Lesson 1: Introduction: Terminology, Roles and Responsibilities, and the GHG Verification Process

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In this lesson we will introduce and define important terminology related to GHG verification, and we will introduce the GHG verification process.

Specific topics we will cover in this lesson include:

- The verification process specified in ISO 14064-3, the International Standard for GHG Verification
- The differences and similarities between validation and verification, and
- The roles of 1st, 2nd, and 3rd parties in the validation and verification processes.

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Key Points to Remember from this lesson:

- Validation is a process regarding future GHG performance.
- Verification is a process regarding past GHG performance.
- There are 1st, 2nd, and 3rd party validations and verifications, and
- A Verification consists of three distinct phases: Planning, Execution, and Completion.

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Basic Terms

Before we explain the verification process to you, you should have a good understanding of specific terminology used by greenhouse gas verifiers. In this lesson we define the most common terms related to GHG verification. These terms and others are included in the Glossary of this course.

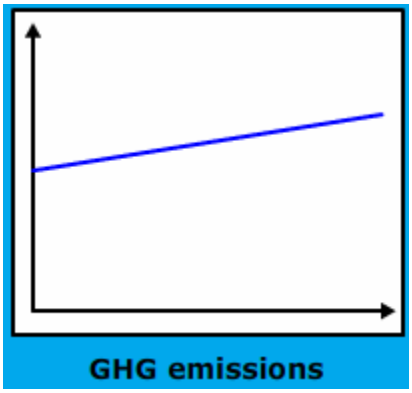
GHG ASSERTION

The first term we define is **GHG Assertion.**

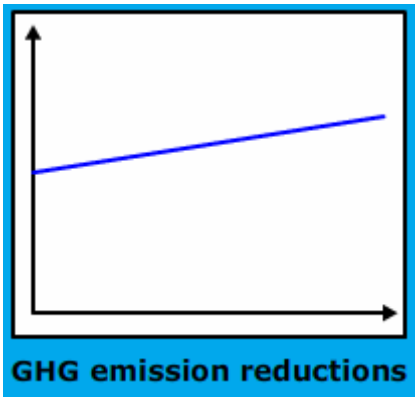
A GHG Assertion is a factual and objective statement of performance related to greenhouse gases made by an Organization or Project. A GHG Verification is a verification of a GHG Assertion.

A GHG Assertion can pertain to:

- The amount of **GHG emissions** during a given period of time



- The amount of **emission reductions** or **removal enhancements** during a given period of time

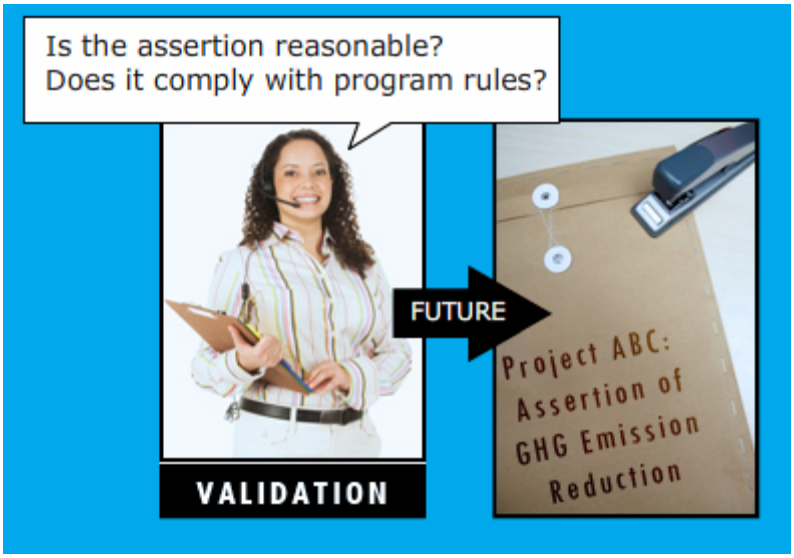


- Conformance to a GHG standard, or
- Compliance with GHG program rules.

