which a verifier already has proper documentation and procedures in place, as well as the workload of the oversight body and its experience.[118] It should be noted that a newly established institution may need additional time compared to an institution that is accustomed to carrying out these type of assessments.
- CPI specific training for the oversight staff should be organised well in advance so that the staff are prepared to carry out assessments.
- In order to use witness audits to assess an individual auditor's performance for the first cycle of approval, it may be necessary for a verifier to enter into a contract with the obligated entity and to start verification before the approval is finalised (in principal approval subject to witnessing). However in such cases the request for application must be submitted and the approval completed successfully

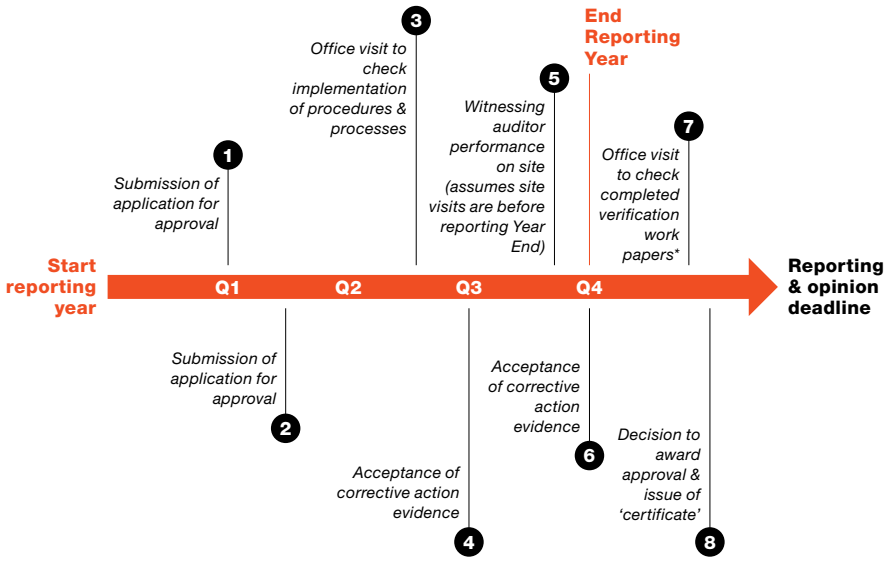
Note 118 » *It can also depend on when witness audits can be scheduled which is influenced by when the verifier has scheduled a verification visit to an obligated party site.*

before the verification report needs to be issued to the obligated entity.[119]

- In approval systems where witness audits and review of internal verification documentation is not required the process should be finished before verification starts.

The figure below outlines a timeline for the situation when the approval consists of a document review, visit to the verifier's offices, and a witness audit.

FIGURE 24. **Example timeline for ensuring timely approval**



*For a first time verifier with no prior history of GHG verification activities. Otherwise this can be done during the first office visit.

Source: authors based on training material by Planet & Prosperity Ltd

14.2 Preparation of the oversight body and personnel

First, policy makers should define the resources needed to design, implement, and manage the system. The type of resources needed depends strongly on the choices that are made in the design of the approval and supervision system. Less resources are required for an approval and supervision system that is based on document review and/or examination than for a system in which the actual performance of the verifier will be tested in witness audits of its personnel and visits to the verifier's premises. Policy makers need to balance the availability of human and financial resources with the benefits of adopting a more robust scheme and increasing the trust and confidence of the public in the robustness of the MRVA system (see section 11 on the options of approval and supervision systems).

Table 32 below summarises what type of costs can be identified for oversight bodies involved in approval and supervision of verifiers. Annex 13 gives more detailed information on the type of resources needed, whether they are resources that have to be arranged for a one-off activity or for ongoing activity, and what measures can be taken to reduce costs for oversight bodies and influence the type and amount of resources.

TABLE 32. **Cost categories for approval and supervision of system**

Stakeholder	One-off cost	Ongoing cost
Oversight body	• Studies/data to facilitate design; • Stakeholder engagement activities (staff, travel, venues, etc.); • Set-up of internal rules; • Set-up / restructuring of institutions; • Set-up procedures; • Set-up QA/QC systems (e.g., ISO 9001) • Development of guidance material; • Set-up of IT systems/databases.	• Cost for approval activities (staff); • Costs for supervision activities (staff); • Costs for information exchange and cooperation with regulator (staff); • Hiring technical experts; • Training personnel; • Maintain IT systems and databases. • Maintain QA/QC systems

Note 119 » *This can cause problems as obligated entities may not be willing to contract a verifier that is not 'fully' approved. Some verifiers have arranged a 'free' verification with a friendly client to get around this problem. In other CPIs the regulator has allowed leeway in the first year of a CPI.*

It is important for policy makers to consider the following.

Institutional framework for oversight bodies and resources

- Use of existing competent institutions as oversight bodies and existing structures can help resources optimisation. In that case the existing institution may only need to adapt procedures and processes to accommodate CPI specific requirements: for example, competence criteria, new assessment criteria, new checklists, and new criteria for imposing sanctions. In such cases there may be existing procedures on appeal, and recording assessments may already be in place and sufficiently robust, and the oversight body can build on these procedures;

- Where new institutions are created for the approval and supervision of verifiers, such institutions have yet to design and implement quality management procedures, appeal procedures, procedures for imposing sanctions, and so on. This may require additional resources and time to set up.

Training of staff

- Oversight body staff involved in the supervision of verifiers need to be trained on how to assess the verifier and its personnel. It is important to train staff well. Where new institutions are set-up, the staff will likely be new, and more training may be necessary. But also for existing oversight bodies it is necessary to train existing staff on CPI specific elements, in particular the specific MRV requirements.

- Timely planning of implementation of the various design elements is important. However, one of the observations from other CPIs is that countries try to start up processes too quickly and do not spend sufficient time bringing regulators and the oversight body, and their personnel, up to speed on the CPI specific elements. This can have serious consequences. Formalised training can help this process. It is better to train staff well than to not have competent assessors available to assess the competence and performance of verifiers. The type of training depends on the type of approval process.

- It may be difficult at the start of a CPI to arrange for qualified trainers and to get sufficient competent experts to support the oversight body, in particular assessors that are involved in witnessing the actual performance of auditors. In most cases experts from existing mandatory environmental reporting programmes can help bring the necessary expertise. In some CPIs experts from technical institutes or environmental engineering agencies have provided support, along with peer-to-peer knowledge sharing between CPIs of differing levels of experience.

Other support for oversight bodies

Countries can get support from international projects that help national governments in setting up CPIs. Examples include projects initiated by the World Bank, EuropeAid, USAID, or by national governments that already have existing approval structures. Experts from national accreditation bodies in EU ETS have, for example, provided support to new accreditation bodies in countries that have been developing a CPI and setting up accreditation or restructuring the procedures for CPI specific accreditation.

Where a country has decided to accredit verifiers under the ISO framework, it is recommended that the accreditation body of that country becomes a member of the International Accreditation Forum and the relevant regional accreditation networks. Existing accreditation bodies that work in other fields may already be a member. Additional support could be obtained through that network. It is noted that accreditation bodies that are a member of the International Accreditation Forum and regional accreditation networks need to follow specific procedures.

14.3 Facilitate implementation of the approval and oversight system

Experience has shown that the legislative framework and any secondary legislation need to be supplemented with more detailed guidance and other measures to facilitate the smooth operation of the system. This will support a common understanding of the requirements in legislation, assist oversight bodies in complying with the legislation, and help both regulators and oversight bodies to treat verifiers equally and to enforce legislation in a uniform manner.

Measures facilitating implementation are similar to those for verification. Because of the links with verification, such supporting tools are usually developed together. Measures could include:

- **Guidance to clarify the requirements of secondary legislation**: in some cases, guidance from the International Accreditation Forum, guidance for accreditation from CDM, and guidance from regional accreditation networks may be relevant for the accreditation of verifiers by recognised accreditation bodies or within the CDM framework.

- **Templates for assessment reports and information exchange between parties** to ensure a consistent harmonised reporting and information exchange. This reduces the administrative burden for all stakeholders, facilitating the work of the oversight body, while at the same time increasing the quality of reporting (although existing oversight mechanisms may already have standardised templates for their assessment activities).

- **Checklists and tools**: facilitating oversight body assessors in carrying out their approval and supervision activities (for example, checklists for assessing through document review and checks on internal verification documentation).
- **Examples** on how to deal with impartiality issues for verifiers.
- **Databases and IT systems** to facilitate information exchange and record information on approval certificates/'licences' and sanctions imposed. It could help to give oversight bodies access to relevant IT systems, if these are used for a CPI.
- Putting in place **training** for all stakeholders involved and installing a central **helpdesk** for discussion of complex problems and for collecting FAQs for further guidance.
- **Close contact and cooperation** between the regulator and the oversight body where the oversight body is separate from the regulator.

Section 5.2 outlines the best timeline for implementing such measures.

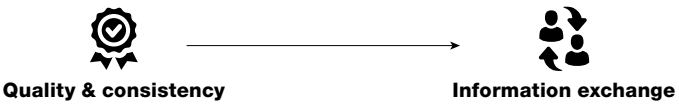
15 STEP A5

Ongoing management of the approval and oversight system

Ongoing management of the approval and oversight system requires decisions on how to set up:

- Measures to ensure ongoing quality of approval and oversight;
- Initial and ongoing information exchange between different parties.

FIGURE 25. **Elements in managing approval and oversight systems**



Source: authors

15.1 Ensuring the quality of approval and oversight

Several measures can be taken to keep an eye on the ongoing quality of approval and supervision of verifiers. Options range from exchanging information to more in-depth assessments and include:

1. **Information exchange** between the oversight body and the regulator responsible for CPI implementation, if these are different parties.
2. **Regular training** and capacity building for the oversight body and their personnel together with other stakeholders such as verifiers.
3. **Monitoring of the oversight body** by the policy maker that has established (or recognised) the oversight body.
4. **Peer review** on a regional or international level. This may include an assessment organised by a regional or international organisation whereby different competent bodies peer review a particular oversight body and evaluate its procedures, processes, and competencies.

TABLE 33. **Approaches for ensuring the quality of approval and oversight**

Option	Considerations for policy makers
1 **Information exchange**	**When would the option be appropriate?** • Applied when the regulator and the oversight body responsible for the approval and supervision of verifiers are not the same party. Carried out in some type of form in most CPIs where such situation occurs. • In particular, relevant when multiple regulators (local or regional authorities) are involved. **Examples** In EU ETS, the Accreditation and Verification Regulation requires the accreditation body and the regulator to exchange information. The accreditation body shares information on sanctions imposed but also information on the planning and results of surveillance activities. The regulator shares information on applicable CPI specific legislation and issues that they have found in their review of emission reports and verification reports once these reports have been submitted to the regulator. **Advantages** • Relatively easy to implement, essential for being informed on important decisions such as sanctions imposed and how complaints have been addressed. • Information encountered by a regulator in relation to a verifier (concerns on competence, etc.) can help oversight bodies in their assessment. In general, oversight bodies have power to investigate the verifier and impose sanctions. **Disadvantages** • This will not look at the actual performance of oversight bodies and their personnel. It can only monitor how certain issues have been picked up and dealt with by oversight bodies. **Observations:** Information exchange will only work if both parties share information in a timely way. As a minimum requirement oversight bodies should provide feedback on sanctions imposed. Once the CPI evolves it may be useful to share more information. It is important for regulators to exchange information where they have encountered issues in their review of emission reports or verification reports which indicate something may have been missed by verifiers (e.g., significant nonconformities or misstatements in an obligated entity's report, complaints about verifiers).
2 **Regular training**	**When would the option be appropriate?** • In most CPIs, periodic training is provided, in particular at the start of the scheme. • For accreditation and personnel certification, the requirement to provide some type of training for personnel to ensure continued competence is included in standards. **Examples** Any accreditation or personnel certification system such as used in EU ETS, California ETS (internally by the regulator). **Advantages** • Relatively easy to implement, essential for getting oversight body personnel up to date on CPI specific elements, in particular sector specific M&R issues and any complexities with verifying them. • Could be arranged for verifiers at the same time, harmonising understanding and interpretations. **Disadvantages** • This option does not evaluate the actual performance of oversight bodies on the ground. It is only intended to train personnel and keep them up to date on the CPI specific elements. **Observations:** • It is good practice to plan training sufficiently early to ensure the oversight body is prepared in time for the approval process to start. • Lessons learnt in other CPIs show that it can be difficult to find sufficiently competent technical experts that will also be impartial. Training personnel is recommended along with peer-to-peer capacity building and looking more widely for technical experts that can be subcontracted to support assessors.

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(Table 33 continued)

Option	Considerations for policy makers
3 **Monitoring of the oversight body**	**When would the option be appropriate?** • Is usually done by the institution that has set up the oversight body. • Where the regulator is the oversight body, this will likely be done through internal governmental procedures or by the governmental agency that appointed the regulator with the authority to approve and supervise verifiers. **Examples** In any country where the government entity has appointed an accreditation body, regulator, or personnel certification institution to carry out approval and supervision of verifiers. It depends on the legal system and governmental rules how these entities are monitored.
	Advantages • Easy to implement since this is likely already part of institutional rules for establishing (or recognising) the oversight body (as far as it concerns basic monitoring, if the monitoring is more extensive it could mean more resources required).
	Disadvantages • Difficult for policy makers to assess performance of oversight bodies because they may lack the practical experience in assessment of organisations and individuals.
	Observations: • Policy makers would have to set up procedures to enable this monitoring option. • Communication lines need to be set up: e.g., what to report if noncompliance of the oversight body has been found. • Clear criteria on the consequences of noncompliance are important.
4 **Peer review**	**When would the option be appropriate?** • Mandatory for accreditation bodies that are a member of the IAF and regional accreditation networks, and who wish to participate in multilateral agreements giving mutual recognition. • Voluntary for other oversight bodies. **Examples** In EU ETS, accreditation bodies are required to undergo a peer review organised by the European Co-operation for Accreditation (the regional accreditation network in Europe: see annex 2). A team of experts from accreditation bodies will assess the competence and performance of assessors and lead assessors of accreditation bodies as well as the procedures and systems of the accreditation body itself. CPI specific evaluation criteria for the peer review have been developed. Within the European Co-operation there are procedures and rules for doing this peer review. Sanctions can be imposed if the accreditation body is not complying with ISO 17011 and the EU ETS Accreditation and Verification Regulation.
	Advantages • Higher control on the quality of approval and oversight processes. • Assessment of actual performance in practice and competence of oversight body and its personnel involved in approving verifiers. • Enforcement of requirements through internal procedures of the regional organisation (if membership is a requirement of the approvals process). • Robust mechanism to have an overview of the quality of the overall system. • Required part of the ISO framework for accreditation where regional accreditation networks organise peer reviews (especially in relation to multilateral agreements on accreditation, e.g., on ISO 14065).
	Disadvantages • Difficult to implement in the early stages of a CPI unless there are established institutions and multiple parties to participate in peer review. • Need to have sufficient trained experts to do peer review.
	Observations: • Need to have a framework and a supranational body to organise the peer reviews. • Need for clear peer review criteria, based on which the oversight body's competence and performance are assessed. • Need to have clear rules and procedures for carrying out the peer review, including the type of sanctions that can be imposed. • Need for training of peer reviewers.

15.2 Information exchange and cooperation between parties

Information exchange between oversight bodies and regulators responsible for the implementation of CPI is equally essential. Where regulators find issues in their review of reported data and associated verification reports – for example, errors or nonconformances that have been missed by verifiers – it is important to share that information with the oversight body so it can investigate the matter further and, where relevant, impose corrective actions or sanctions. The same is true if regulators receive complaints about verifiers. Regulators, in turn, would be interested in being kept up to date on how issues communicated to the oversight body were addressed.

Information exchange can be organised in different ways:

- On an informal basis through telephone calls, regulator meetings, or e-mail contact between the regulator and oversight body. In most countries where the oversight body and the regulator are different parties, this type of communication and cooperation is applied. It is easy to implement, and regular contact will support both parties in their activities;
- On a more formal basis embodied in legislation or in addition to the legal framework.

The most appropriate approach to take will depend on the country's legal system, the relationship and/or type of cooperation between regulators and the verifier oversight body, and the complexity of the CPI. Section 10.3 explains how such information exchange lines could be established if multiple regulators are involved.

As a minimum requirement for all CPIs where the oversight body and the regulator are different parties, it is essential for the oversight body to share information on sanctions imposed and the status of approval not only with regulators but also other stakeholders such as obligated entities. This will allow stakeholders to identify whether a verifier is allowed to operate as a verifier for that CPI or in that country/region.

Further reading

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Annexes

CPIs in the world and their V&A system

The table below indicates which CPIs there currently are around the world and what type of V&A system they have. The CPIs listed are those that are in operation or are actively being designed and implemented, and where verification may be required.[120]

Country	Type of CPI *(region, where applicable)*	Verification system	Approval and oversight system
Australia	Emission reduction fund: an offset crediting mechanism[121]	Verification of project abatement reports is carried out by third-party individual auditors. Mandatory verification audits are required across the life of the project. The required frequency depends on the size of the project's abatement (typically every 3-5 years). There are three types of verification audits: an initial audit to assess project eligibility[122], subsequent audits examining the accuracy of project abatement claims and unscheduled compliance audits[123]. Domestic legislation as well as international standards - ISO 14064-3, ISAE 3000 and ISAE 3410 - and relevant Australian national standards are applicable to verification. Only individual auditors that are registered by the Clean Energy Regulator (CER) can be selected. Selection and payment of the auditor is done by the project participant. There are detailed impartiality requirements in legislation which are further explained in guidance. The audit process is outlined in legislation and guidance. Auditors have to take active measures to continue to be competent and qualified.	Individual auditors have to submit an application to the Clean Energy Regulator (CER) which assesses the application and documentation submitted and registers the individual auditor. Detailed requirements are included in guidelines on what to submit in the application and what type of evidence is needed. There are eligibility criteria for individual auditors, though there are no restrictions on nationality of the individual auditor. Auditors need to be a lead auditor demonstrating knowledge and experience in audit team leadership and the provision of assurance. The registration is on a continuous basis, i.e. it is valid until de-registration. The CER can carry out inspections on auditors (either directly, via other auditors selected by CER or persons/ institutes selected by CER). Inspection can consist of visits to the office where the auditors are working to review documentation, quality control procedures and working papers. It can also include on-site witnessing. The CER can impose conditions on the registration of auditors (e.g., a requirement to participate in specified training). There is continuous communication between the CER and auditors on audit findings, updates of legislation and inspection findings. The CER can impose sanctions: suspension of the registration and de-registration in the case of infringement. Legislation specifies in which cases sanctions can be imposed.
Canada	Alberta – Offset Crediting Instrument	Verification of baseline emission intensity, credits from approved offset projects, and annual compliance reports is carried out by independent third-party auditors that are selected and paid by operators of obligated installations. Only individuals can be approved third-party verifiers (even when employed by a verification body). Requirements are set in the legal rules and in standards and guidance specified under the regulations[124] for reporting and verification, which includes application of ISO 14064-3 and standards for assurance engagements published by the Canadian Institute of Chartered Accountants.	There is no formal pre-approval process by the regulator in place for verifiers and no formal oversight mechanism other than via control of professional qualifications recognised in legislation, through relevant Professional Bodies. Eligible professions are: • Engineer (Engineering & Geoscience Professions Act) • Chartered Accountant (Chartered Professional Accountant Act) • Similar professionals in other provinces/territories or (approved by the programme Director) from outside Canada - provided they have technical knowledge of GHG quantification methods, audit and other relevant matters

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NOTE 120 » *Countries that are considering implementing a CPI are: Canada (Labrador, Newfoundland, Nova Scotia), Brazil, Brazil Rio de Janeiro, Brazil Sao Paolo, Colombia, Ukraine, Russia, Taiwan, Vietnam*

NOTE 121 » *This offset mechanism is associated with a 'safeguard mechanism' for nominated large emitters involving allowance trading*

NOTE 122 » *This audit is carried out for the first carbon offset report which examines the project eligibility and accuracy of project abatement claims. The first carbon offset report must be submitted between six months and two years into the crediting period, or five years into the crediting period for sequestration projects.*

NOTE 123 » *Unscheduled audits may examine aspects of compliance and material changes in the operation of a project.*

NOTE 124 » *Climate Change and Emissions Management Act (& subsidiary regulations on Specified Gas Emitters and Specified Gas Reporting)*

(Table continued)

Country	Type of CPI *(region, where applicable)*	Verification system	Approval and oversight system
		Potential conflicts of Interest are specified in the regulations and a declaration must be submitted by the verifier for the regulator to approve in advance of the work. Technical (peer) review (by someone that is independent of the verification team that conducted the verification) is mandatory and mandatory rotation of auditors (individual and organisation) is required after 5 cycles of assurance.	
	British Columbia ETS and Offset Crediting Instrument	Verification is carried out by independent third-party verifiers that are selected and paid by obligated installations. Verifiers are organisations/ legal entities. Core verification activities and processes are prescribed in ISO 14064-3 and provincial regulations[125]. Mandatory rotation of verifiers and individual auditors within the organisation is required if the verifier has audited in 6 of the 9 most recent calendar years (or project reports for offsets). A verifier cannot validate a project plan and verify a project report for the same project.	Verifiers have to be accredited according to ISO 14065 by a national accreditation body that is a member of the IAF. The process includes all activities mandated under ISO 17011 and includes performance witnessing of individual auditors in the field as well as review of the verifier's operational and quality control systems. National accreditation bodies carry out periodic surveillance and reassessment of the accreditation before the accreditation certificate expires.
	Ontario ETS and Offset Crediting Instrument	Verification is carried out by independent third-party verifiers that are selected and paid by operators of obligated installations. Verifiers are organisations/ legal entities. Core verification activities and processes are prescribed in ISO 14064-3 and provincial regulations[126]. A Conflict of Interest assessment (along with a mitigation plan if necessary) must be submitted by the verifier for the regulator to approve in advance of work starting. Mandatory rotation of verifiers is required after 6 consecutive cycles of assurance and with a 3 year gap if returning to a prior client. From 2018 the Ontario ETS is linked to California and Quebec through the Western Climate Initiative; issued allowances are accepted in all three programmes.	Verifiers have to be accredited according to ISO 14065 by a national accreditation body that is a member of the IAF (the government website signposts to the Standards Council of Canada and the American National Standards Institution). The process includes all activities mandated under ISO 17011 and includes performance witnessing of individual auditors in the field as well as review of the verifier's operational and quality control systems. National accreditation bodies carry out periodic surveillance and reassessment of the accreditation before the accreditation certificate expires.
	Quebec ETS and Offset Crediting Instrument	Verification is carried out by independent third party verifiers that are selected and paid by operators of obligated installations. Verifiers are organisations/ legal entities. Core verification activities and processes are prescribed in ISO 14064-3 and relevant provincial regulations[127]. Mandatory rotation of verifiers is required after 6 consecutive cycles of assurance and with a 3 year gap if returning to a prior client. The Quebec ETS is linked to those of California and Ontario through the Western Climate Initiative; issued allowances are accepted in all three programmes.	Verifiers have to be accredited according to ISO 14065 by a national accreditation body that is a member of the IAF. The process includes all activities mandated under ISO 17011 and includes performance witnessing of individual auditors in the field as well as review of the verifier's operational and quality control systems. National accreditation bodies carry out periodic surveillance and reassessment of the accreditation before the accreditation certificate expires.

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NOTE 125 » *GHG Industrial Reporting & Control Act, GHG Emissions Reporting Regulations and GHG Emissions Control Regulations*

NOTE 126 » *Climate Change Mitigation & Low Carbon Economy Act, Quantification, reporting and verification of GHG Regulations (& associated guidelines)*

NOTE 127 » *Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere, Regulation respecting a cap-and-trade system for GHG emissions allowances*

(Table continued)

Country	Type of CPI *(region, where applicable)*	Verification system	Approval and oversight system
China	Beijing – ETS pilot	The emission report must be verified by a third-party verifier who is approved by the Provincial Climate Change Authority (Beijing Development Reform Commission). After the restructuring of the government in China, the responsibility of the climate change authority will be transferred to the Local Ecology and Environment Agency. Verifiers are selected by the reporting entity obligated under the ETS system. Beijing DRC paid the verification fee for the historical year data verification (2009-2012). Only verifiers included on the DRC's registry can be selected. Impartiality requirements are included in the legislation. Other requirements include mandatory site visits by verifiers and requirements on the content of the verification report.	The Provincial Climate Change Authority approves verifiers by assessing applications and documentation. There is a dual registration system which means that both the verifier organisation and individual auditors have to be approved and registered. Individual auditors must be employed by the verifier. The Provincial Climate Change Authority involves independent experts or institutes to carry out checks on all emission and verification reports as a fourth-party check. For 30% of completed verifications, the Provincial Climate Change Authority also selects a second verifier to check the original verification working papers and the details of the original verification. In the case of infringements the Provincial Climate Change Authority can impose sanctions consisting primarily of fines.
	Chongqing – ETS pilot	The emission report must be verified by a verifier that is selected and paid by the Provincial Climate Change Authority. The verifier must assess for itself whether there is a conflict of interest. Specific impartiality requirements are incorporated in legislation. Other requirements include: • Mandatory site visits • Specific requirements on competence, education, and experience	The Provincial Climate Change Authority approves verifiers by assessing applications and documentation. There is a dual registration system which means that both the verifier organisation and individual auditors have to be approved and registered. Individual auditors must be employed by the verifier. The Provincial Climate Change Authority involves technical institutes to check emission and verification reports as well as verifier working papers. On-site visits can be carried out to assess the performance of individual auditors. In the case of infringements the Provincial Climate Change Authority can impose sanctions consisting primarily of fines, ordering the verifiers to make corrections or revoking the licence of verifiers.
	Fujian – ETS Pilot *Not approved by National Authority.	Verification is carried out by verifiers selected and paid by the Provincial Climate Change Authority. Legislation includes Interim Measures for the Management of Emissions Trading as well as guidelines on verification mechanisms.	The Provincial Climate Change Authority approves verifiers ex ante. As part of the oversight system verifiers are periodically assessed by the Provincial Climate Change Authority.
	Guangdong – ETS pilot	Verification of emission reports is carried out by verifiers selected and paid by the Provincial Climate Change Authority. Verifiers are required to meet a verification guidance published by the Provincial Climate Change Authority which is drafted based on international standards ISO 14064-3 and ISO 19011-2003. Verifiers are required to implement internal measures to avoid conflicts of interest. It is mandatory to rotate verifiers every three years. Requirements for verification take into account ISO 14064-3 and include mandatory on-site visits by verifiers as well as specified content of verification reports.	Every three years, the Provincial Climate Change Authority approves a list of verifier companies based on a review of documentation. The Provincial Climate Change Authority is supported by technical institutes. As part of the oversight of verifiers, the Provincial Climate Change Authority selects a second verifier to check verification reports, as well as to perform additional on-site verification. The Provincial Climate Change Authority develops a review mechanism for each verifier, and the results will be open to verifiers. Those who perform well receive a certificate. Sanctions include the imposition of fines and putting verification companies on a blacklist.
	Hubei – ETS pilot	The emission report must be verified by a third-party verifier who is approved by the local Development Reform Commission (DRC). Hubei DRC paid the verification fee for the historical year data verification. Impartiality requirements are included in the legislation. Other requirements include mandatory site visits by verifiers and requirements on the content of the verification report.	The local DRC approves individual auditors who have to be part of a verifier organisation. A pool of experts provides support to the DRC. As part of the oversight system all emission report and verification reports are reviewed by independent experts or institutes that are selected by the DRC. Sanctions can be imposed in the form of fines. The DRC can decide to inspect verifiers and review their internal work papers and other documentation.

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Country	Type of CPI *(region, where applicable)*	Verification system	Approval and oversight system
	Shanghai – ETS pilot	Verification is carried out by third-party verifiers who are selected and paid by the Provincial Climate Change Authority. There are some eligibility criteria for verifiers. They must: • Be a legal entity based in Shanghai; • Have carried out CDM verification, ISO 14064 verification, or conducted a research project in the GHG Area; • Have at least six auditors on staff; • Have an internal quality assurance system. Impartiality requirements are included in the legislation.	Verifiers are approved by the Provincial Climate Change Authority based on review of documentation and assessment of the performance of auditors on site. As part of the oversight system the Provincial Climate Change Authority selects a fourth verifier to check verification reports, carry out checks on the original verifier's working papers, and carry out on-site inspection audits.
	Shenzhen – ETS pilot	Verification is carried out by third-party verifiers that are selected and paid by the reporting entity. Approval of verifiers is carried out by the local MQS (Market and Quality Supervision Commission) based on document review. They also check impartiality and independence of the verifiers and auditors. When carrying out verification, ISO 14064-3 is applicable as well as provincial legislation.	Approval of verifiers is carried out by the Local MQS based on document review. There is a dual registration system in which both the verifier organisation and individual auditors are approved. As part of the oversight system the local MQS performs random checks on emission reports and verification reports. It also checks impartiality and independence of the verifiers and auditors. The Local MQS can impose sanctions in the case of infringements (e.g., leaking confidential information, fraud). Sanctions include various sizes of fines.
	Tianjin – ETS pilot	Verification is carried out by third-party verifiers selected and paid by the Provincial Climate Change Authority. Eligibility criteria are applicable to verifiers. This includes the following criteria: the verifier must be a legal entity, be located in Tianjin province, and have a minimum number of auditors in the legal entity.	The Provincial Climate Change Authority approves verifiers based on document review. As part of the oversight system the Provincial Climate Change Authority selects a second verifier to check the original verifier's work including the verification report and associated verification work papers. Possible sanctions include fines and compensation for loss in damages and legal liability.
	National – ETS	Verification will be carried out by third-party verifiers that will be accredited according the National guidance of the greenhouse gas accounting methodology and reporting for enterprises and the National verification guidance for emission report of enterprises. When the verification guidance is developed the related international standards such as ISO 14064-3, ISO 14065 and ISO 14066 are referred to.	It is not clear yet which party will do the accreditation and oversight of verifiers. A legal basis has been provided for periodic evaluation of the competence of verifiers and clearly defined requirements on such processes. Sanctions can be imposed by the Ministry of Ecology and Environment (MEE) and Provincial Climate Change Authorities.
	National – Offset Crediting Instrument[128]	Validation of baselines and project plans and verification of monitoring reports are carried out by third parties, which are registered in the National Authority on Climate Change. Verifiers are selected and paid by the project developers.	The National Authority on Climate Change (formerly NDRC, now MEE) approves and registers designated operational entities before they can carry out validation of project plans and verification of monitoring reports under CCER. Approval is carried out based on document review and assessment of actual performance on site. The Ministry of Ecology and Environment can impose sanctions, including suspension, withdrawal of registration, and fines.

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Note 128 » *CCER, i.e., Chinese Certified Emissions Reductions*

(Table continued)

Country	Type of CPI *(region, where applicable)*	Verification system	Approval and oversight system
Europe *(28 EU Member States plus Liechtenstein, Norway and Iceland)*	(supranational regional) ETS	Verification is carried out by independent third-party verifiers that are selected and paid by obligated entities.[129] In general verifiers are organisations/legal entities. Verifiers have to comply with the EU ETS Accreditation and Verification Regulation (AVR) and EN ISO 14065 as well as ISO 14064-3. Associated guidance, templates, exemplars, and frequently asked questions have been developed to facilitate the implementation of the AVR. ETS specific requirements on competence and impartiality but also on other topics such as the verification process are included in the AVR. In general, verifier's site visits are mandatory but under strict conditions site visits can be waived. This is subject to regulator's approval for installations that emit more than 25 ktCO2 per year. Detailed requirements are included on the content of verification report and the follow-up of issues that are reported by verifiers.	Verifiers have to be accredited by national accreditation bodies according to ISO 14065 and the AVR. Different scopes of accreditation have been defined in legislation. A verifier is only allowed to carry out verification for a particular scope if it is accredited against that scope. Accreditation includes performance witnessing of individual auditors in the field as well as review of the verifier's operational and quality control systems. National accreditation bodies carry out annual surveillance and reassessment of the accreditation before the accreditation certificate expires. Specific requirements for accreditation bodies are included in the AVR and ISO 17011. The European Cooperation for Accreditation (EA) monitors performance of accreditation bodies in a regular peer evaluation. There is mutual recognition of verifiers, i.e., verifiers accredited by a national accreditation body that has undergone a successful peer evaluation by the EA must be accepted by all Member States. Sanctions can be imposed by the national accreditation body for infringements of legislation; this includes suspension, withdrawal of the approval certificate, and reduction in the scope of accreditation. There are specific requirements in the AVR on information exchange between the national accreditation body and the relevant Member State regulator responsible for implementing EU ETS.
	Carbon tax[130]	There is no verification under the carbon tax systems implemented by EU ETS countries. Tax authorities review tax reports and refunds, and in that respect they do simple checks on the data in the tax report and cross checks with other relevant data. Further information can be found in the PMR Carbon Tax Guide.	Not required
Japan	Tokyo – ETS	Verification is required for compliance facilities: facilities where the consumption of fuels, heat, and electricity in the previous fiscal year is 1500 kl or more in crude oil equivalent. There are eligibility criteria that a verifier must meet in order to carry out verification for the Tokyo Cap-and-Trade System, including: • The verifier's offices responsible for contracting must be established in Tokyo. • There must be one or more lead auditors based at the offices of Tokyo. • There must be a division in the verification body between the part that performs verification work and the part that assures and manages the accuracy of verification work (independent technical review). Requirements on verification, impartiality, and competence are included in verification guidelines. ISO 14065 and ISO 14064-3 are applicable. Impartiality requirements apply to the verifier as an organisation and the auditors individually.	Verifiers are approved by the Tokyo Metropolitan Government (TMG) based on document review and examination which is preceded by mandatory trainings organised by the TMG. The individual auditors that are examined must be part of a legal entity, the verifier. The certificate is valid for three years and for the second term five years subject to conditions being met. Verifiers have to apply for a renewal of the certification if the certificate has expired. Renewal of the approval and certification is based on training organised by the TMG and examination of the auditors. Possible sanctions that can be imposed by the TMG include: de-registration, suspension as well as specific mandatory instructions for the verifier to correct noncompliance issues and to make improvements. The legislation specifies the infringements for which sanctions can be imposed. For example, sanctions can be imposed if there is no lead auditor in the verification body or if there are inappropriate verification opinion statements, false notifications, no registration, etc.

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Note 129 » *The regulation allows for single person lead auditors to carry out verification provided they meet the same requirements as verifier organisations. However, this has not been applied since the start of Phase 3 of the system (in 2013).*

Note 130 » *A carbon tax is applied in a number of individual EU countries, i.e., by Denmark, Estonia, Finland, France, Ireland, Latvia, Norway, Poland, Portugal, Slovenia, Sweden, and the UK.*

(Table continued)

Country	Type of CPI *(region, where applicable)*	Verification system	Approval and oversight system
	Saitama – ETS	Similar to Tokyo Cap-and-Trade System. Requirements on verification are included in the Saitama Prefectural Government Verification Guidelines. Since 2011 the Saitama ETS is linked with the Tokyo Cap-and-Trade System.	The Saitama Prefectural Government is responsible for approving and supervising verifiers. Similar rules as for the Tokyo Cap-and-Trade System apply.
	National – Offset Crediting Instrument[131]	Verification is carried out by designated operational entities accredited under the UNFCCC Framework or verifiers accredited by accreditation bodies according to ISO 14065. Verifiers validate the projects and assess the eligibility of the projects. They also verify the monitoring reports. Requirements that are applicable to the verification are ISO 14065 as well as JCM Guidelines on validation and verification. Such requirements include what to check during the validation and verification as well as what and how to report and correct or clarify issues that are found during the validation or verification. Impartiality requirements are included in the guidelines and the ISO standard.	The Joint Committee[132] registers the designated operational entities or verifiers that want to participate in the JCM. As part of the oversight system the Joint Committee may conduct a review on whether the verifier continues to comply with the rules and guidelines. This can include on-site witnessing to assess the actual performance of the verifier or designated operational entity. The Joint Committee may ask external experts or organisations to conduct such activities. The Joint Committee can suspend or withdraw the registration in the case of specific infringements. Where sanctions are imposed by the accreditation body or under the UNFCCC framework, this should be communicated by the verifier without undue delay to the Joint Committee.
Kazakhstan	ETS and Offset Crediting Instrument	Since January 2013 verification is carried out by independent third-party verifiers that are selected and paid by operators of obligated installations. Since January 2018 verifiers are organisations/ legal entities, and core verification activities and processes are prescribed in ISO 14064-3 and relevant regulations.[133]	From its launch in 2013 until 2016, the approach to approval was on the basis of rules drawn up by the government and conducted by the Ministry of Environment as a document review process. The requirements included that there should be a minimum of two auditors with a relevant diploma and experience with an internationally recognised verifier and at least three years evidenced verification experience. There was no requirement for verifiers to have a formalised management system for quality control nor for any performance monitoring and witnessing (nor did the regulators conduct witnessing activity). From 2016 the ETS was suspended until January 2018 while the M&R requirements for the system were updated and the verifier approval process migrated to a process based on ISO 14065. Now, verifiers have to be accredited to ISO 14065 by a national accreditation body that is a member of the IAF. So the current process includes all activities mandated under ISO 17011, such as performance witnessing of individual auditors in the field as well as review of the verifier's operational and quality control systems. National accreditation bodies carry out surveillance every 18 months and reassessment of the accreditation before the accreditation certificate expires (every five years).
Mexico	Carbon tax	The tax covers fossil fuel sales and imports by manufacturers, producers, and importers. There is a simple monitoring system based on the value, volume, and price of the products sold. There is no verification system as described in this guidance, although the tax authority checks the reports.	Not required

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Note 131 » *Joint Crediting Mechanism: this is a bilateral offset mechanism.*

Note 132 » *The Joint Committee consists of representatives from Japan and the bilateral countries. More information can be found on: https://www.jcm.go.jp.*

Note 133 » *Ecological Code of the Republic of Kazakhstan No. 212-III-ZRK §§ 9-1 (2007).*

(Table continued)

Country	Type of CPI *(region, where applicable)*	Verification system	Approval and oversight system
New Zealand	ETS	The New Zealand ETS is primarily built on a framework of self- assessment. When submitting annual emission returns (reports under the ETS) participants are not required to have these verified by a third party prior to submission. The Environmental Protection Agency (EPA) can conduct audits of emission returns after they have been submitted, and where errors are found the EPA is able to go back four years to check and require correction of any incorrect returns, where needed. The EPA also contracts third parties to conduct audits of participants' returns. Verification by a third-party auditor is required if a unique and entity specific emission factor is applied. In order to apply such an emission factor the participants must meet certain eligibility criteria.[134] Applicable legislation on verification includes national legislation[135] and several ISO standards.[136] When verification is carried out, the ETS participant selects and pays the verifier. Recognised verifiers can only perform verification in relation to the scope of activities for which they have been recognised. Verifiers must comply with relevant requirements of the regulations while maintaining the appropriate level of impartiality and independence in carrying out their verification work.	The EPA recognises verifiers in accordance with requirements set out in the national regulations and can only recognise individual auditors (not companies). The verifier must be: • A chartered accountant and a member of the New Zealand Institute of Chartered Accountants;[137] or • A professional engineer.[138] The recognised auditor must have at least 100 working days of verification experience obtained within the three years immediately prior to the date of application, or at least five years of full-time work experience as an accountant or engineer. As part of the oversight of verifiers, the EPA monitors the individual auditor by periodically reviewing their verification documentation. Verifiers must ensure that reliable, accurate, and complete documentation is kept: • In relation to any verification function that provides evidence to support conclusions contained in the verifier's statement; and • To demonstrate that the verification was carried out in accordance with the regulations. The EPA has the power to suspend or revoke recognition for infringements that are specified in legislation.
South Africa	Carbon tax, Offset Crediting Instrument and carbon budgets.[139]	The mechanism in South Africa will combine the three carbon pricing instruments; legislation is under development. For the offset crediting instrument, the rules will be based on CDM and VCS rules. Verification will be carried out by: • Third-party verifiers for offset projects, recognised under the UNFCCC or the VCS; • Department of Environmental Affairs (DEA) staff for the carbon tax.	There will be a dual registration system where both the verification organisation and individual auditors will be registered by the DEA. Verifiers accredited according to ISO 14065 and designated operational entities accredited under the UNFCCC framework will be accepted.
Republic of Korea	ETS and Offset Crediting Instrument	Since its launch in 2015[140] verification has been carried out by independent third-party verifiers that are selected and paid by operators of obligated entities. Mandatory training of auditors and guidance provided to the verifiers has been based on ISO 14064-3. Since 2015 verifiers are required to meet ISO 14065 and so apply core verification activities and processes prescribed in ISO 14064-3 as well as relevant regulations[141] and guidance. In addition, the following are mandatory:	For the mandatory reporting scheme that was launched in 2010 the approach to approval was done on the basis of rules drawn up by the government and conducted by the National Institute of Environmental Research (NIER)[142] as a document review process. This included a dual registration requirement that all the verifier's auditors must attend a mandatory training course (organised by the National Institute for Environmental Human Resources Development), pass the exam,[143] and then be approved by NIER.