VALIDATION

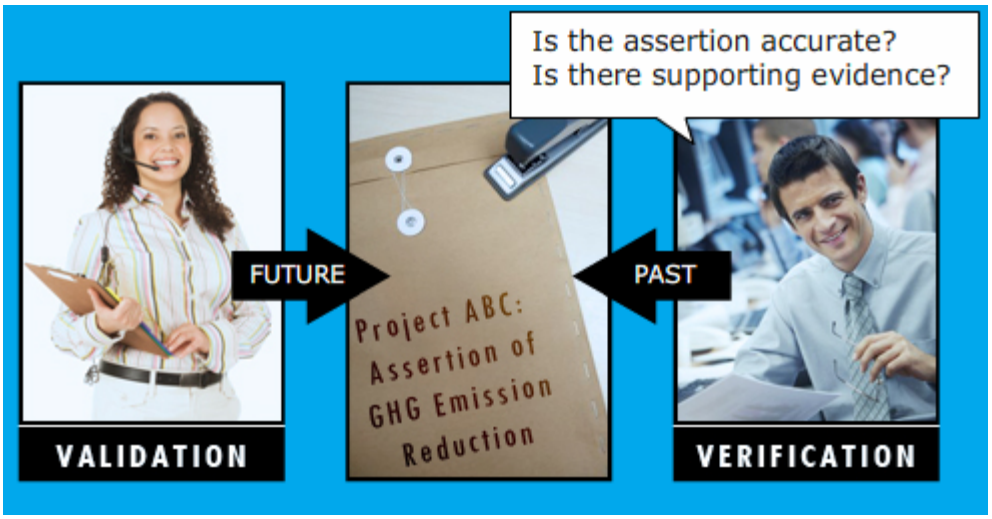
Validation is the process in which a validator performs a systematic assessment to determine whether or not a GHG assertion regarding future GHG performance is both:

- based on reasonable assumptions and calculations, and
- in compliance with GHG program rules and standards



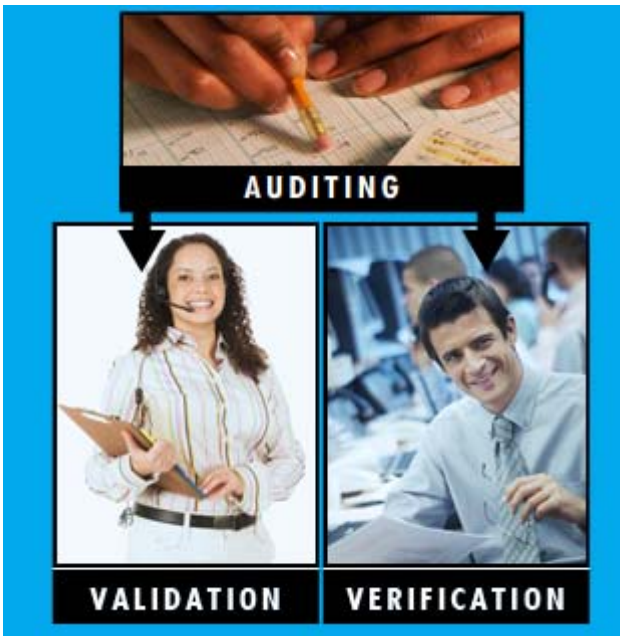
VERIFICATION

Verification is the process in which a verifier performs a systematic assessment to confirm, **with supporting evidence**, that an Organization's or Project's GHG assertion regarding past GHG performance has been appropriately calculated and truthfully reported.



AUDITING

Auditing is a general term for the process that a validator or verifier undertakes. Validation and verification are subsets of "auditing".



Accreditation programs for certification organizations (POPUP)

Auditing activities including validation and verification are usually undertaken by what are referred to as certification organizations. Sometimes these organizations are also referred to as entities or bodies.

The client commissioning a verification should ensure that the verifier is capable of performing the verification. There are accreditation programs, both under GHG programs and, at the national level, under standards organizations, to ensure that verifiers are capable of performing verifications.

VERIFIER

A verifier is a person or team that performs a verification.

Verifiers generally work for a verification organization, which can be a "1-person" company but is generally larger. Many verification organizations are not-for-profit.

A verification team usually consists of a lead verifier, or team leader, and additional verifiers.