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Note 134 » *Eligibility criteria include the following:*
- *The proposed unique emission factor (UEF) differs from the default emissions factor that would otherwise apply by more than the total sampling and testing uncertainty, or a prescribed eligibility threshold;*
- *The class of fuel for which a UEF is being sought has well-defined parameters so that fuel within this class is easily identified and accounted for separately from other classes of fuel;*
- *The results of an activity-specific prescribed sampling and testing regime have been verified by a recognised verifier;*
- *A plan for ongoing testing is submitted.*

Note 135 » *See Annex IX: Climate Change (Unique Emissions Factors) Regulations 2009*

Note 136 » *ISO 14164, ISO 12039, ISO 10780, ISO 18283, ISO 5068-1, ISO 1171-1, ISO 12902, ISO 17025, ISO 3675, ISO 3170, ISO 5167, ISO 18283, ISO 1928, ISO 5068, ISO 1038, ISO 14778, ISO 3170*

Note 137 » *Section 19 of the New Zealand Institute of Chartered Accountants Act 1996*

Note 138 » *Section 6 of the Chartered Professional Engineers of New Zealand Act 2002*

Note 139 » *Due to commence in 2019.*

Note 140 » *This applies also for the mandatory reporting system that preceded it in 2010.*

Note 141 » *Greenhouse Gas and Energy Target Management System (2010), Act on the Allocation and Trading of Greenhouse Gas Emission Permits (2015), Regulation for designation and management of GHG verification organisation, Verification Guidelines for Operating Greenhouse Gas and Energy Target Management System.*

Note 142 » *Except for bodies verifying offset credits which are CDM DOEs.*

Note 143 » *Refresher training is required every two years.*

(Table continued)

Country	Type of CPI *(region, where applicable)*	Verification system	Approval and oversight system
		• An additional self-assessment of impartiality using the regulator's approved form. • A minimum of two auditors in each verification team. • A specified minimum number of days for each verification, with a mandatory on-site element. • Regular submission of information to the regulator (six, monthly), detailing the work being conducted and planned. For the offset crediting instrument, validation of projects is conducted by regulators and verification by third parties approved under the CDM process. Phase 1 only allowed Korean-based CDM credits to be used for offset; for phase 2 this was extended to include a limited quantity of international offsets.	Since 2015 the rules have been amended to require that verifiers meet the requirements of ISO 14065. NIER is in the process of becoming recognised as an accreditation body and a member of the IAF. Since the change in 2015, approval has also included a site visit to the verifier to check appropriate competence and management systems are in place. Once NIER is a member of the IAF all activities mandated under ISO 17011 will apply, including performance witnessing of individual auditors in the field and a review of the verifier's operational and quality control systems. A national accreditation body carries out periodic (usually annual) surveillance and reassessment of the accreditation before the accreditation certificate expires.
Switzerland	ETS	A distinction can be made between the ETS for facilities and the ETS for aviation. In the case of facilities, verification is mandatory for the first time of reporting. After that, the Federal Office for the Environment (FOEN) decides whether verification is appropriate (e.g., where there are changes to the monitoring plan or where information in monitoring report is not clear). In such cases, the FOEN can require verification of the emission report and the obligated facility must select a verifier from the FOEN approved list of verifier organisations. Criteria for eligible verifiers have been included in the 'Eignungskriterierien for Verifizierung' (eligibility criteria for the verification of the EHS monitoring reports). This contains some requirements on competence and impartiality of auditors (e.g., auditors must have sector specific knowledge and be independent from the obligated entity, auditors must have a specific education and experience). For verification of annual emission reports under the ETS aviation scheme, the EU ETS aviation specific requirements on verification apply.	The FOEN approves verifiers. Approved verifiers are included on a list that is published on the FOEN website. In the early years of the Swiss ETS the original verifiers on this list were approved through a procurement procedure (call for tenders with specific criteria on qualification and competence). Since then, two further verifiers have been added to the list (these had to meet the same criteria which are currently included in the eligibility criteria for the verification of the EHS monitoring reports). For aviation the requirements are different, since the system has been based on EU ETS from the start as part of the Linking Agreement with the EU. The verifier must be accredited by a national accreditation body in accordance with the EU's Accreditation and Verification Regulation or under the Swiss Accreditation and Designation Ordinance of 17 June 1996. This means that verifiers that are currently operational in the EU ETS can verify in Switzerland provided that they are registered with the FOEN. As part of the approval/registration process the FOEN checks through document review whether the verifier meets the specified criteria. Sanctions that can be imposed in the case of infringements include removal from the list of verifiers. This means that the verifier can no longer carry out verification.
	CO2 tax	There is no mandatory verification process because the carbon tax monitoring system is straightforward. The tax authority and the FOEN conduct detailed checks on data submitted by the obligated party as well as information on tax refunds that are applied for by companies in specific economic sectors. Applicable legislation is the Federal Act on the Reduction of CO2 Emissions (CO2 Act) and the Ordinance on the Reduction of CO2 Emissions (CO2 Ordinance).	Not required

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(Table continued)

Country	Type of CPI *(region, where applicable)*	Verification system	Approval and oversight system
	Offset Crediting Instrument	Verification is carried out six months after implementation of the project and subsequently every three years. The domestic legislation is based on CDM rules, so verification is performed by designated operational entities approved by the FOEN. The designated operational entities are selected and paid for by the project developers. Some requirements apply on independence and impartiality. The designated operational entity validating project plans ex ante may not be the same designated operational entity that subsequently verifies the monitoring reports, in accordance with UNFCCC rules.	Designated operational entities are approved by the FOEN and included on the list of verifiers from which they can be selected by the project developer. Both the FOEN and the Swiss Federal Office of Energy (SFOE) are the authorities for implementing the offset mechanisms and the evaluation of projects. As part of the oversight system the FOEN checks all monitoring reports that have been verified by the designated operational entities, in particular for the first year of project reporting. In subsequent years a risk-based approach is applied to check monitoring reports (e.g., complexity of project, history of compliance). FOEN can ask another designated operational entity to carry out spot checks on the first verifier's procedures and work papers. There is no validity period on the registration; a verifier can carry out verification for as long as they are on the approved list. Sanctions that can be imposed on designated operational entities by the FOEN include suspension and withdrawal of the registration.
Thailand	Offset Crediting Instrument	Verification is carried out by a verifier organisation that is selected and paid by the project developer. Verification is based on CDM rules and domestic validation and verification guidelines for projects. ISO 14064-3, ISO 14065, and ISO 14066 are applicable. Impartiality and independence requirements are included in the ISO standards and domestic guidelines. Verifiers have to provide a conflict of interest declaration. Site visits are carried out by the verifier at the discretion of that verifier.	Verifiers are approved by the Thailand Greenhouse Gas Management Organisation (TGO), which also monitors the performance of verifiers. Designated operational entities accredited under the UNFCCC framework can be accepted as verifiers to operate in the offset mechanism. However, other verifiers can also be approved by the TGO. Beginning in 2019 these other verifiers will be accredited by the national accreditation body which is in the process of being set up.
Turkey	Mandatory Monitoring & Reporting Scheme	Commencing in 2015, with first reporting in 2017, the monitoring and reporting requirements are based on the EU ETS rules and require verification of emissions reports by third-party verifiers. Legislation on verification and accreditation is being developed.	Verifiers will be accredited by Turkey's National Accreditation Body from 2019 based on the requirements of ISO 14065. During 2016 and 2018 the Ministry of Environment and Urbanisation provided training, examination, and a licensing system for auditors.
USA	California ETS and Offset Crediting Instrument	Since its launch in 2013[144] verification has been carried out by independent third-party verifiers[145] that are selected and paid by operators of obligated installations. Mandatory training of auditors and guidance provided to the verifiers has been based on ISO 14064-3 as well as relevant state regulations[146] and guidance. In addition, the following are mandatory: • An additional self-assessment of impartiality using the regulator's approved form and submitted for its approval in advance of starting work. • Notification of site visit dates to the Californian Air Resources Board (CARB) in advance.	From the launch of the mandatory reporting scheme in 2008 the approach to approval was done on the basis of rules drawn up by the regulator based on ISO 14065[147] and ISO 14066 and conducted by CARB. This included a dual registration requirement that all the verifier's auditors must attend mandatory training courses organised by CARB[148] and pass the exam(s). A minimum of two approved auditors must be employed on staff by a verifier.

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Note 144 » *This also applies for the mandatory reporting system that preceded the ETS in 2008.*

Note 145 » *And some air district regulators.*

Note 146 » *Regulation for the Mandatory Reporting of Greenhouse Gas Emissions; Cap-and-Trade Regulation.*

Note 147 » *The Californian Air Resources Board is not a member of the IAF and therefore doesn't apply the requirements of ISO 17011.*

Note 148 » *Separate courses and registrations for general (lead) auditing, offset project subjects, and sector specialisms.*

(Table continued)

Country	Type of CPI *(region, where applicable)*	Verification system	Approval and oversight system
		• Mandatory site visit to each reporting facility during 'full' verification years (lighter touch 'interim' verification is allowed for two out of three years, subject to specific criteria being met). • Notification to CARB of potential 'no verification' statements to allow the reporting entity time to appeal. Mandatory rotation of verifiers is required after six consecutive cycles of assurance[149] for an individual reporting entity, with a three-year gap if returning to a prior client. The California ETS is linked to Quebec and Ontario through the Western Climate Initiative; issued allowances are accepted in all three programmes.	Initially, approval was as a document review process, but this is evolving to include performance witnessing of auditors and on-site visits to verifiers (every three to five years) to check operational and quality control systems. Approval is valid for three years and refresher training for auditors is mandatory.
	Regional GHG Initiative (RGGI) – ETS and Offset Crediting Instrument	RGGI is composed of individual CO2 budget trading programmes in each of the participating states[150] that are applicable to fossil fuel-fired power generation. States transpose the RGGI Model Rule in state legislation. As far as possible this rule and associated offset protocols stay aligned with the California Air Resources Board/Climate Action Reserve offset project requirements. There is no independent verification requirement for annual emissions reporting, but offset credits used to meet allowance surrender obligations must be verified by independent third parties approved in the RGGI state where the offset project is located. Precise requirements for validation and verification are stated in the relevant state legislation and are based on ISO 14064-3; sector protocols are defined for each acceptable project type and individual projects require validation against these before regulator acceptance of the project. Each offset protocol has a detailed monitoring and verification form/ template that must be used. In addition, the following are mandatory: • In advance of work starting, a 'pre-engagement', conflict of interest disclosure must be submitted to the state regulator where the project is located for approval. • A mandatory site visit at both validation and verification stages.	Approval and oversight is only required for offset credit validators and verifiers; this is done by the nominated state regulator using a document review process following accreditation by the American National Standards Institute (ANSI) to ISO 14065 in relation to specific sector protocols. This part of the process therefore includes all activities mandated under ISO 17011, such as performance witnessing of individual auditors in the field as well as review of the verifier's operational and quality control systems. National accreditation bodies like ANSI carry out periodic (usually annual) surveillance and reassessment of the accreditation before the accreditation certificate expires. The state regulator maintains the register of approved RGGI verifiers and validators. Some state regulations also allow for a regulator approved training course or exam to be required.
	Climate Action Reserve – project crediting mechanism	The Climate Action Reserve (TCAR) uses a standardised approach that promotes relevance, completeness, consistency, accuracy, transparency, and conservativeness of emissions reduction data reported by project developers. The key objectives of project verification are to: • Ensure projects are real, additional, permanent, verifiable, and enforceable.	Only Verification Bodies currently accredited or enrolled in the ANSI accreditation programme may provide verification services to Reserve project developers. Minimum requirements are in place for both the verifier organisation and individual auditors:

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Note 149 » *This includes verifications conducted for that entity in relation to the California Climate Action Registry, the Climate Action Reserve, or other audits, etc. with impartiality rules equivalent to the CA-ETS.*

Note 150 » *Currently, Connecticut; Delaware; Maine; Maryland; Massachusetts; New Hampshire; New York; Rhode Island; and Vermont.*

(Table continued)

Country	Type of CPI *(region, where applicable)*	Verification system	Approval and oversight system
		• Minimise risks of invalid creation or double counting of Climate Reserve Tonnes (CRTs). • Support transparency and integrity of data contained within the Reserve. • Maintain consistency and comparability across projects. • Monitor project developer's ongoing compliance with the Reserve's protocols. Verification activities differ based on the complexity of the project and the underlying data, but as a minimum the following steps will be included: • Notification of verification activities and case-by-case evaluation of a conflict of interest (COI). • Scoping and planning verification activities. • Desk review and project site visit, which entail: a) identifying emissions sources and assessing risk of material misstatements; b) reviewing methodologies and management systems; c) verifying emission reduction calculations. Submitting a Verification Report, list of Findings and Verification Statement to TCAR.	<u>Organisation</u>: • Minimum of two staff members designated as lead auditor. • Demonstrable understanding of TCAR project and verification protocols; relevant assurance skills;[151] and knowledge of the specific TCAR protocol verifiers are applying to be accredited against (along with specified protocol related technology, legislation, etc.) • Send at least one member of staff to each protocol update webinar when a new protocol version is released (e.g., v1.0 to v2.0). • Agree to independent witnessing by TCAR as well as ANSI. • Apply TCAR's Verification Programme Manual and its various protocols. • Notification to TCAR of changes in personnel roles (e.g., upgrade to Lead) using the Designated Staff Roles & Responsibilities form. • Submission to TCAR of a self-evaluation of potential for COI prior to every individual verification engagement; and a case specific Notification of Verification Activities and Conflict of Interest (NOVA/COI) Assessment Form 10 days before commencing activities (along with the verification schedule and updates during the course of work if circumstances change). • Minimum of $US 4,000,000 professional indemnity insurance with TCAR named as a beneficiary on that insurance. • Demonstrate how it manages and controls subcontractors and how it retains responsibility for final decision making in relation to confirmation and issue of verification opinions. • Provide ANSI with an annual summary of verification activities (including range of sectors and clients and number of their sites) and the Lead Auditor and Internal Reviewer assigned to each verification (along with a list of its core verification team). • Retain project developer records for at least seven years from the date of verified emission report along with verifier's records. <u>Individual</u>: • Employed by or subcontracted[152] to an accredited verifier. • Attend and pass mandatory TCAR training.[153] • Where relevant, clearly identified by the verifier as 'Lead' when reporting to TCAR. Internal Reviewer is an active Lead Verifier able to demonstrate continued competence and appropriate continuing professional development.

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Note 151 » *Including - GHG Emission Reduction Project Accounting, calculation processes and methods; the concept of project baselines, 'additionality', and emissions reductions and removals that are above and beyond business-as-usual; techniques and key elements of nonfinancial data monitoring, auditing, and assurance, including GHG accounting & assurance principles, strategic analysis, risk assessment, verification planning, testing and evaluation, missing data and materiality analysis; evaluation of issues, corrective actions, and statement formulation; instrumentation and measurement systems, in relation to GHG project accounting; including principles of uncertainty analysis; electronic information systems and associated information and IT security; financial, contractual and operational implications of relevance to GHG accounting; and complex project/programme management and leadership (for Lead Auditor status)*

Note 152 » *Subcontractors must have formal contractual agreements, meet the required competencies, and be overseen by the verifier's GHG Manager (a Lead Auditor); the verifier cannot subcontract responsibility for the final decision to issue the verification opinion.*

Note 153 » *Specifically, Project Verifier Training for sector-specific Reserve project protocols. Other recommended training is: The Reserve Briefing/Orientation and General Verification training – teaching basics of GHG accounting, verification principles and concepts.*

(Table continued)

Country	Type of CPI *(region, where applicable)*	Verification system	Approval and oversight system
	The Climate Registry (TCR) – a voluntary reporting programme[154]	Third-party verification is optional but once selected it must be delivered by a registered verification body. Registry members who had their inventory verified successfully by a third party receive Climate Registered™ status and additional benefits: • Use of the Climate Registered™ logo for promotional materials and sustainability reports. • Recognition of achievements via TCR's website, public newsletter, and social media platforms. As a minimum the following steps will be included in verification: • Before finalising the contract, submit to the Registry a Case-Specific Conflict of Interest (COI) Assessment Form. • Develop a risk-based verification plan and submit to the Registry a Notification of Planned Facility Visits (NOPFV) form at least 10 business days before scheduled visits. • Apply core verification activities in accordance with the General Verification Protocol. • Prepare a detailed summary draft verification report containing all activities and findings for review with the reporting entity which implements corrective action, as required. • Finalise the verification report and opinion statement for review with the reporting entity and signatures by both parties. • Submit the verification statement to TCR's CRIS reporting system for TCR review and acceptance.	Since 2008 TCR has partnered with the American National Standards Institute (ANSI) to accredit verifier organisations for TCR's voluntary reporting programme; accreditation is against the standards ISO 14065 and ISO 14064-3 and TCR's verification protocol, and for specific sector scopes. A list of ANSI-accredited, TCR-recognised verifiers is held on the TCR website. As part of accreditation the organisation must apply the TCR General Verification Protocol and ISO 14064-3. All individual auditors must have a demonstrable understanding of TCR General Reporting and General Verification Protocols, relevant assurance skills,[155] and must attend and pass mandatory TCR training.[156] Applicant verifiers can contract for and issue verification opinions whilst going through the process of accreditation, but must achieve accreditation within nine months of the opinion being issued, otherwise the verifier will have to pay for verification to be repeated by another verifier as the opinion will not be accepted by TCR. Minimum requirements are in place for both the verifier organisation and individual auditors; these are almost identical to the requirements outlined above for TCAR, which drew on TCRs Guide to Accreditation as part of the evolution of its approvals process.

Note 154 » *This programme is governed by U.S. states and Canadian provinces and territories; it designs and operates voluntary and compliance GHG reporting programmes globally, and assists organisations in measuring, verifying, and reporting the carbon in their operations so they can manage and reduce it. Although this is not a carbon pricing instrument, this programme was part of the voluntary process that preceded and then provided input into the Californian ETS.*

Note 155 » *Including - GHG Emission accounting, calculation processes and methods; techniques and key elements of nonfinancial data monitoring, auditing and assurance, including GHG accounting and assurance principles, strategic analysis, risk assessment, verification planning, testing and evaluation, missing data and materiality analysis; evaluation of issues, corrective actions and statement formulation; management system function and auditing, in relation to GHG accounting; instrumentation and measurement systems, in relation to GHG accounting; including principles of uncertainty analysis; electronic information systems and associated information and IT security; financial, contractual and operational implications of relevance to GHG accounting; and complex project/programme management and leadership (for Lead Auditor status). – see additional requirements listed on: https://www.climateactionreserve.org/how/verification/how-to-become-a-verifier/*

Note 156 » *Specifically, Project Verifier Training for sector-specific Reserve project protocols. Designated training includes: TCR Briefing/Orientation and (Lead) GHG Verifier training – embedding knowledge and understanding of the principles and techniques associated with nonfinancial data assurance.*

Engagement of National and International Stakeholders

There are different forms of stakeholder engagement. The pure form of stakeholder engagement is a situation where the regulator and stakeholders enter into a communication with each other and exchange information. This can be either discussion groups or working groups to discuss legal drafts or in the implementation phase how legislation needs to be interpreted. It is often a two-way process where both parties provide and receive input/feedback.

Other less straightforward types of stakeholder engagements are training and information exchange. At first glance these types of stakeholder engagement do not seem to consist of a two-way process. However, in practice, training and provision of information often result in a two-way process where each party benefits from the sharing of experiences and discussion on training topics or information shared. Both types of stakeholder engagement are therefore mentioned. It is clear that stakeholder engagement can take place at different stages of V&A design and implementation, and for different cases.

The table below illustrates these different types of stakeholder engagement, including the following:

- Consultation during the design of the legal and policy framework: this can involve official consultation with stakeholders of legislation being developed but also engagement with various stakeholders during the drafting of legislation;
- Engagement in the implementation and management phase: this can involve periodic training of stakeholders, engaging stakeholders in frequent discussions of MRV issues, and so on;
- Differences in the engagement for the M&R process and the V&A process;
- CDM (international) stakeholder engagement; and
- Engagement with accreditation bodies that are part of the ISO framework.

The table provides examples of countries that apply these types of stakeholder consultation and engagement. It shows, for those countries, which stakeholders were involved, how they were involved and what approaches were used to facilitate stakeholder engagement. The approaches selected for the different types of stakeholder engagement can be different for a particular CPI. For example, in most carbon tax systems the MRV legislation is simple, and stakeholder engagement is mostly focused on consulting stakeholders on their views of the legislation as well as explaining the legislation to stakeholders.

Stages of engagement	Case specifics *(if applicable)*	Characteristics	Examples
Design of the legal and policy framework	How stakeholder engagement at this stage is organised depends very much on the complexity of the scheme, legislation, and internal organisation of regulators. These types of stakeholder engagement are easy to organise and require limited effort, making them feasible also for low-resource countries.		EU ETS: The Netherlands, UK, and Ireland organised informal stakeholder engagement at a national level when the legislation on EU ETS for the first trading period was being drafted. Selected representatives of verifiers, the accreditation body, and facilities covered by the scheme were invited to meetings organised by the regulator responsible for implementing the scheme. There were nonpublic stakeholder meetings when policy decisions were still being made and official public stakeholder consultations throughout the design process. Australian Emission Reduction Fund (ERF): There was continuous consultation with stakeholders throughout the policy making and legislative process for developing the ERF and associated safeguard mechanism, as well as the development of the National Greenhouse and Energy Reporting framework. Meetings were organised to discuss and explain legislation. Consultation involved verification bodies, individual auditors, accreditation bodies, professional institutes, and the regulator. Californian Cap-and-Trade System: Public workshops and consultation are extensive for each rulemaking as normal legislative practice in California, but were particularly intensive for the original development of the ETS verification process. The Californian Air Resources Board (CARB) conducted an open, public rulemaking process in the design and finalisation of verification requirements for its Greenhouse Gas Reporting Regulation and its Cap-and-Trade Regulation. The results of this public consultation process are available on the CARB website. Drafts or updates of legislation are published on the website and stakeholders are invited to respond to drafts and updates of legislation. CARB has to formally respond to every comment submitted. The public consultation process on mandatory GHG emission reporting can be found on: *https://ww2.arb.ca.gov/our-work/programs/mandatory-greenhouse-gas-emissions-reporting*. Information on the stakeholder engagement process for the Californian Cap-and-Trade System can be found on: *https://www.arb.ca.gov/cc/capandtrade/capandtrade.htm*

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(Table continued)

Stages of engagement	Case specifics *(if applicable)*	Characteristics	Examples
			Thailand: For the voluntary offset mechanism the regulator conducted consultation meetings with verifiers and stakeholders to get their input into the guideline. Public input was collected through the regulator's website. New Zealand ETS: For the implementation on the regulation on the unique emission factor and the verification of those data, two rounds of formal consultation were carried out. Advice from independent experts and ongoing discussions between government and participants were held. Auditors were, however, not consulted as the auditing requirements resulted from operational policy decisions.
Implementation and management phase	In a country where there are various local/regional regulators involved in the implementation (decentralised organisation)	How stakeholder engagement is organised depends on the national legal system, the number of regulators involved, and whether a central regulator has been appointed to be a focal point for engagement.	EU ETS – Spain: Stakeholder engagement working groups are organised where local regulators, the national Ministry of Environment, and the accreditation body participate to discuss specific MRVA issues. These working groups are not only intended to explain legislation and MRV issues to local regulators but also to discuss broader issues and exchange information between all parties involved. EU ETS – Poland: The central regulator organises training events, and national legislation includes requirements for local regulators to share information with the central regulator. The central regulator communicates with the National Accreditation Body about issues related to verifiers. The central regulator thus acts as a central focal point for relevant engagement. China national emission trading scheme: Training events have been organised by the National Development and Reform Commission (NDRC) to prepare local regulators in the provinces and cities for emission trading. This training has been organised through international projects such as EuropeAid. For some of these events, facilities and verifiers were also involved.
	In a country where the regulator responsible for implementing the CPI is different from the oversight body responsible for approval and supervision of verifiers	There are usually a variety of different approaches used in such countries.	EU ETS: In countries that apply the EU ETS Directive, the regulator and National Accreditation Body communicate with each other regularly on both an informal and formal basis. The Accreditation and Verification Regulation requires both parties to exchange certain information, e.g., on sanctions imposed. This information exchange was not only useful for each other's work processes, but common topics were also discussed in national and EU meetings. Capacity building in the form of training or periodic meetings is often organised by the national regulator, and usually accreditation bodies, verifiers, and regulators are involved. New Zealand: Updates on legislation are communicated to the auditors in frequent meetings. These meetings are used to explain the rules to auditors. All updates of legislation, guidance, and consultation input are published on the website.
	In a country where the regulator responsible for the CPI is the oversight body responsible for approval and supervision of verifiers	In a country where there is one regulator involved in all activities, the number of stakeholders involved is more limited	Californian Cap-and-Trade System: CARB updates guidance materials and provides webinars on an annual basis. Verifiers are subject to oversight by CARB and receive direct feedback on their performance. CARB is also available to respond to questions via direct staff communication or centralised helpdesk e-mail accounts. Australian Emission Reduction Fund: The Clean Energy Regulator undertook a wide range of stakeholder engagement activities to communicate and explain audit and reporting requirements under the ERF; this included roadshows, workshops, website information, guidance documents, and guidance document updates. Japanese Joint Crediting Mechanism: Information on project applicable rules and guidelines are put on a public website to ensure transparency of projects and JCM implementation. Stakeholder engagement is carried out by seeking official feedback on project design documents.[157] There is close cooperation between the Joint Committee and relevant host countries participating in the bilateral offset mechanisms (through e-mails and meetings). Swiss offset mechanism: Regular workshops are organised where the Federal Office for the Environment and the verifiers discuss problems, M&R issues, and case studies.

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Note 157 » *This is official feedback from local stakeholders including the public – individuals, groups, or communities affected or likely to be affected.*

(Table continued)

Stages of engagement	Case specifics *(if applicable)*	Characteristics	Examples
Stakeholder engagement where engagement for the timing of the M&R process is different than the V&A processes	In most cases stakeholder engagement for the design of the M&R rules and V&A rules is carried out either simultaneously or in stages that overlap with each other. In some countries with more limited resources – or where the approaches to be followed for approval of verifiers are not always clear when designing the system – the type of stakeholder engagement may be different. Stakeholder engagement for V&A is carried out at a later time and generally more directed toward verifiers.		South Africa: The first priority for the regulators was development of the M&R rules and framework for the proposed carbon tax. Stakeholder engagement involving verifiers will be carried out at a later stage.
Stakeholder engagement in the CDM	Stakeholder engagement related to verification and validation for the UN's CDM process is largely done through the 'Designated Operational Entities Forum' (DOEF). Amendments to CDM rules can be made at any time in relation to improvements in accuracy and conservativeness, and these mostly concern M&R rules. Members of the CDM Executive Board attend the annual COP[158] meetings and conduct both a Q&A Session and present its Annual Report to the COP, outlining changes made to the rules. In addition, anyone can attend Executive Board meetings by webcast (except for closed sessions) or in person provided that they are registered in advance through a UNFCCC accredited organisation. Written inputs can be made at any time, and these are discussed at the Executive Board meetings.		
Stakeholder engagement with accreditation bodies that are part of the ISO framework	Stakeholder engagement can also be carried out internationally.		• International Accreditation Forum (IAF): This is the world association of accreditation bodies. It is responsible for developing guidance that interprets standards such as ISO 17011 and ISO 14065. Guidance developed by the IAF is mandatory for accreditation bodies that are a member of the IAF. This organisation provides direct support to CPIs for which ISO based accreditation bodies approve and oversee verifiers. However, they can also indirectly influence processes through the development of guidance explaining the application of standards, cross border accreditation, and other topics. More information can be found on: *http://www.iaf.nu/* • IAF Regional Accreditation Groups: Group members are accreditation and other bodies that cooperate within an identified geographical region to establish and maintain a multilateral recognition agreement based on peer review, and to represent the interests of group members, regional accredited entities, industry, and users of standards in relation to assessment by IAF members. For the EU ETS the IAF Regional Group is the 'European Cooperation for Accreditation' (EA)[159] which plays an important role in the implementation of the EU ETS Directive. To ensure competent and impartial accreditation bodies the AVR has allocated a significant supervision role to the EA. All national accreditation bodies involved in the EU ETS must be a member of EA, which not only develops mandatory guidance for its members, but also monitors the performance and competence of accreditation bodies working under the AVR rules. It organises regular meetings where accreditation bodies discuss problems and experiences, and it provides capacity building by helping new accreditation bodies set up EU ETS specific procedures.

Note 158 » *'Conference of the Parties' to the UN Framework Convention on Climate Change, which also serves as the Meeting of the Parties to the Kyoto Protocol.*

Note 159 » *Other regional accreditation groups are the African Accreditation Cooperation, the Inter American Accreditation Cooperation, the Pacific Accreditation Cooperation, the ARAB Accreditation Cooperation, and the Southern Africa Development Community Cooperation in Accreditation.*

Common principles that apply to both approval and verification processes

Principles	Meaning	Requirement of verifiers & auditors	Requirement of oversight assessors
Integrity	Integrity is a prerequisite for all those who act in the public interest. It is essential that auditors and assessors act, and are seen to act, with discretion and integrity. This requires not only honesty but a broad range of related qualities, such as fair dealing, truthfulness, candour, courage, intellectual honesty, and confidentiality. Integrity requires that the auditor is not affected, and is seen not to be affected, by conflicts of interest. Conflicts of interest may arise from personal, financial, business, employment, and other relationships which the verification team, the verifier, or its other staff have with the entity being verified and its connected parties.	Exercise ethical conduct at all times to ensure delivery of a verification outcome in the public interest.	Exercise ethical conduct at all times to ensure the approval process results in trust in the independence and competence of verifiers.
Objectivity	Objectivity is a state of mind that excludes bias, prejudice, and compromise and that gives fair and impartial consideration to all matters that are relevant to the task at hand, disregarding those that are not. Like integrity, objectivity is a fundamental ethical principle and requires that the individual's judgment is not affected by conflicts of interest or the undue influence of others.	Maintain objectivity throughout their work to ensure that findings and conclusions are based on objective evidence and triangulated across different types of evidence.	
Evidence-based decision making	Findings and conclusions are based on factual evidence obtained during verification/assessment activities.		
Professional scepticism and due care	An attitude that includes a questioning mind, being alert to conditions which may indicate possible misstatements due to error or fraud, and a critical assessment of evidence. Professional scepticism includes being alert to, for example: • Assessment or verification evidence that contradicts other evidence obtained. • Information that brings into question the reliability of documents and responses to inquiries that may be used as evidence. • Conditions that may indicate possible fraud or malfeasance. • Circumstances that suggest the need for verification or assessment procedures in addition to those required by the CPI programme rules.	Not to automatically accept evidence obtained during verification/ assessment activities and be sceptical of information offered and associated findings. Thoroughly analyse evidence at all times, cross reference different pieces of evidence.	
		Be attentive to identify errors or anomalies in the data and evidence provided by the operator.	Be attentive to identify inconsistencies or anomalies in the evidence provided by the verifier or its auditors.
Confidentiality	To respect confidentiality of information acquired as a result of professional and business relationships and, therefore, to not disclose any such information to third parties without proper and specific authority, unless there is a legal or professional right or duty to disclose. This includes the requirement not to use the information for the personal advantage of the auditor or third parties.	Secure confidential information obtained or created during verification/assessment. Implement safeguards to ensure that confidentiality is maintained by the verifier/assessor.	

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Principles	Meaning	Requirement of verifiers & auditors	Requirement of oversight assessors
Independence and impartiality	Independence is made up of two elements: 'Independence of mind' and 'independence of appearance'. The former is defined to include integrity, objectivity, and scepticism. The latter is defined as being free from 'facts and circumstances' that would lead a reasonable and informed third party to conclude that integrity, objectivity, or scepticism was compromised. Independence is related to and underpins objectivity. However, whereas objectivity is a personal behavioural characteristic concerning the individual auditor's/ assessor's state of mind, independence relates to the circumstances surrounding the verification or assessment, including financial, employment, business, and personal relationships between the relevant parties (e.g., approval assessor and verifier; or verifier, individual auditors, and the entity being verified and its connected parties). Relationships with parties whose interests may be contrary to the interests of the entity being verified/assessed may also be relevant to the appearance of independence.	Maintain a 'distance' from the party whose report the verifier is checking or from the project/ programme activity it is evaluating or validating. Assessors, verifiers, auditors, and lead auditors should be free from bias and conflict of interest.	Maintain a 'distance' from the verifier that the assessor is evaluating for approval
Professional competence	To maintain professional knowledge and skills at the level required to ensure that a client or employer receives competent professional services based on current developments in practice, legislation, and techniques and act diligently and in accordance with applicable technical and professional standards.	The verifier, auditor, lead auditors, and other members of the verification team shall have the necessary skills and competence to carry out the tasks assigned to them under the agreed verification scope.	The assessor and other members of the assessment team shall have the necessary skills and competence to carry out the evaluation and approval tasks assigned to them under the required approval scope.

Options for selection and payment of a third-party verifier

Option	Considerations for policy makers	
1a **Payment by the regulator from general/ nominated budget**	**When would the option be appropriate?** • In some cases, this option is chosen if the CPI is in a pilot phase or in its early stages. In particular, in the case when policy makers fear that direct payment by the obligated entity might lead to conflicts of interest. • Mostly in smaller schemes with limited number of facilities covered by the CPI. • If the regulator wants to have more direct control over verifiers at the start of the programme. **Examples of application:** Chinese pilot systems where provincial authorities paid the verifiers; Swiss ETS in the first years where the regulator organised a procurement phase; several countries in Europe in the early years of the EU ETS.	
	Advantages • Possibility to control the quality of verifiers as the regulator selects and pays for the verifier and can have more influence on the choice of verifier and the specific activities that the verifier carries out. • Less risk that an obligated entity will put pressure on the verifier to conclude the verification with a positive opinion statement.	**Disadvantages** • This can put a large strain on government budgets and may impose limitations on when verification can commence, based on government budgetary cycles, risking insufficient time to complete work with appropriate rigor.

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Option	Considerations for policy makers	
	• Less costs for the obligated entity. • More control of the regulator over the time a verifier should allocate to verification work.	• Risk to the independence of the verifier from the regulator, as the verifier may seek to keep regulators happy and may be less inclined to report issues found during the verification, in particular if it concerns methodologies or monitoring plans that have been approved by the regulator.
	Observations: • Regulator would have to arrange for funds from general taxation or other sources and ensure that such funds continue to be available for the life of the scheme. • There need to be clear rules or instructions on the role of the verifier versus the role of the regulator, how to select verifiers, whether a contract needs to be closed between the verifier and the obligated entity, etc. • Clear requirements and criteria on qualification and selection of verifiers are necessary. • There needs to be a balance between the budget cycle and the needs of the compliance and verification cycle for the CPI. It may be difficult for a regulator to estimate how much time and budget is needed for a particular verification as this is very much specific to each entity, facility, or project developer depending on the risks involved.	
1b **Indirect payment from regulator using CPI or environmental specific funds**	**When would the option be appropriate?** • See option 1a. • This option highly depends on from where the regulator can secure funds for payment of the verifiers. For example, auctioning revenues are not available in all CPIs.	
	Advantages • See option 1a. • Burden on budget for regulator can be mitigated through secured revenues.	**Disadvantages** • Requires an alternate funding source to be established, potentially removing the advantage of reduced cost to obligated entities, if they are required to contribute to such funding. • Risk to independence of verifier from the regulator as they may seek to keep regulators happy and may be less inclined to report issues.
	Observations: • See option 1a. • Possible specified funds from which the regulator can draw are auctioning revenues, carbon tax revenues, surcharges from emission allowances or offset credits that are traded, fees that regulators charge obligated entities (e.g., fees for registry accounts, fees for permits), etc.	
2 **Payment by obligated entity**	**When would the option be appropriate?** • In more complex CPIs, such as ETSs and offset mechanisms that cover many sectors, and many facilities or companies that have more complex M&R requirements. • The use of international standards such as ISO 14064-3 and ISO 14065 and CDM standards may move the policy maker to select this option as they generally require verifiers to be independent from the obligated party and the regulator. • Often used when the CPI has been in place for a longer time. • The legal system can move the regulator to select this option. In EU ETS the operator pays for the verifier as this originates partly from principles in European legislation that the polluter should bear the expenses of taking measures to avoid damaging the environment and reduce emissions. Examples of application: • Most CPIs use this option, e.g., EU ETS, California ETS, Korea ETS, CDM/JI, Japanese offset mechanism, Australian offset mechanism.	