- A lead verifier is usually selected based on their extensive knowledge of GHG verifications and specific verification systems and procedures.
- Even though there is a lead verifier, the division of labor among verification team

members may depend on familiarity with a particular organization or project, on technologies and processes being used, and even on where verification team members are based.

In addition to the lead verifier and additional verifiers, a verification team may include external experts and a peer reviewer.

- External experts may be called to support the verification team. For example, if an organization or project being verified uses innovative technologies, and the verification organization does not have sufficient internal technical competency to address the new technologies, the verification team may call in an external expert.
- A peer reviewer that is independent of the verification activities may be used on a verification team to provide a quality control during the verification or quality assurance after the verification.

Lesson 5 describes verification team requirements in more detail.

INTENDED USER

The **intended user** is the person, or, most often, the GHG program, that receives the verification report or statement.

Now that we have introduced some of the basic terminology used in GHG Verification, let's examine the different roles of Validation and Verification of GHG Assertions.

Validation

Validation is conducted to confirm whether or not a project plan, often in the form of a Project Design Document, or PDD, is reasonable. A validation is usually conducted before a Project is implemented.

Validation is typically not performed on GHG emission inventory plans for organizations or other entities, although it would be acceptable to do so.

Validation confirms that:

- a Project complies with GHG program requirements, or
- a Project conforms with relevant standards or approved methodologies.

Validation also assesses the "reasonableness" (meaning technical correctness and policy consistency) of the assumptions, calculations, methodologies, and procedures in a project plan.

The result of a validation is an opinion or statement to the intended user explaining whether or not the GHG assertion (regarding the expected future performance of a project) complies with relevant GHG program requirements; conforms with relevant standards or approved methodologies; and is based on reasonable assumptions and accepted good practice.

It is important to note that a validation generally does not provide high assurance of a Project's future performance.

Although similar in many respects to verification, the validation process has many important differences. These differences are especially critical in cases where projects have proposed new technologies or methodologies that have not been used before.

This course does not address the validation process. However, the Greenhouse Gas Management Institute will offer separate training on validation in the future.

Verification

Verification is conducted to confirm the credibility of an Organization's or Project's **GHG Assertion**. A Verification is conducted after the Organization or Project has operated for an entire reporting period.

Verification confirms whether or not an Organization or Project complies with GHG program requirements and/or whether or not an Organization or Project conforms with relevant standards or approved methodologies. A very important function of a Verification is that it assesses whether or not there is a material misstatement in the GHG assertion.

The result of a Verification is an opinion or statement explaining whether or not the GHG assertion regarding past GHG performance complies with relevant GHG program requirements, conforms with relevant standards or approved methodologies, and is free of material misstatement.

Since different GHG programs have different requirements and conditions, it is important that the verifier confirm the GHG assertion for the specific GHG program to which the Organization or Project subscribes.

Verification is usually requested when the Organization or Project:

- Is required to undertake verification to be eligible for issuance of emission permits or emission reduction credits,
- Wants to enhance the credibility of their GHG report by demonstrating transparency and veracity, or
- Is legally or otherwise obligated to provide a high LoA (Pronunciation: L oh A) on reported GHG performance to meet specified GHG performance targets or GHG program compliance requirements.

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Level of Assurance

Verification provides a level of assurance (or LoA) to the intended user that the Organization's or Project's GHG assertion is free from material discrepancies, is appropriately reported, and conforms to specific standard or GHG program requirements.

Verification requirements (and hence LoA) are usually guided by GHG program rules, and involve rigorous collection, testing and evaluation of evidence.

"Level of Assurance" is especially important in market-based schemes where the expected outcome is market fungible (meaning tradable) GHG commodities such as emission permits or allowances or emission reduction credits like those listed here.

A high LoA is required for emissions trading markets since GHG programs that issue emission allowances and reduction credits effectively give 100% assurance to the market that a credit issued is 1 metric tonne of CO_2-equivalent emissions or emission reductions.

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Link between Validation and Verification

While validation and verification entail similar audit activities and processes focused on obtaining and assessing evidence, validation and verification are separate and distinct processes. The relationship between the two is that:

- In most cases, verification for a project is done against the project's validated plan, and
- A well-executed validation usually allows for a much smoother verification.