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Option	Considerations for policy makers
	Advantages • The obligated party is freely able to select its verifier from the approved list and negotiate the fee.[160] • Independence from the regulator. • No additional cost to the government. • More inclined to act with professional scepticism on issues that might have been overlooked by the regulator when approving monitoring plans, etc. • More in line with the independence principles in international standards such as ISO 14065. • Economic efficiency associated with the costs of internalising the costs of climate change being borne by the emitters rather than the taxpayer (polluter pays principle). **Disadvantages** • Potential pressure from obligated entities on the verifier to reduce the time allocated to the work below what is required for a rigorous verification. • Risk to independence of verifier as they seek to keep obligated entities happy and are less inclined to report recommendations for improvement or noncompliance issues if this is not regulated by law. • Potential pressure from obligated entities to conclude the verification with a positive opinion statement.
	Observations: Requires additional measures to be taken to ensure that verifiers remain independent from the obligated entities they are checking and to avoid the risk that verifiers come under pressure from obligated entities to conclude the verification with a positive verification opinion statement. Such safeguard measures include, for example, specific requirements on time allocation according to complexity and risk; impartiality and competence; rotation of Lead Auditors and/or verification bodies; and a strong approval and supervision structure for verifiers that is ongoing.
3 **Payment from pool**	**When would the option be appropriate?** • Could be applied if the costs of verification exceed the amount that an obligated entity can gain by selling credits. • Could be considered if there are concerns over payment of third-party verifiers by obligated entities threatening impartiality of verifiers, and the regulator does not have sufficient funds to pay for verifiers. **Examples of application:** This option is used with respect to Gold Standard microscale projects. As the amount of credits was limited, verification was economically not feasible. Each project contributed a certain amount of money to the Gold Standard Verification Fund. Verification costs of microscale projects are covered by this fund. If 8 to 10 projects requested issuance, the Gold Standard selects a verifier to check one of the projects/reports.[161]
	Advantages • Independence from the regulator and obligated entity; verifiers are more inclined to act with professional scepticism. **Disadvantages** • Not easy to implement legally if the market is large (see below under considerations); requires an independent body or regulator to manage the pool funds. • Requires determination of the contributions to be made by obligated entities that are in relation to their likely verification risk and effort required for individual obligated entities. • Same-day rates for all verifiers may mean some withdraw from the market if the fee rate offered is not commensurate with the risk levels associated with emissions or the risks associated with the verification effort.
	Observations: • Have clear rules in place on how such a pool may work and the liabilities associated with the management of funds in the pool to ensure there are sufficient resources to cover all necessary verifications. • Need to have clear rules on how the amount of work for different verification audits is determined. If there is a standard fee per verification, there will be a risk that verifiers do the minimum amount of work, and the time allocation is not specifically tailored to the particular verification and its risks.

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Note 160 » *The time required for verification should be determined by the verifier to meet the risks associated with the work. It should not be up for negotiation with the operator. However, the fee rate per day can be negotiated in an open market process. Note that where regulators provide guidance on the costs of verification, best practice would be to provide guidance on the potential amount of time required and not a specific cash value as this can vary significantly depending on the individual fee rates of specific verifiers.*

Note 161 » *Further information can be found at: https://globalgoals.goldstandard.org/101-1-or-gold-standard-for-the-global-goals-micro-scale-requirements/#_Toc485667757.*

International recognised standards

The table below provides an overview of the relevant recognised international standards and which CPIs have adopted them in full or in part; these documents have been referenced in parts 3 and 4 of this guide with information on how they are applied, as relevant to the part. As outlined in section 3, most carbon tax systems do not have a verification system as defined in this guidance, therefore these standards generally do not apply to carbon tax systems.

International Standard	What the standard covers and examples of CPIs that use these standards
ISO 14064-3	**Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions.** **What does the international standard regulate?** This standard specifies the minimum requirements for conducting any type of validation and verification activities. This covers the principles of independence, ethical conduct, fair presentation, and due professional care; and the structure of a validation/verification process including key activities such as: • Scope, criteria, level of assurance, and materiality; • Planning for verification, sampling of the data universe, and evidence requirements; • Assessing the GHG information management systems and controls; • Assessing the GHG data and associated information against specified criteria; • Evaluating the assertion (data report) and evidence collected in order to form a conclusion on its validity. **The International Accreditation Forum (IAF)** provides mandatory guidance in MD6-2014[162] on the application of ISO 14064-3 for bodies that are being accredited under ISO 14065.
	Examples of emission trading schemes: California ETS, EU ETS, Kazakhstan ETS, Korea ETS, and Tokyo Cap-and-Trade System; and any verifier accredited under ISO 14065 is required to apply ISO 14064-3 by reference from the accreditation standard. **Examples of offset mechanisms:** Australia Emissions Reduction Fund, Alberta's crediting mechanism (Canada), The Climate Action Reserve, RGGI crediting mechanism (US), and the Verified Carbon standard mechanism.
ISO 14065	**Greenhouse gases – Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition.** **What does the international standard regulate?** This standard specifies principles and requirements for bodies that undertake validation or verification of greenhouse gas (GHG) assertions. It contains general requirements on competence, impartiality, and legal organisation of verification bodies; requirements on what procedures and management systems the verification body must set up and implement; and requirements on addressing appeals and complaints. A normative reference to ISO 14064-3 is included which means that it is applicable as a mandatory supporting standard. **Examples of CPIs using such standards:** California ETS, Canadian CPIs (Quebec, British Colombia, Ontario – both ETS and offset crediting mechanism), EU ETS, Kazakhstan ETS, and Korea ETS & crediting mechanism.[163]
ISO 14066	**Greenhouse gases – Competence requirements for greenhouse gas validation teams and verification teams.** **What does the international standard regulate?** This international standard specifies competence requirements for validation and verification teams for the benefit of GHG programme administrators, regulators, accreditation bodies, and validation and verification bodies. It contains general requirements on a verification team, auditors, and lead auditors, including requirements on sector competence and what type of auditing competence and other knowledge a verifier, auditor, and lead auditor should have. The standard is used as a reference guide during accreditation to ISO 14065.

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Note 162 » *IAF Mandatory Document for the Application of ISO 14065:2013, MD 6-2014.*

Note 163 » *Korea is migrating to the international standard.*

(Table continued)

International Standard	What the standard covers and examples of CPIs that use these standards
	Examples of CPIs using such standards: California ETS, Canadian CPIs (British Columbia, Ontario, Quebec), EU ETS, Japan, Kazakhstan ETS, South Africa, Korea ETS, and Thailand.
ISO 17011	**Conformity assessment – General requirements for accreditation bodies accrediting conformity assessment bodies.** **What does the international standard regulate?** This International standard specifies requirements for the competence, consistent operation, and impartiality of accreditation bodies assessing and accrediting conformity assessment bodies,[164] such as: • The steps in the accreditation process; • General requirements on competence and impartiality of the accreditation body, and its assessors; • Sanctions that can be imposed by the accreditation body; • Procedural requirements such as processes for handling complaints, appeals, and procedures for corrective action. **International Accreditation Forum (IAF)** provides mandatory guidance and nonbinding guidance on accreditation and the application of ISO 17011.
	Examples of CPIs using such standards: Any CPI that uses the ISO national accreditation process for approval of verifiers (i.e., ISO 14065) will be subject to the application of this standard; however there are some CPIs – such as California – that use ISO 14065 as the basis of their approvals, but which are not a National Accreditation Body and hence are not subject to ISO 17011.
ISO 17024	**Conformity assessment – General requirements for bodies operating certification of persons.** **What does the international standard regulate?** This international standard specifies principles and requirements for a body certifying persons against specific requirements, and includes development and maintenance of certification schemes for individuals – such schemes are usually implemented in response to a specific programme owner requesting it. The standard ensures that such certification schemes operate in a consistent, comparable, and reliable manner worldwide; and covers the structure and governance of the certifying body, characteristics of the certification programme, information to be available to applicants, and recertification initiatives of the certifying body, including: • General and structural requirements for the certification body; • Resource requirements; • Records and information requirements; • Development of certification schemes; • Certification process requirements; and • Management system requirements The standard is designed to help organisations conduct well-planned and structured evaluations in order to ensure impartiality of operations and reduce any conflict of interest. Further supporting guidance is published by ISO on the development of personnel certification schemes in line with ISO 17024.
CDM/JI standards	**What does the international standard regulate?** **The CDM accreditation standard**: Contains the minimum requirements for the approval of a designated operation entity (verifier) to conduct validation/verification of CDM crediting projects (validation of project design plans and verification of project emissions reductions). **The CDM validation and verification standard for programmes of activities**: Contains minimum requirements for the validation and verification of a programme of activity by designated operational entities, including communications and stakeholder engagement processes. These CDM requirements are approved by the Executive Board which also acts as the regulator in the context of acceptance of the validation/verification report, etc. **The CDM validation and verification standard for project activities**: Similar to the programme standard, contains minimum requirements for validation and verification of a project by designated operational entities.

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Note 164 » *A verifier is considered a conformity assessment body in that it is checking that a report produced by an obligated party conforms to the rules and requirements laid down for the relevant CPI.*

(Table continued)

International Standard	What the standard covers and examples of CPIs that use these standards
	Examples of CPIs using such standards: The standards are applied to CDM offset crediting projects and programmes of activity; they have also provided reference or input to protocols used for many domestic offset crediting mechanisms, such as for Brazil, Japan, South Africa, and Thailand.
Verified Carbon Standard (VCS)	**What does the internationally recognised voluntary standard regulate?** Operated by Verra, the VCS Program provides a global programme with a standard and framework for independent validation of projects and programmes, and verification of GHG emission reductions and removals for use also outside the UNFCCC context (i.e., by nongovernment actors); this framework is based on ISO 14064-2 and ISO 14064-3. As its core requirements for approval of validators and verifiers it uses the requirements set out in ISO 14065. The VCS Program facilitates the joining up of domestic crediting programmes by means of demonstrating compliance with VCS principles and requirements through a gap analysis, following which the VCS Board makes a final decision on whether to approve the GHG programme for recognition under VCS. Once approved the following applies: 1) GHG credits under the approved GHG programme may be canceled and issued as VCS Units (VCUs, i.e., the credits are converted into VCUs); 2) Validation/verification bodies under the approved GHG programme are approved to deliver VCS validation and verification (for the corresponding sectoral scopes for validation and verification respectively, and provided they have signed the required agreement with the Verra); and 3) Methodology elements under the approved GHG programme may be used for developing VCS projects. Further detailed information can be found on: • The VCS Standard : *https://verra.org/project/vcs-program/rules-and-requirements/* • Becoming approved as a verifier : *https://verra.org/project/vcs-program/validation-verification/become-a-vvb/*
	Examples of CPIs using such standards: California has recognised VCS credits as part of its compliance programme. Registry offset Credits (ROCs) issued under the VCS Program using CARB approved offset protocols can be converted into California compliance offset credits (CCOCs). Similarly, the VCS Early Action Offset Program has been recognised by the California Compliance Offset Programme as generating credits that can be converted into CCOCs that can be surrendered to meet compliance obligations under the California ETS. Brazil is currently consulting on plans for a VCS JNR Jurisdictional Subnational Program on Incentives for Environmental Services of Carbon of the State of Acre. The South African offsetting mechanism will also use VCS for specific sectors and activities.
ISAE 3410	**International standard on Assurance Engagements on Greenhouse Gas Statements** **What does the international standard regulate?** First published in 2012, the International Standard on Assurance Engagements No. 3410 builds upon the International Framework for Assurance Engagements and ISAE 3000 (the Standard for 'Assurance Engagements other than Audits or Reviews of Historical Financial Information'). ISAE 3410 follows the elements of the Framework of ISAE 3000 but is tailored specifically for the assurance of GHG statements (other elements of ISAE3000 are mandatory if ISAE3410 is being used). The framework and standards are designed for professional financial accounting firms and assumes that: a) The engagement team and technical reviewer are subject to parts A and B of the Code of Ethics for Professional Accountants (see below) issued by the International Ethics Standards Board for Accountants; and b) The auditors are members of a firm that is subject to ISQC1[165] (and overseen by an appropriate National Body). Where the standards are used by an organisation that is not a professional financial accounting firm, the user must take into account the above requirements and demonstrate that they are subject to equivalent professional/legal requirements (i.e., that are at least as demanding). The standard specifies requirements in relation to the planning and delivery of GHG statement verification with a reasonable or limited level of assurance.

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Note 165 » *International Standard on Quality Control 1 – Quality Control for Firms that Perform Audits and Review of Financial Statements and Other Assurance and Related Services Engagements.*

(Table continued)

International Standard	What the standard covers and examples of CPIs that use these standards
	Definitions and requirements are stated for elements including: roles and responsibilities; principles such as professional scepticism and professional judgment; assurance skills and techniques; verification processes and elements such as materiality; quality assurance processes: formal documentation and written representations from the party responsible for the statement (e.g., the client). These standards form an underpinning for many of the other standards used in GHG accounting and assurance as they (or earlier versions) were in existence before GHG accounting came into practice.[166] Further detailed information can be found in the following: • International Framework for Assurance Engagements: *http://www.ifac.org/system/files/downloads/b003-2010-iaasb-handbook-framework.pdf* And the following standards which are published in the 2018 Handbook of International Quality Control, Auditing, Review, Other Assurance, and Related Services Pronouncements (publically available documents, but registration is required): *http://www.ifac.org/publications-resources/2018-handbook-international-quality-control-auditing-review-other-assurance* • ISAE 3000: Assurance engagements other than audits or reviews of historical financial information (page 129) • ISAE 3410: Assurance engagements on greenhouse gas statements (page 278)
	Examples of CPIs using such standards Australia Emissions Reduction Fund (approves ISAE 3000 and ISAE 3410); Canada (Alberta) requires the application of ISAE 3000 (the development of its programme predated the existence of ISAE 3410). Verification under the Alberta programme can only be done by chartered accountants and professional engineers.

Scope of verification

This annex explains what the verifier checks during the verification and how the design of the system and coverage of the CPI can affect the scope of verification and the checks a verifier carries out during verification.

In general, the verifier checks:

- **Completeness** of relevant sources, fuels, and materials as well as associated data reported by the obligated entity.
- **Compliance with requirements** and specific plans and/or other documents validated or approved by a regulator or other institutions such as designated operational entities.
- **Effectiveness** of the obligated entity's internal quality assurance and control system that is designed to mitigate the risk of errors in the data and to ensure compliance with requirements. Although this may not be a specified requirement in some CPIs, the verifier should check this to manage its own verification risk. As part of the quality assurance and control system the verifier should also check monitoring equipment and associated maintenance, calibration, and so on.
- That the reported **data are free from material misstatements** as specified by the CPI's rules. In that respect the verifier will check data details and any assumptions being made.

The design of the M&R system and the coverage of the CPI[167] is a determining factor for the scope of verification and the checks that the verifier has to carry out:

- Where a CPI requires obligated entities to have a monitoring plan[168] approved by the regulator or an independent third party, this affects the criteria used by the verifier to check the accuracy of reported data. The detail in the monitoring plan has an impact on the verification since the verifier will check implementation of the specific approved plan. The plan becomes one of the verification criteria the verifier must take into account.
- Where the monitoring methodologies prescribed by the CPI for an obligated entity or project/programme activity relate to specific methodologies such as for carbon capture and storage, afforestation projects, or the application of continuous measurement, this can also impact verification as specific requirements may apply in such cases.[169] Policy makers need to consider this when defining the verification rules.
- The scope and boundaries of the CPI as well as the coverage of emissions affect how the verifier checks completeness of emissions, sources, and fuels or materials. The verifier usually checks these elements by visiting the site of an installation, entity, or project and confirming that boundaries and coverage of sources, emissions, and fuels or materials have been taken into account in the correct manner.

Note 166 » *Ethics Code Part A covers – integrity, objectivity, professional competence & due care, confidentiality, and professional behaviour. It provides a conceptual framework to identify threats to compliance with these principles, evaluate significance of threats, and apply safeguards. Part B covers – how Part A applies*

Note 167 » *Which sectors fall under the scope of the CPI and what monitoring boundaries apply.*

Note 168 » *A monitoring plan outlines how data are to be monitored and reported by the obligated entity or how projects or programmes are to be implemented in the case of some crediting mechanisms (such as CDM).*

Note 169 » *Specific requirements apply in CDM for carbon capture storage project activities and afforestation and reforestation project activities. In some CPIs, simplified requirements are applied to small scale project activities (CDM) and small emitters (Tokyo Cap-and-Trade System, EU ETS).*

- Where the reporting entity consists of multiple facilities and is required to monitor and report energy or emissions associated with all its locations, the verifier will have to check how the data generated at the facility level is integrated at the aggregate level for the whole entity (including whether all sources and fuels or materials from all facilities have been taken into account). Depending on how the rules of the CPI are set up the verifier may find it necessary to carry out site visits to all facilities involved. In general, this depends on the required level of assurance and the heterogeneity of the emissions sources and data accounting processes – these will be taken into account in the verifier's risk analysis to determine whether omitting a facility from the visit programme is of low risk to the verification conclusion. Available resources of course also factor into such decisions.

- Where the M&R requirements are imposed on a single facility, the verifier's activities are focused on this facility.

In some CPIs the obligated entity consists of multiple facilities because of legal systems or political decisions. If the obligated entity consists of multiple facilities, this can affect how the verification is carried out. The data for the various facilities must be checked by the verifier to ensure the aggregated data for the whole entity is accurate. In that case it is important that the verifier checks the data and quality assurance/quality control measures from most, if not all, of the multiple facilities or locations. In some circumstances a CPI might allow the verifier to sample a range of the facilities or locations, but this will depend on how homogeneous the activities and the data accounting and internal control processes are across all the facilities/locations. It will also depend on the risk analysis.[170] The more similarities between all facilities/locations and their accounting and internal control processes, the lower the verification risk associated with selecting a sample of facilities/locations to check.

Some CPIs give indicative guidance on the selection of a sample of facilities to check, but ultimately it is the responsibility of the verifier to manage their verification risk and check all facilities that their risk analysis indicates should be included in the sample.

Verification report

In addition to the opinion statement itself, the verification report includes the scope, basis of the opinion, responsibilities of the different parties and a summary of findings. This annex outlines the different verification opinion statements that can result from verification activities. It also gives an indication of what should be included in the broader verification report. This information is based on good practices identified from CPIs around the world and international standards.

Verification opinion statements

Type of verification opinion statement	Explanation
The reported data are free from material misstatements *The report is verified as satisfactory*	This does not necessarily mean that the obligated entity's report does not contain misstatements or noncompliances with the monitoring plan or requirements. Reported data can be accepted by the verifier provided that there are no material anomalies in the professional judgment of the verifier and a verified opinion statement can be given. If there are nonmaterial issues within the reported data, good practice is that these must be transparently listed in the verification report itself and subsequently addressed by the obligated entity.
The reported data are free from material misstatements, but there are items the verifier wishes to draw the users' attention to *The report is verified as satisfactory, but with comments*	As above, but the verifier may add specific comments to their opinion statement section to draw the data users' attention to aspects that might impact the way readers use the data, but without this issue being material. For example, where metered data was used but the CPI rules do not require a certain level of maintenance and calibration, the verifier might draw attention to the fact that meters were not calibrated or had not been maintained with reasonable frequency – as this might impact the quality of data but would not be a noncompliance.
The reported data are not free from material misstatements *The report is not verified as satisfactory*	The report contains material misstatements and cannot be verified as satisfactory. This means the reported data are denied an assurance opinion statement and therefore may be in breach of the CPI's legal requirements. In this case action should be taken by the regulator.

(continued on next page)

Note 170 » *The less homogeneous the higher the risk and therefore the more likely the verification plan would need to include a visit to all or most of the individual locations. Another factor to take into account is whether the contributions of the facility to the total amount of emissions are material or not.*

(Verification opinion statements continued)

Type of verification opinion statement	Explanation
There is a limitation of scope *The report is not verified as satisfactory*	A limitation of scope for verification means that something has occurred that prevented the verifier from obtaining evidence that is required to achieve the specified level of assurance. For example, primary source data are missing or data are only available at an aggregated level; or the verifier has been prevented from inspecting parts of a facility (or facilities). A limitation could also occur if the obligated entity has failed to (or declined to) make sufficient information available to carry out the verification fully or where a required approved/validated monitoring plan is not available or unclear in scope. A limitation of scope means that the emission report cannot be verified as satisfactory under the specified level of assurance, and action needs to be taken by the obligated entity and/or regulator.[171]

Based on lessons learnt from different CPIs, it is good practice to require verifiers to include the following elements in a verification report:

- Objectives and scope of verification as well as a specific dated reference to the report that was verified;
- The criteria used to verify the reported data, such as legal requirements, including the latest version of the monitoring plan (where relevant);
- Aggregate total emissions and the reporting period;
- Responsibilities of the obligated entity, the verifier, and the regulator(s);
- Verification opinion statement (the actual conclusion reached by the verifier);
- Threshold(s) for materiality;
- Confirmation that compliance obligations have been met;
- List of (outstanding) misstatements and cases of noncompliance with the monitoring plan (if relevant) and legal requirements;
- Where relevant, recommendations for improvement in accuracy, transparency and robustness of reporting, and robustness of data accounting and control processes;
- Other relevant information that the verifier may want to bring to the attention of the user of the report: for example, the regulator or other parties such as traders for crediting or trading systems;
- Names of the lead auditor, auditor(s), and technical experts involved and the verification body;
- The oversight body that has approved the verifier;
- Data and signature of an authorised person signing on behalf of the verifier.

For some CPIs more detailed information must be included in verification reports. For the CDM, information needs to be included on the methods used for verification, such as verification approaches followed, application of materiality, and site visits carried out.

Examples of impartiality measures

This annex provides examples of situations that have led to impartiality risks; it also outlines what type of safeguards or measures can be taken to mitigate or avoid these risks.

Note 171 » *Note, the limitation needs to be imposed from outside the verification team. The verifier using the risk analysis to focus its efforts on certain elements or areas of an obligated party's accounting system does not constitute such a limitation.*

Risk area	Description of risk	Potential mitigation measures
Sources of revenue	In some CPIs verifiers are paid by the obligated entity which can lead to potential risks to impartiality. Obligated entities can, for example, put pressure on verifiers to issue a positive verification opinion where this is not justified or to carry out the verification in less time than is needed. Examples of such CPIs are EU ETS, California Cap-and-Trade System, Australian Emission Reduction Fund.	• Including requirements on minimum time allocation in legislation or providing guidance on how to allocate time (see section 7.4 under step 1); • Requiring a mandatory technical review of all verifications by independent persons from within the verification body (see section 7.4 under step 8); • Transparency of verification reporting by establishing the minimum required content in legislation (see section 7.4 under step 9); • Strong oversight and supervision of verifiers by formal oversight bodies (see section 11.4); • In most of these CPIs, accreditation to ISO 14065 is prescribed which requires verifiers to take internal measures and safeguards to avoid and mitigate these risks; • Similar requirements are laid down in the CDM rules on accreditation. The type of internal measures to be taken is very much dependent on individual circumstances.
Self-interest	Risk of fraud by altering verification results to gain personal profit. This can be through direct payments or indirect benefits.	It is a common requirement in all CPIs that verifiers may not enrich themselves by taking money for altering the verification opinion or influencing the verification. In some countries this is part of general legislation on fraud whereas in others CPI programme specific requirements have been included in legislation or reference has been made to ISO 14065. Owning shares in the obligated entity whose report is being verified or sharing common ownership or common resources with that obligated entity is forbidden in most CPIs. The type and detail of requirements can vary between CPIs. In some countries, auditors are required as part of the verification process to submit a document to the regulator that vouches for good behaviour and that states that there is no conflict of interest in relation to the specific verification being undertaken.[172]
Self-review	A common principle in all CPIs is that a verifier should not review or evaluate its own work when undertaking verification. However, there are different interpretations of what constitutes self-review risk: • In some domestic offset mechanisms, and CDM[173] large scale projects, verifiers are not allowed to verify emissions or emission reductions of project activities for which they have validated the monitoring plan or project design document. • In other CPIs there are no such impediments or verifiers can conduct such verifications only under certain conditions.	Application of standards such as ISO 14065: restrictions are placed on personnel and organisations that provide consultancy activities to the obligated entity as well as offering verification activities. In some countries these general requirements have been made more specific. In the EU ETS, for example, the verifier is not allowed to provide consultancy on monitoring systems or monitoring plans for a company whose report it is verifying. Consultancy and verification are two types of activities that should be kept separate. Auditors should act impartially during the verification and refrain from making detailed suggestions for how to specifically improve the obligated entity's M&R processes whilst verifying (even inadvertently), although weaknesses can be identified. Otherwise this would result in self-review when they come to issue a subsequent opinion. If the verifier is part of an organisation that also provides consultancy advice, it is good practice to have a clear division of responsibilities and management between advisory and assurance services offered by the organisation. Both the CDM rules and ISO 14065 have specific requirements on this. The reasons for adopting a specific approach are influenced by: • Whether there is a specific standard that prescribes a particular approach, such as the CDM rules[174]; • Whether countries have sufficient competent verifiers;[175] and • The size and complexity of the scheme.

(continued on next page)

Note 172 » *Such documents are required in Tokyo Cap-and-Trade System, some of the Chinese pilot schemes, and in California.*

Note 173 » *For JI it depends on which Track is used.*

Note 174 » *If the designated operational entity would like to verify the same project activity for which it has performed validation activities, it must obtain authorisation from the CDM Executive Board. Approval is not required if it relates to a registered small-scale CDM activity or a CDM project activity for which it has performed the validation of postregistration changes.*

Note 175 » *Among the reasons for allowing designated operational entities to do the validation and verification of the same project activity has been the lack of available competent designated operational entities. Furthermore, the benefits of improving efficiency and quality of the review were considered to outweigh the disadvantages and the risks to impartiality for some CPIs, in particular in the early stages of a CPI.*

(Table continued)

Risk area	Description of risk	Potential mitigation measures
Familiarity	This risk can occur if verifiers or auditors are verifying the report of an obligated entity year after year. Although a reoccurring verifier and auditor can do the work more efficiently, there is a higher risk that the verifier or auditor becomes so familiar with the obligated entity that it does not raise issues with the entity or misses things (tunnel vision, blind spots).	Measures that avoid or mitigate these risks can include rotation of staff after a set number of years verifying a specific obligated entity or even rotation of the verifier itself, although required rotation of verifiers does not occur often in the CPIs examined.
Intimidation	If there are relationships between the verifier – or one of its auditors – and the obligated entities, they are more prone to intimidation actions.	In CPIs where ISO 14065 or the CDM rules on accreditation are applicable, verifiers are required to implement procedures and safeguards to mitigate risks to impartiality, e.g., by requiring verifiers to regularly monitor the impartiality of their personnel or requiring them to come forward where there are potential conflicts of interest. In particular, verifiers need to show their auditors that they are protective of their staff and supportive of actions auditors need to take, such as complaining about a client's behaviour if pressure is being applied by them to get an auditor to change its conclusion.

Examples of application of materiality

Materiality has both quantitative and qualitative aspects. This annex provides more detailed information on the application of quantitative materiality. It outlines how to define the thresholds used for quantitative materiality and provides examples of such thresholds. Finally, this annex contains more detailed information on how the verifier takes into account the qualitative aspect of materiality.

Quantitative materiality

For quantitative materiality a threshold needs to be defined; this is usually a certain percentage of the total reported data value (a typical level is ±5% of total declared emissions for most facilities or reporting entities), although benchmarks are also used. When the materiality threshold relates to a percentage of the total reported data, a misstatement or noncompliance issue that affects the data calculation is defined as having a material impact on the reported data if the materiality threshold is exceeded.[176] For example, a materiality threshold of 5% related to emission reductions means that a misstatement is material if identified issues are estimated to lead to an (aggregate) overestimate (or underestimate) of the total GHG emission reductions by more than 5% of the total amount of reductions declared. If errors and anomalies are corrected, the total declared value is updated to the corrected total and the materiality of any remaining uncorrected issues is reevaluated.

In some CPIs, the materiality threshold is predefined in legislation; in others this percentage is set by the verifier at the beginning of its work based on a case-by-case decision and as part of its engagement agreement with the client. For consistency across all verifications for a specific CPI a predefined materiality threshold is considered good practice.

Furthermore, it is good practice to distinguish between those obligated entities that have, for example, high reported emissions and those with low emissions, by having a different quantitative materiality threshold defined for different categories of emitters. The reason for this is that a small (relative) error in a large reported value could still be a very large absolute number. Therefore, it is reasonable to set a lower materiality threshold for obligated entities with large total values of reportable data (for example, 2% instead of 5% of the data value). Similarly, for an obligated entity that is made up of a number of facilities it is reasonable to define a materiality threshold at each level: one at the individual facility level (for example, 5%) and one at the aggregated entity level (for example, 2%). This ensures that significant errors at an individual facility can be taken into account at the aggregate entity level. Otherwise it might be possible to have a facility where there is a significant error in its reported data (either from a single major error or the sum of many smaller ones) but the impact on the total entity declared emissions is not large enough to affect the entity level materiality and hence the verifier's conclusions. The table below provides examples for the application of quantitative materiality thresholds in different CPIs.

Note 176 » *Either as an individual item or as an aggregate of all identified – and uncorrected – errors.*

CPI	Example of predefined materiality thresholds in legislation or standards
EU ETS	• Quantitative materiality threshold is ±5% of the total reported emissions for the relevant reporting period for installations that emit <500 ktCO2 and for aircraft operators with annual emission ≤500 ktCO2 • Quantitative materiality threshold is ±2% of the total reported emissions for the relevant reporting period for installations that emit ≥500 ktCO2 and aircraft operators with annual emission >500 ktCO2
California ETS	• Quantitative materiality threshold is ±5% of the total reported emissions (i.e., 95% accuracy)
CDM	• ±0.5 % of emission reductions or removals for registered CDM project/programme of activities achieving a total emission reduction/removal ≥500,000 tCO2e per year; • ±1% of the emission reductions or removals for registered CDM programme of activities achieving a total emission reduction/removal of between 300,000 and 500,000 tCO2e per year; • ±2% of the emission reductions or removals for registered CDM large scale project activities/ programme of activities achieving a total emission reduction/ removal of <300,000 tCO2e per year; • ±5% of the emission reductions or removals for registered CDM small scale project activities/ programme of activities comprised only of small-scale component project activities other than registered CDM programme of activities covered under subparagraph (e) below; • ±10% of the emission reductions or removals for registered CDM projects/programme of activities comprised only of microscale component project activities
Emission Reduction Fund (Australian offset mechanism)	The materiality threshold is defined by the verifier before the verification starts on a case-by-case basis using their professional judgment. Guidance from the regulator indicates that the verifier should consider materiality in the context of the relative significance of anomalies and errors identified and whether a misstatement or noncompliance could influence the user of the data. For quantitative materiality, this includes considering the size, significance, and pervasiveness of the issue and the effect that it has on the reported data (or compliance) as a whole. The overall materiality threshold for the whole obligated entity and any subsidiary level materiality threshold set for individual benchmark parameters (such as different emissions scopes [1, 2, etc.], source streams, facilities, etc.), including the percentages and benchmarks on which they are based, are documented in the assurance engagement plan. In general, the verifier will use a percentage value that is typical for the type of accounting scheme being verified; Australian verifiers' feedback is that they mostly apply a threshold of ±5% of total declared emissions at the start.
JCM	• The materiality threshold is ±5% of the total reported emissions.

Qualitative materiality

Materiality also has a qualitative aspect. If the quantitative materiality threshold has not been exceeded at any applicable level of the data, the verifier should still consider whether the **nature, size, or particular circumstances of any misstatement or noncompliance** individually or in aggregate could cause the user of the data to change any decision it might make using the reported data. Such users can, for example, be the regulator responsible for receiving a report or the oversight body evaluating verifier performance. Factors that can influence their decisions can include the likelihood of reoccurrence, whether the error can be corrected, whether there are serious weaknesses in the obligated entity's processes, systems or controls, and the potential for fraudulent reporting. Therefore, the verifier must use its professional judgment to decide if the misstatement or noncompliance has material impact on such decisions.

However, in some CPIs there are exceptions to the general rule that considerations of materiality should be both quantitative and qualitative. For example, in CDM only the quantitative aspect of materiality is considered by the verifier because qualitative aspects such as omissions or noncompliance with rules would be deemed a 'no verification'. In terms of the quantitative materiality, CDM designated operational entities assess whether misstatements individually or in aggregate exceeds the defined materiality threshold (see table above). If it does, the project developer is requested to make a correction; if they do not implement the correction, the designated operational entity issues a negative verification opinion.

In general, applying the concept of materiality does not mean that identified errors are not corrected. If it is possible to correct and there is time to do so before reporting deadlines arise the verifier should (and for most CPIs, must) ask the obligated entity to address identified errors regardless of whether it is material or not. This helps to minimise verification risk (that is, that the verifier will reach an incorrect conclusion).

Important concepts

When considering the concept of materiality in a verification system, the following is a helpful aide-memoire which is applicable to any CPI:

- **Uncertainty** is inherent in the design of a methodology used for monitoring (for example, the characteristics of the design and installation of meters, the method of lab analysis to determine emissions factors). It cannot be completely eliminated so it is evaluated and minimised where possible through maintenance, calibration of instruments and other methods. Uncertainty of measurement (where this is accepted as part of an approved methodology, either generally or at a defined level such as the 'tiers' approach[177]) is not considered to be an error and so is not part of the materiality assessment. However, if a required uncertainty level has been defined in the CPI rules, any uncertainty in measurement beyond the required level is considered to be an error and must be taken into account in the materiality analysis. For clarity on the accuracy of emissions declared, it is good practice to define in the rules an acceptable level of uncertainty (for example, how high quality measurement instruments must be or what analytical methods are acceptable).

- **Error** is a fault in the accounting process that means the (agreed) accounting protocol has not been applied properly, the rules have not been obeyed, there are mathematical errors in the accounting process, instruments have not been maintained or calibrated to stay within the approved uncertainty level; and/or other failures of internal control have occurred that impact the data. The magnitude of the error and its directionality (that is, whether it causes an overstatement [+] or understatement [-]) need to be taken into account when evaluating the overall impact of the error and, therefore, its materiality in relation to the total reported emissions value.

- **Materiality** is a tool to aid the verifier in determining if the total reported data value is acceptable, taking into account any anomalies that have been identified but that cannot be corrected by the time the reporting deadline is reached. Thus it is not a tolerance band for the participant to use in presenting their data or to decline to correct identified errors. If misstatements or noncompliance are identified by the verifier, these should be corrected and addressed by the party responsible for monitoring and reporting before the completion of reporting and verification.

Materiality can also be used by the verifier as a tool for planning its verification work to ensure that the focus of testing, for example, is on the most significant sources and the areas of the accounting process that are most liable to failure – these would be considered material elements for checking.

Timelines of verification: additional considerations

This annex provides more specific information on appropriate timelines of verification; ex ante validation is not covered here because there are generally no specific reporting deadlines to be met that might influence the quality of work delivered by the verifier/validator.

Verification ideally will start sufficiently early to avoid pressure on all the parties concerned as fixed deadlines approach. Closely connected with this is one of the choices a policy maker must make when designing the verification system: at **what frequency should verification be carried out and which reporting period should be subject to verification**.

For many CPIs, deadlines are defined in legislation, for example, when the verified data must be submitted, allowances surrendered or taxes paid. Experience over the last decade or so of CPI schemes being implemented has shown that verification should start sufficiently early to meet those deadlines without imposing stress on the obligated entity or on verifier, as that might result in mistakes on either side.

For ETS and carbon tax systems that have an annual cycle, starting verification during the reporting period and spreading the work out over time is recommended over starting after the end of the reporting period and trying to complete all the required work in a very short period of time. For example, starting in Quarter 3 of a reporting year allows the verifier time to do checks on compliance and also eight to nine months' worth of the data set, and then the obligated entity has plenty of time to make corrections before getting too close to deadlines. Compliance checks are not generally time dependent so sorting them out early is helpful and also enables timely resolution of issues

FIGURE 26. **Typical frequency of verification**

Emission trading

- Annual
- Basis for surrendering allowances and credits

Carbon tax systems

- Annual
- Basis for determining tax obligations

Credit mechanisms

- Flexibility as to when they seek credits and therefore when they need verification of reductions, etc.

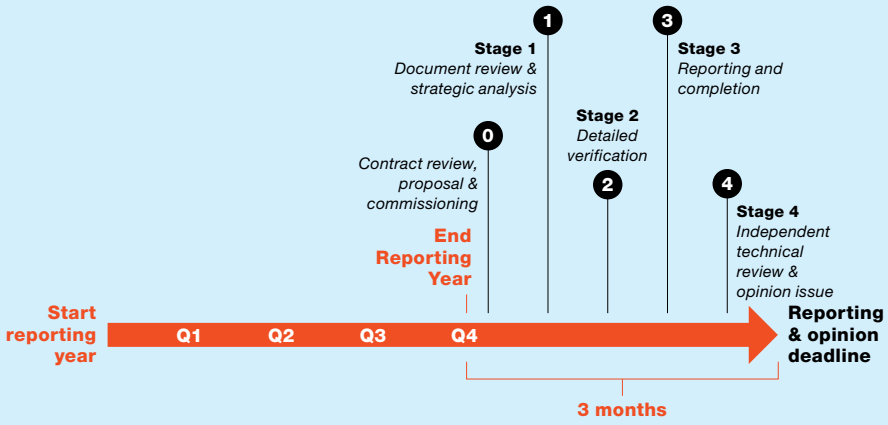
Note 177 » *The regulator accepts that there will be some uncertainty in the final results.*

and data gaps identified before the verification has to be closed. Getting eight to nine months' worth of data checked early means that there are only three months or so of data that needs detailed checking at the Year End along with confirming that the obligated entity has resolved any compliance and other issues identified during Stage 1 of the work, reducing the pressure on both verifier and obligated entity.

Leaving all the verification work until after the end of the reporting period could place high pressure on verification resources (potentially increasing costs) or on the time allocated to the verification which may result in verifiers making errors or arriving at an inappropriate conclusion. It can also give rise to significant amounts of work in a short space of time for regulators and obligated entities to make amendments to approved monitoring plans or permits (where applicable), or to approve alternate methods for data gaps and other changes that might be requested.

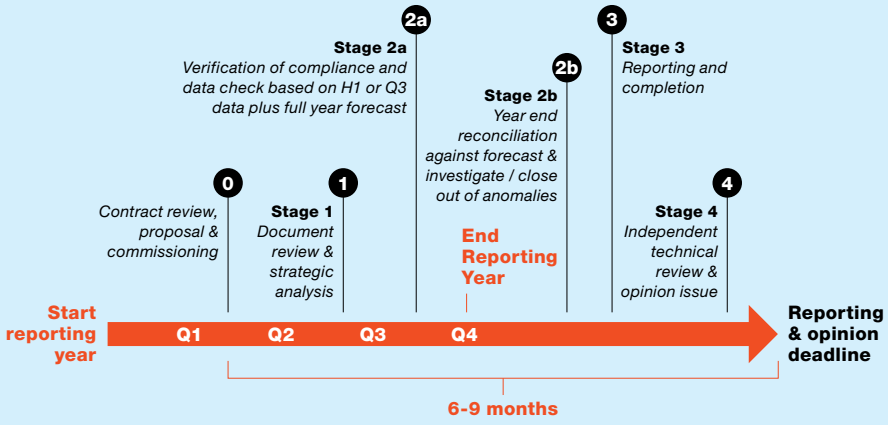
On the other hand there has to be sufficient data available to be able to plan the verification and assess the risks of misstatements and noncompliance issues. Figure 27 and Figure 28 below provide examples of two verification timelines – one starting after and one before the end of the reporting period. Figure 27 illustrates the verification with all the steps outlined in section 7.4 being carried out in a maximum of two and a half[178] months, with the deadline for submitting emission and verification reports set three months after the end of the reporting period. In Figure 28 the activities are spread out over a longer period of time. For crediting mechanisms there is more flexibility to organise timelines for verification because there is normally no set deadline for submitting the report claiming credits. Such reports are submitted when the report is completed and verification has been conducted.

FIGURE 27. **Example timeline for a verification starting after the end of the reporting period**



Source: based on training material from Planet & Prosperity Ltd

FIGURE 28. **Example timeline for a verification starting during the reporting period**



Source: based on training material from Planet & Prosperity Ltd

Note 178 » *It normally takes the operator a couple of weeks after the end of the reporting period to have finished the monitoring of data for the last month of the period, therefore the verifier usually would not start its work until the report has been finalised.*

Example of an accreditation certificate

Schedule of Accreditation
Issued by
United Kingdom Accreditation Service
2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

Issue No: Issue date:

Accredited to ISO 14065:2013 to provide greenhouse gas verification

Locations where verification activities covered by the above Accreditation Standard are undertaken

Administrative Measures
In accordance with Article 53 of the Accreditation and Verification Regulation 600/2012 the specific information of administrative measures regarding partial suspension or withdrawal of activity group(s) or scopes of accreditation will be detailed below:-

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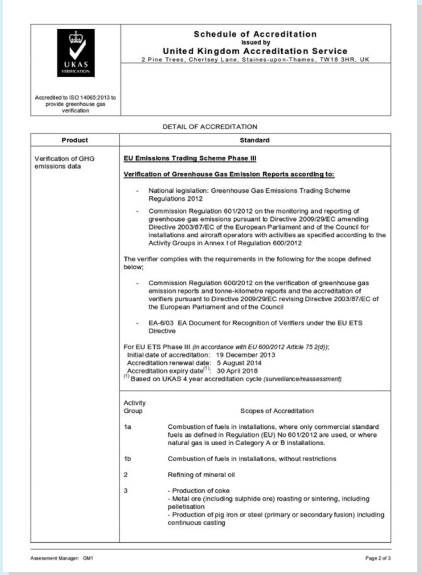

Schedule of Accreditation
Issued by
United Kingdom Accreditation Service
2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

Accredited to ISO 14065:2013 to provide greenhouse gas verification

DETAIL OF ACCREDITATION

Product	Standard
Verification of GHG emissions data	**EU Emissions Trading Scheme Phase III** **Verification of Greenhouse Gas Emission Reports according to:** - National legislation: Greenhouse Gas Emissions Trading Scheme Regulations 2012 - Commission Regulation 601/2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2009/29/EC amending Directive 2003/87/EC of the European Parliament and of the Council for installations and aircraft operators with activities as specified according to the Activity Groups in Annex I of Regulation 600/2012 The verifier complies with the requirements in the following for the scope defined below; - Commission Regulation 600/2012 on the verification of greenhouse gas emission reports and tonne-kilometre reports and the accreditation of verifiers pursuant to Directive 2009/29/EC revising Directive 2003/87/EC of the European Parliament and of the Council - EA-6/03 EA Document for Recognition of Verifiers under the EU ETS Directive For EU ETS Phase III *(In accordance with EU 600/2012 Article 75 2(d));* Initial date of accreditation: 19 December 2013 Accreditation renewal date: 5 August 2014 Accreditation expiry date[1]: 30 April 2018 [1] Based on UKAS 4 year accreditation cycle *(surveillance/reassessment)*

Activity Group	Scopes of Accreditation
1a	Combustion of fuels in installations, where only commercial standard fuels as defined in Regulation (EU) No 601/2012 are used, or where natural gas is used in Category A or B installations.
1b	Combustion of fuels in installations, without restrictions
2	Refining of mineral oil
3	- Production of coke - Metal ore (including sulphide ore) roasting or sintering, including pelletisation - Production of pig iron or steel (primary or secondary fusion) including continuous casting

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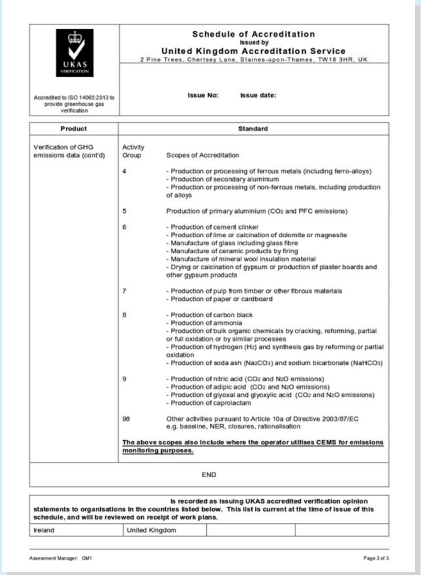

Schedule of Accreditation
Issued by
United Kingdom Accreditation Service
2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

Accredited to ISO 14065:2013 to provide greenhouse gas verification

Issue No: Issue date:

Product	Standard
Verification of GHG emissions data (cont'd)	Activity Group — Scopes of Accreditation 4 - Production or processing of ferrous metals (including ferro-alloys) - Production of secondary aluminium - Production or processing of non-ferrous metals, including production of alloys 5 Production of primary aluminium (CO_2 and PFC emissions) 6 - Production of cement clinker - Production of lime or calcination of dolomite or magnesite - Manufacture of glass including glass fibre - Manufacture of ceramic products by firing - Manufacture of mineral wool insulation material - Drying or calcination of gypsum or production of plaster boards and other gypsum products 7 - Production of pulp from timber or other fibrous materials - Production of paper or cardboard 8 - Production of carbon black - Production of ammonia - Production of bulk organic chemicals by cracking, reforming, partial or full oxidation or by similar processes - Production of hydrogen (H2) and synthesis gas by reforming or partial oxidation - Production of soda ash (Na_2CO_3) and sodium bicarbonate ($NaHCO_3$) 9 - Production of nitric acid (CO_2 and NiO emissions) - Production of adipic acid (CO_2 and NiO emissions) - Production of glyoxal and glyoxylic acid (CO_2 and N_2O emissions) - Production of caprolactam 98 Other activities pursuant to Article 10a of Directive 2003/87/EC e.g. baseline, NER, closures, rationalisation **The above scopes also include where the operator utilises CEMS for emissions monitoring purposes.**
	END

Is recorded as issuing UKAS accredited verification opinion statements to organisations in the countries listed below. This list is current at the time of issue of this schedule, and will be reviewed on receipt of work plans.

Ireland	United Kingdom		

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Key organisational and procedural requirements

Organisational and procedural requirements	Explanation
Design, document, implement, and maintain a formal management system and procedures	The establishment of a formal management system and procedures ensures, for example, that: • All key activities are formally defined and controlled in the verification process, from the preparation of proposals and quotes through to final verification reporting and the issuing of opinion statements; • Documents are under control, properly filed, and appropriate records are maintained; • Safeguards are in place to guarantee confidentiality of information obtained from clients; • Verifications are conducted in a standardised and controlled way; • Regular internal audits are carried out to ensure compliance with quality controls and any requirements needed to ensure verifiers maintain their 'licence' to do verification; • Corrective action is taken to address identified cases of noncompliance; • Preventive action is taken to avoid (reoccurrence of) noncompliances; • Complaints about the verifier or its individual auditors, or appeals against verification decisions, are addressed in a proper manner; • Internal verification documentation is compiled to high standards aiding transparency and demonstrating that steps in the verification process were carried out robustly and according to the rules. As good practice, such a management system might follow the framework specified in ISO 9001 or other quality management standards, even if it is not independently certified as conforming to a particular standard.

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(Table continued)

Organisational and procedural requirements	Explanation
Keep information obtained in the verification process confidential	Information obtained during the verification should be held confidential and the verifier should implement measures to ensure that confidentiality is maintained, whether information is held in electronic or hardcopy format. For example, if electronic information is obtained and held on the verification team's laptops during the course of their work, it should be removed to a central controlled archive after completion of the work when the auditors no longer need regular access to it. If this laptop is lost or hacked, the information is not accessible. ISO 20000 and ISO 27000 provide recognised standards and guidance on information security and IT systems management. In some countries environmental or other information can fall under legislation related to public access to information if that information comes under control of the regulator. The regulator needs to be aware of the importance of confidentiality of information obtained in the verification and may need to include provisions concerning confidentiality in the legislation.
Design, document, implement, and maintain process to address a situation where an error is identified in the verification report	This process covers a situation in which an error is identified after the verification report is submitted (whether by the regulator, operator, or verifier personnel). The process should define how such errors are addressed and should cover communication between the verifier and other parties as well.

Resource requirements for developing and implementing a V&A system for CPIs

The table below provides information on the type and amount of resources needed for the development of a V&A system for CPIs. The activities mentioned in the table below concern primarily activities of regulators and approval/oversight entities. It indicates what factors can influence the type of resources and what measures can be taken to reduce the costs. On a number of these activities support can be gained from international projects initiated by national governments, Europe Aid, WB programmes, or other international organisations.

Phase	Activities	Type of resources needed	Factors that influence amount of resources	Measures that can reduce resource requirements
Design of frameworks	Setting up the legislative framework	• Staff to develop legislation • Initially a one-off activity that is carried out before the start of operations of the CPI. • In the case of updates of legislation in future years, it can be a reoccurring activity (see programme review in this table)	• Complexity of legislation • The number of institutions involved in drafting legislation • Whether the legislation on V&A is developed in parallel to other parts of the CPI legislation • Whether (elements of) existing legislation and institutions can be used as a basis	• Combining the design of the legislative framework for V&A with drafting the details of the overall CPI system. This not only improves efficiency, it also has a positive effect on the output quality. • Developing V&A legislation in parallel to the M&R legislation

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(Table continued)

Phase	Activities	Type of resources needed	Factors that influence amount of resources	Measures that can reduce resource requirements
	Setting up the institutional framework	• Financial resources for setting up procedures, systems, institutions, etc. • Staff to carry out work in new/ existing institutions • One-off activity before the start of the CPI	• How many regulators are involved, including whether local or regional regulators are involved • Whether the oversight body responsible for the approval and oversight of the verifier is the same as the regulator responsible for the CPI implementation • Complexity of the CPI and the number of obligated entities involved • Whether there are existing structures and institutions to build on • Whether or not there is (or can be) coordination between regional authorities	Making use of existing institutions that have the competence and capacity to carry out the required work
	Stakeholder engagement	• Costs for setting up consultations and workshops • Staff organising and conducting stakeholder consultations and engagement • Staff developing instructions / work processes on activities to be carried out in implementation of CPI, such as the review of emission reports/ verification reports, communication with verifiers	• Stand-alone events vs. engagement through existing organisations (e.g., professional institutes) • The number of stakeholders involved • The complexity of the CPI and legislation • Whether the regulator is also the body approving and supervising verifiers	Utilising existing channels for communication and engagement, including utilising representative groups such as industry associations Utilising existing procedures / structures
Design of implementation tools/processes	Designing staff instructions/ processes on implementation of CPI	• Staff developing instructions / work processes on activities to be carried out in implementation of CPI, such as the review of emission reports/ verification reports, communication with verifiers	• Whether the regulator is also the body approving and supervising verifiers	Utilising existing procedures / structures
	Developing guidance, templates, and tools	• Costs for advisory support in drafting and consulting on documents • Staff involved in developing guidance, templates, and tools	• Quantity and complexity of guidance, templates, and tools	Utilising engagement processes to get contributions of and feedback on documents. However, this could also increase costs, if the engagement processes generate extensive feedback. Structuring the engagement process is therefore important.

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Phase	Activities	Type of resources needed	Factors that influence amount of resources	Measures that can reduce resource requirements
	Designing helpdesks (if applicable)	• Costs for advisory support for experts • Costs for setting up the helpdesk which could range from setting up an e-mail address to which questions can be directed, setting up procedures in answering questions or creating a helpdesk tool/system • Staff involved in designing helpdesk (for operating and maintaining the helpdesk, see implementation and ongoing management)	• Area in which the helpdesk provides support (only MRVA topics or also other questions) • Sophistication and type of helpdesk (only e-mail or also phone, online platform), response times	• Utilising existing sources • Utilising simple functionalities such a general e-mail to which questions can be sent • Begin simple and make it more advanced when system is up and running
	Designing IT systems (if applicable)	• Costs for specialist IT advisory support • Costs of IT system	• Whether IT covers the whole workflow of the CPI or only parts • Whether all stakeholders are expected to have access to the IT system and whether all are required to use the IT systems (or whether parallel non-IT-based systems need to be established and maintained as well) • The sophistication and type of IT system (e.g., whether it uses web-forms, xml) • Whether it needs to communicate with other electronic environmental reporting systems and registries	• Alignment with existing systems • One system for all, no parallel systems • While IT systems in first instance increase costs, these could be paid back by increases in efficiency and quality in the long run in other phases of the process
	Training verifiers (if applicable) Training staff of oversight entities	• Establishment of a training syllabus and associated materials (e.g., slides, briefings, and exams) • Specialist qualified trainers (e.g., experienced auditors who can also train)	• The complexity of the CPI and how many types of training are required[179] • Whether the training is paid for by the regulator or the verifier; and whether it is open market or regulator provided.	• Specifying a training syllabus and letting the open market develop materials and deliver classes in response to demand (either with or without a process of approval of training providers). • Requiring the verifier to pay for training so that it goes to those most likely to deliver work[180] • Gaining support from international projects initiated by national governments, Europe Aid, WB programmes, or other international organisations.

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Note 179 » *For example, the training done for the Californian and Korean ETSs and associated crediting mechanisms included both Lead Auditor training and sector specialist training for the majority of sectors involved in the ETS as well as specific training on some of the relevant crediting protocols.*

Note 180 » *Where training has been provided and paid for by the regulator (see Note 74, for example) it has been found that many of the successful training participants did not then go on to provide verification work. Participation cost them nothing and required no ongoing commitment.*

(Table continued)

Phase	Activities	Type of resources needed	Factors that influence amount of resources	Measures that can reduce resource requirements
Implementation	Helpdesk implementation	• Staff support • Maintaining the functionalities of helpdesk system/procedures	Complexity of CPI and areas in which helpdesk provides support	• Set-up processes for staff to structure and record responses so that reoccurring questions can be easily answered • Draft frequently asked questions and publish these on the website.
	Payment of verifiers (if relevant)	• Financial budget • Administrative staff to manage accounts, check invoices, etc.	• Budget cycles and whether it is identified as long-term funding[181] • Source of the funding (government general revenue, capitation of tax, trade or crediting values, etc.)	Require obligated entities to pay for verifiers and implement rigorous rules on impartiality
	Activities of regulator during the verification cycle	• Staff involved in the communication with obligated entity as a result of issues raised during verification (if applicable) • Staff involved in the communication with verifier (if applicable)	• Complexity of the CPI and number of obligated entities involved • The type of approval and oversight system selected and whether/to which extent the regulator checks verifiers' results • Type of communication structure	Develop simple communication lines
	Approval/ supervision of verifiers if relevant	• Staff involved in the approval/supervision of verifiers • Costs for carrying out approval/ supervision of verifiers (e.g., in the case of on-site witnessing, there are traveling costs) • Costs involved with maintaining management system and processes for approval and supervision of verifiers	• Whether the regulator is the body responsible for approval or supervision of verifiers. Otherwise these costs are borne by another entity • The type of approval or supervision system. The costs involved for an approval system with examination or document review is less than the costs involved for an approval system that requires document review, visit to verifier's premises, and on-site witnessing. • Complexity of CPI and sector scopes covered by the CPI, and whether approval is done on sector-specific scopes or not	• Using existing experienced assessor organisations such as professional institutes and accreditation bodies. • Tools to facilitate implementation of activities including standardised planning schedules, checklists and template process, and reporting forms.
Ongoing management	Monitoring the quality of verifiers	• Staff of regulator involved in carrying out these activities • Financial resources for paying experts or other parties to carry out inspection, reverification, carrying out checks (if applicable) • Costs for carrying out the relevant activities (e.g., traveling costs in the case of on-site inspections, use of inspection tools)	• Which option is chosen to monitor the quality of verifiers (e.g., review of emission reports, review of internal verification documentation, etc.). The regulator doing basic checks on emission reports would cost less than selecting a second verifier to redo the verification. • Complexity of CPI and number of obligated entities involved	Developing tools to facilitate such monitoring (e.g., checklists, use of IT systems)

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Note 181 » *This primarily impacts the availability and timing of resources which in turn may impact the practicalities of when verification occurs. For example, if the regulator is paying the verifier from a current year budget, it may not be possible to commission the verifier until the budget is finalised. If the new financial year is close to the deadlines for emissions reporting or if budgets are delayed/agreed late, this could squeeze the available time for delivery of verification work with knock-on consequences on quality and potential for error.*

(Table continued)

Phase	Activities	Type of resources needed	Factors that influence amount of resources	Measures that can reduce resource requirements
	Ongoing capacity building	• Costs for training and briefing workshops for verifiers and/or staff at oversight entities (e.g., involving trainers, maintaining training material, organising trainings) • Staff involved with updating guidance, FAQ & help desk responses, etc. • Advisory costs for updating guidance and other material (if applicable)	• The complexity of the CPI and how many types of training are required[182] • Whether the training is paid for by the regulator or the verifier; and whether it is open market or regulator provided. • Other ongoing capacity building (workshops)	• Approving/recognising publically available training courses for verifiers and approval assessors (with or without a standardised curriculum) • Encouraging active engagement of all verifiers and assessors in knowledge sharing/ capacity building (formal or informal). • Allowing flexibility to use subcontract auditors as they share knowledge when working across different verifiers
	Ongoing stakeholder engagement	• Costs for setting up consultations and workshops, etc. • Staff involved in stakeholder engagement	• Stand-alone events vs. engagement through existing organisations (e.g., professional institutes) • The number of stakeholders involved • The complexity of the CPI and legislation	Utilising existing channels for communication and engagement
	Information exchange between regulator and oversight body	• Man-days staff to exchange information • Costs involved in creating of databases where information is stored • Costs involved in developing tools/ templates for information exchange (if applicable)	• The type of information to be exchanged • The type of communication method (e.g., informal, by e-mail, through IT systems) • Frequency of information exchange • Whether templates or databases are used	Creating templates, choosing simple communication methods
Programme review	Assessment of system and update of system or legislation if applicable	• Costs involved in developing questionnaires to get stakeholder input on functioning system • Stakeholder consultation costs • Costs for carrying out impact assessments or studies evaluating the CPI (man-days, advisory costs in carrying out these studies) • Staff involved in amending legislation if needed	• Complexity of the CPI • The number of years a CPI is in operation • The type of evaluation method chosen • The scope of system changes foreseen/feasible • The type of stakeholder consultation	• Using existing structures for evaluation and tailored questionnaires/studies • Defining evaluation methodologies and required parameters to be monitored ex ante, and monitoring of those parameters during system operation

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Note 182 » *For example, the training done for the Californian and Korean ETSs and associated crediting mechanisms included both Lead Auditor training and sector specialist training for the majority of sectors involved in the ETS as well as specific training on some of the relevant crediting protocols.*

(Table continued)

Phase	Activities	Type of resources needed	Factors that influence amount of resources	Measures that can reduce resource requirements
	Monitoring the quality of oversight entities responsible for approving and supervising verifiers	• Costs for organising this activity • Staff involved in carrying out this activity)	• Type of method chosen and the extent to which this approach is applied. Where a governmental authority monitors how the oversight body is carrying out its activities, the costs are different than if peer review is applied or information exchange is carried out. • The type of governmental authority overseeing the quality of oversight body. The costs may be different if parliament carries out those activities compared to another Ministry or governmental authority doing this supervision. • Whether the costs are borne by other parties than accreditation bodies. Peer review of accreditation bodies under EU ETS is, for example, carried out by the European Cooperation for Accreditation. The costs for peer review is borne by that party.	Outsource review activities to other parties such as peer organisations, academics, other qualified experts who work under contract to the CPI owner

Overview of legislation, guidance, and tools in countries

This table provides an overview of legislation, guidance, and tools that are applicable in CPIs that are currently operational. Where possible, reference is made to websites where such information can be found.

Country	Type of CPI	Legislation, guidance, and tools
Australia	Emission reduction fund: an Offset Crediting Mechanism	**Legislation** • Carbon Credits (Carbon Farming Initiative) Act 2011, Carbon Credits (Carbon Farming Initiative) Regulations 2011 and Carbon Credits (Carbon Farming Initiative) Rule 2015. • Australian National Registry of Emissions Units Act 2011 and Australian National Registry of Emissions Units Regulations 2011. • National Greenhouse and Energy Reporting Act 2007 and National Greenhouse and Energy Reporting Regulations 2008 (NGER Regulations).[183] • National Greenhouse and Energy (Auditor Registration) Instrument 2017(2) (NGER Auditor Registration Instrument).[184] National Greenhouse and Energy Reporting (Audit) Determination 2009 (NGER Audit Determination): Regulations can be found on: *http://www.cleanenergyregulator.gov.au/About/Legislation-and-regulations*

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Note 183 » *These instruments provide a framework for reporting and disseminating company information about greenhouse gas emissions, energy production, energy consumption, and other information. They give effect to policy details on the operational elements of the safeguard mechanism and audit requirements. In particular, divisions 6.3–6.7 of the regulations specify eligibility requirements and standards of professional conduct for registered greenhouse and energy auditors.*

Note 184 » *This Instrument sets out the ways in which the requirements of the NGER Regulations in relation to auditing knowledge and experience may be met for registration as a greenhouse and energy auditor.*

(Table continued)

Country	Type of CPI	Legislation, guidance, and tools
		Relevant guidance: • Audit determination handbook: *http://www.cleanenergyregulator.gov.au/DocumentAssets/Documents/Audit%20determination%20handbook.pdf* • Greenhouse and energy auditor registration guidelines: *http://www.cleanenergyregulator.gov.au/DocumentAssets/Pages/Greenhouse-and-energy-auditor-registration-guideline.aspx* • Audits under the Emission Reduction Fund Guideline, October 2017: *http://www.cleanenergyregulator.gov.au/DocumentAssets/Documents/Audits%20under%20the%20Emissions%20Reduction%20Fund%20guideline.pdf* • Auditor control: *http://www.cleanenergyregulator.gov.au/Infohub/Audits/audits*
Canada	Alberta – Offset Crediting Mechanism	**Legislation** • Specified Gas Reporting (SGR) Regulation 2004: *http://www.qp.alberta.ca/documents/Regs/2004_251.pdf* • Specified Gas Reporting Standard – January 2018: *https://open.alberta.ca/publications/1912-5313* • Standard GHG Compliance Reports – December 2018: *https://www.alberta.ca/assets/documents/CCI-standard-completing-ghg-compliance-forecasting-report.pdf* **Guidance** • Guidance For Greenhouse Gas Verification 2014: *https://open.alberta.ca/publications/9781460107751* • Technical Guide Offset Project – Feb 2013: *https://open.alberta.ca/publications/9780778588078* - as superseded by - Technical guidance for offset protocol development and revision: *https://open.alberta.ca/publications/9781460140611*
	British Columbia ETS and Offset Crediting Mechanism	**Legislation** • Greenhouse Gas Emission Reporting Regulation: *http://www.bclaws.ca/civix/document/id/lc/statreg/249_2015* • Greenhouse Gas Emission Control Regulation: *http://www.bclaws.ca/civix/document/id/lc/statreg/250_2015*
	Ontario ETS and Offset Crediting Mechanism	**Legislation** • Reg. 143/16: Quantification, Reporting and Verification of Greenhouse Gas Emissions: *https://www.ontario.ca/laws/regulation/160143* **Guidance** • Guideline for Quantification, Reporting and Verification of Greenhouse Gas Emissions: *http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2017/013-0104_d_Guide.pdf*
	Quebec ETS and Offset Crediting Mechanism	**Legislation** • Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere: *https://www.goldstandard.org/globalgoals*
Chile	Carbon Tax	**Legislation under development:** • Chile – Directrices para el MRV: *http://portal.mma.gob.cl/wp-content/uploads/2016/05/Directrices-MRV-Namas.pdf* • Chile – Implementing a Greenhouse Gas Emissions Trading System in Chile: *http://www.precioalcarbonochile.cl/wp-content/uploads/2017/07/Motu.pdf* • Chile – MRV Compliance and registry: *https://www.thepmr.org/system/files/documents/2390a1 PMR Chile A1 MRV_121218.pdf* • Chile – Scaled-up Crediting Mechanism: *https://www.thepmr.org/system/files/documents/Scaled up Crediting Mechanism Options for Chile_3.0_10 September 2012.pdf*

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Country	Type of CPI	Legislation, guidance, and tools
China ETS pilot systems	Beijing – ETS pilot	**Legislation** • Principal legislation: Decision on Launching ETS Pilot under Strict Emission Cap Supporting Regulation and Guidelines: • Regulation on the verification body of Beijing ETS (Trial) • Allocation method of Beijing ETS (Trial) • Reporting procedures for GHG emissions in Beijing • Trial Detailed Rules for OTC Trading of GHG Emission Permits for Enterprises in Beijing • Trial Measures by CBEX for GHG Emission Permits Trading **Guidance** • CO2 Accounting and Reporting Guidance for Enterprises in Beijing • Operational guidance for the Registry system of Beijing ETS
	Chongqing – ETS pilot	**Legislation** • Principal legislation: Regulation on Chongqing ETS management and trading • Bylaws for GHG emission reporting and verification • Bylaws for GHG emission permits management • Bylaws for GHG emission trading for Chongqing United Assets and equity exchange **Guidance** • GHG emission accounting and reporting guideline for industrial enterprises in Chongqing • GHG emission verification guideline for enterprises in Chongqing
	Fujian – ETS pilot	**Legislation** • Interim Measures for the Management of Emissions Trading • Guidelines on verification
	Guangdong – ETS pilot	**Legislation** • Principal legislation: Regulation on Guangdong Carbon Emission Management. • Regulatory documents issued by GD DRC: on allowances management and MRV; • Allowances Trading Rules of CEEX **Guidance** • Allowance Allocation Plan (each year) • A guidance document of verification published by GD DRC • A guidance document of monitoring and reporting, published by GD DRC, includes a principal document, and • Sectoral documents for each sectors included in the pilot
	Hubei – ETS pilot	**Legislation** • Hubei ETS Regulation; Rules for MRV implementation for Hubei ETS
	Shanghai – ETS pilot	**Legislation** • Regulation/Trial measures for Shanghai ETS Management • GHG Permit Allocation and Management Solution for Shanghai ETS during 2013-2015 • GHG Permit Trading Rules of SEEX **Guidance** • Guidance on GHG Accounting and Reporting for Shanghai Enterprises (and nine sectoral guidelines) • Guidance on Verification for Shanghai ETS

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Country	Type of CPI	Legislation, guidance, and tools
	Shenzhen – ETS pilot	**Legislation** • Principal legislation: Provisions of Shenzhen Special Economic Zone for ETS Regulation Supporting regulation and guidelines: • Interim Measures for Spot Trading in CEX of Shenzhen • Draft Interim Regulation for Shenzhen ETS Management **Guidance** • Specification with guidance for quantification and reporting of the organisation's greenhouse gas emissions • Specification with guidance for verification of the organisation's greenhouse gas emissions
	Tianjin – ETS pilot	**Legislation** • Principal legislation: Tianjin ETS Interim Regulation Supporting regulation. **Guidance** GHG Permit Trading Rules of TJCX • Guidance for the accounting of GHG emissions for enterprises in Tianjin
	National Chinese ETS	**Legislation** • Primary legislation on emission trading is incorporated in the 'Interim Measures on the Administration of Carbon Emissions Trading.' (NDRC Order Number seventeen, 2014) • Further, more detailed legislation is included in 'NDRC Notice on the implementation of activities needed to set up the National Carbon Emissions Trading Market' (NDRC Notice, 2016). **Guidance** • Sector specific monitoring and reporting guidelines have been developed for 24 industries to harmonise the collection of data for the determination of historical emissions. These guidelines will be further elaborated for monitoring and reporting annual emissions of these 24 industries. • The interim measures provide a legal basis for NDRC to develop verification guidelines.
	National – Offset Crediting Mechanism[185]	**Legislation** • Interim Measures for the Management of Voluntary GHG emission reduction transactions **Guidance** • Validation and Verification Guidelines of Voluntary GHG emission reduction projects
Europe (28 EU Member States plus Liechtenstein, Norway, and Iceland)	EU ETS: (supranational regional) ETS	**Legislation** • Directive 2003/87/EC of the European Parliament and Council establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC: *http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02003L0087-20090625&from=EN* • Commission Regulation 2018/2067 of 19 December 2018 on the verification of data and on the accreditation of verifiers pursuant to Directive 2003/87/EC of the European Parliament and of the Council: *https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R2067&from=EN* • ISO 14065 and ISO 17011 **Guidance** • Commission guidance, templates and tools are published on the Commission website: *https://ec.europa.eu/clima/policies/ets/monitoring_en#tab-0-1*
	Carbon tax[186]	For more information on applicable legislation and guidance please see PMR carbon tax guide: *https://openknowledge.worldbank.org/handle/10986/26300*

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Note 185 » *CCER, i.e., Chinese Certified Emissions Reductions.*

Note 186 » *A carbon tax is applied in a number of individual EU countries, i.e., by Denmark, Estonia, Finland, France, Ireland, Latvia, Norway, Poland, Portugal, Slovenia, Sweden, and the UK.*

(Table continued)

Country	Type of CPI	Legislation, guidance, and tools
Japan	Tokyo – ETS	**Legislation** • The Tokyo Metropolitan Environmental Security Ordinance is the primary legislation followed by an implementing regulation: Regulation for the enforcement of the Tokyo Metropolitan Environmental Security Ordinance. **Guidance** • Guideline for Monitoring and Reporting Energy Related CO2 Emissions • Guideline for Verifying Energy Related CO2 Emissions • Guideline for Monitoring and Reporting GHG Emission Other than Energy Related CO2 • Guideline for Monitoring and Reporting/Verifying GHG Emissions Reductions Other than Energy Related CO2 • Guideline for Certifying/Verifying Operation Management in Facilities • Guideline for Monitoring and Reporting/Verifying Small and Midsize Facility Credits • Guideline for Monitoring and Reporting/Verifying Renewable Energy Credits • Guideline for Monitoring and Reporting/Verifying Outside Tokyo Credits • Guideline for Emissions Trading (How to use the Registry) • Basic Approach on Accounting • Certification Standards for Top-Level Facilities • Guideline for Certifying Top-Level Facilities • Guideline for Verifying Top-Level Facilities • Guideline for Application to Register as a Verification Agency Further information is available on: *http://www.kankyo.metro.tokyo.jp/en/climate/cap_and_trade/index.html*
	National – Offset Crediting Mechanism[187]	**Guidance** • Guidelines for designation as a third-party entity (validator/verifier) • Rules of procedures for the Joint Committee • Validation and Verification guidelines • Bilateral rules between Japan and the respective country Further information can be found on: *https://www.jcm.go.jp/*
Kazakhstan	ETS and Offset Crediting Mechanism	Legislation under development
New Zealand	ETS	**Legislation** • Primary legislation is Climate Change Response Act. Under this Act there are several relevant implementing regulations: • Climate Change (Agriculture Sector) Regulations 2010 • Climate Change (Eligible Industrial Activities) Regulations 2010 • Climate Change (Emissions Rulings: Fees and Charges) Regulations 2010 • Climate Change (Forestry Sector) Regulations 2008 • Climate Change (Liquid Fossil Fuels) Regulations 2008 • Climate Change (Other Removal Activities) Regulations 2009 • Climate Change (Stationary Energy and Industrial Processes) Regulations 2009

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Note 187 » *Joint Crediting Mechanism: this is a bilateral offset mechanism.*

(Table continued)

Country	Type of CPI	Legislation, guidance, and tools
		• Climate Change (Synthetic Greenhouse Gas Levies) Regulations 2013 • Climate Change (Synthetic Greenhouse Gas Levies) Regulations 2013 • Climate Change (Unique Emissions Factors) Regulations 2009 • Climate Change (Unit Register) Regulations 2008 • Climate Change (Waste) Regulations 2010 Legislation can be found on: *http://www.legislation.govt.nz/act/public/2002/0040/78.0/DLM158584.html* **Guidance** • Becoming a recognised UEF verifier: *https://epa.govt.nz/assets/Uploads/Documents/Emissions-Trading-Scheme/Guidance/Becoming-a-recognised-UEF-verifier.pdf*
Singapore	Carbon Tax[188]	**Legislation** • ECA (GHG Measurement & Reporting Regs) 2017: *https://sso.agc.gov.sg/SL-Supp/S746-2017/Published/20171222?DocDate=20171222* • Carbon Pricing Act 2018: *https://sso.agc.gov.sg/Acts-Supp/23-2018/Published/20180601?DocDate=20180601*
South Africa	Carbon tax, Offset Crediting Mechanism and carbon budgets[189]	Legislation under development
Korea	ETS and Offset Crediting Mechanism	**Legislation** • Allocation and trading of greenhouse gas emissions permits Act No. 11419, May 14, 2012 as amended by Act No. 11690, Mar. 23, 2013 and Act No. 14839, Jul. 26, 2017: *https://elaw.klri.re.kr/eng_service/lawView.do?hseq=45670&lang=ENG* • Decree No. 24429, 23.03.13 – Decree to act on the allocation and trading of greenhouse gas emissions permits: *https://elaw.klri.re.kr/eng_service/lawView.do?hseq=46598&lang=ENG* • Operational Regulation on Auditor Education (NIEHRD) • Regulation on designation and management of verification body (NIER): *http://www.law.go.kr/admRulLsInfoP.do?admRulSeq=2100000031307* **Guidance** • Greenhouse Gas Energy Specifications Verification General Manual – Final • Guidelines on verification for ETS (MoSF): *http://www.law.go.kr/admRulLsInfoP.do?admRulSeq=2100000089937*
Switzerland	ETS	**Legislation** • Federal act on reduction of emissions (CO2 Act): *https://www.admin.ch/opc/en/classified-compilation/20091310/index.html* • Ordinance on the reduction of CO2 emissions (CO2 Ordinance): *https://www.admin.ch/opc/en/classified-compilation/20120090/index.html* • Eignungskriterien für die Verifizierung der Monitoringberichte EHS (Eligibility criteria for the verification of the EHS monitoring reports): *https://www.bafu.admin.ch/bafu/en/home/topics/climate/info-specialists/climate-policy/emissions-trading/swiss-emissions-trading-scheme--ets-/emission-trading-scheme--ets---information-for-ets-companies.html#-836923670*

(continued on next page)

Note 188 » *This is associated with a mandatory reporting programme and is due to commence in 2018.*

Note 189 » *Due to commence in 2018 (in part).*

(Table continued)

Country	Type of CPI	Legislation, guidance, and tools
		Guidance • Communication on Swiss ETS: *https://www.bafu.admin.ch/bafu/de/home/themen/klima/publikationen-studien/publikationen/emissionshandelssystem-ehs.html* • Verification report template: *https://www.bafu.admin.ch/bafu/en/home/topics/climate/info-specialists/climate-policy/emissions-trading/swiss-emissions-trading-scheme--ets-/emission-trading-scheme--ets---information-for-ets-companies.html#-836923670*
	CO2 tax	**Legislation** • Federal act on reduction of emissions (CO2 Act): *https://www.admin.ch/opc/en/classified-compilation/20091310/index.html* • Ordinance on the reduction of CO2 emissions (CO2 Ordinance): *https://www.admin.ch/opc/en/classified-compilation/20120090/index.html*
	Offset Crediting Mechanism	**Legislation** • Federal act on reduction of emissions (CO2 Act): *https://www.admin.ch/opc/en/classified-compilation/20091310/index.html* • Ordinance on the reduction of CO2 emissions (CO2 Ordinance): *https://www.admin.ch/opc/en/classified-compilation/20120090/index.html* **Guidance** • Communication on offset mechanisms MRV: *https://www.bafu.admin.ch/bafu/de/home/themen/klima/publikationen-studien/publikationen/projekte-programme-emissionsverminderung-inland.html* • Different tools, application forms, and information on validators and verifiers can be found on: *https://www.bafu.admin.ch/bafu/en/home/topics/climate/info-specialists/climate-policy/compensation-for-co2-emissions/compensation-projects-in-switzerland/validators-and-verifiers.html*
United States	California ETS and Offset Crediting Mechanism	**Legislation** • CARB – accreditation oversight: *https://www.arb.ca.gov/cc/reporting/ghg-ver/accreditation_oversight.pdf* • CARB – accreditation requirements: *https://www.arb.ca.gov/cc/reporting/ghg-ver/acc2.pdf* • CARB – FAQ on accreditation requirements: *https://www.arb.ca.gov/cc/reporting/ghg-ver/qa_ver2.pdf* • Regulation for the Mandatory Reporting of Greenhouse Gas Emissions: *https://ww2.arb.ca.gov/mrr-regulation* **Guidance** • CARB – Technical Guidance for Offset Verifiers: *https://www.arb.ca.gov/cc/capandtrade/offsets/offset-verification-guidance.pdf*
	Regional GHG Initiative (RGGI) – ETS and Offset Crediting Mechanism	**Legislation** • The RGGI Model Rule: *https://www.rggi.org/program-overview-and-design/design-archive/mou-model-rule*
	The Climate Action Reserve	**Guidance** • The Climate Action Reserve – Verification Program Manual: *http://www.climateactionreserve.org/how/verification/verification-program-manual/*
	The Climate Registry	**Guidance** • The Climate Registry – General Verification Protocol: *http://www.theclimateregistry.org/tools-resources/verification/general-verification-protocol/* • The Climate Registry – Guide to Accreditation: *https://www.theclimateregistry.org/wp-content/uploads/2014/12/TCR-Accreditation_May-2008.pdf*

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