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The Result of the Verification Process

The intended outcome of a verification is a report describing:

- the verification process utilized,
- the activities investigated and audited,
- the verifier's findings, and
- a summary verification statement.

A full verification report states what requirements have and have not been fulfilled for a specific GHG Program or Standard. The particular result of a given verification depends on the specific GHG assertion and the objectives of the verification.

The verification statement includes a **verification opinion**, which provides assurance for the intended user. Here is an example of a verification opinion.

"Based on verification activities conducted, we have a high Level of assurance that Alpha Organization's (or Beta's Project) GHG assertion prepared using the Gamma GHG Program Protocol, is supported by appropriate underlying evidence, is fairly stated and is free from material discrepancies."

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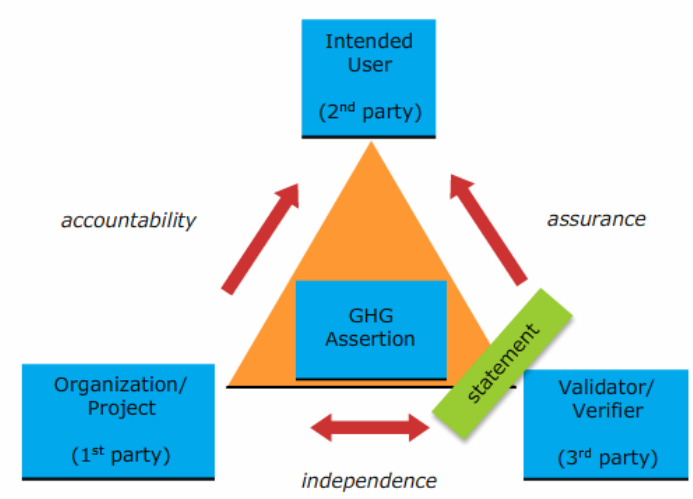
1st Party, 2nd Party, and 3rd Party Verifications

There are three types of verifications depending on who performs them.



A 1st Party, or "in-house", Verification is usually conducted for internal reassurance, often prior to a 2nd or 3rd party verification, to uncover any foreseeable problems that can be resolved

internally. A 1st Party verification exercise would likely be considered part of an organization's internal quality assurance procedures.

A 2nd Party Verification is conducted by a buyer, supplier, or other organization that has a direct interest in the results of the verification. A 2nd Party verification is not usually acceptable if the GHG assertion is to register allowances or credits in an emissions trading market. A 2nd Party verification may be acceptable in cases where an organization is simply providing a disclosure report to a GHG program.

A 3rd Party Verification is conducted by an independent and qualified individual or organization, depending on the rules and terms of the verification. The verifier should demonstrate that no conflict of interest exists between the verifier and any other parties with an interest in the results of the verification exercise. A 3rd party verification is typically conducted when the GHG assertion will be used to participate in a GHG program with regulatory compliance implications or used in a transaction within an emissions trading market.

3rd Party verification is what most people refer to when they speak of "verification" in the context of GHG emission inventories and emission reduction projects.

A fundamental characteristic of an individual verifier or verification organization is its independence from other parties with interests in the GHG emissions inventory or emission reduction project.

What makes a 3rd party independent?

- First, the validation or verification organization must be able to demonstrate that its decisions are not influenced by other interests or parties and are solely based on evidence obtained during the verification process.

And second, all Verification team members must be unbiased and free from conflict of interest. Lesson 4 describes independence and conflict of interest in more detail.

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Why Third Party Assurance?

Independent, third party assurance or verification of a GHG Assertion is sought for a number of reasons, including:

- Third party assurance is required by many GHG programs and emission trading schemes.
- Third party assurance means the GHG assertion will be seen as credible, and the verification statement or opinion will be seen as free from conflict of interest.

Remember that 1st party verifiers have no independence and therefore, limited credibility, and that 2nd party verifiers have a vested interest in the outcome of the inventory or project.

A third party verification means assurance from qualified experts that reported GHG emissions or emission reductions are accurate, and not misconstrued to increase profitability or marketing claims.

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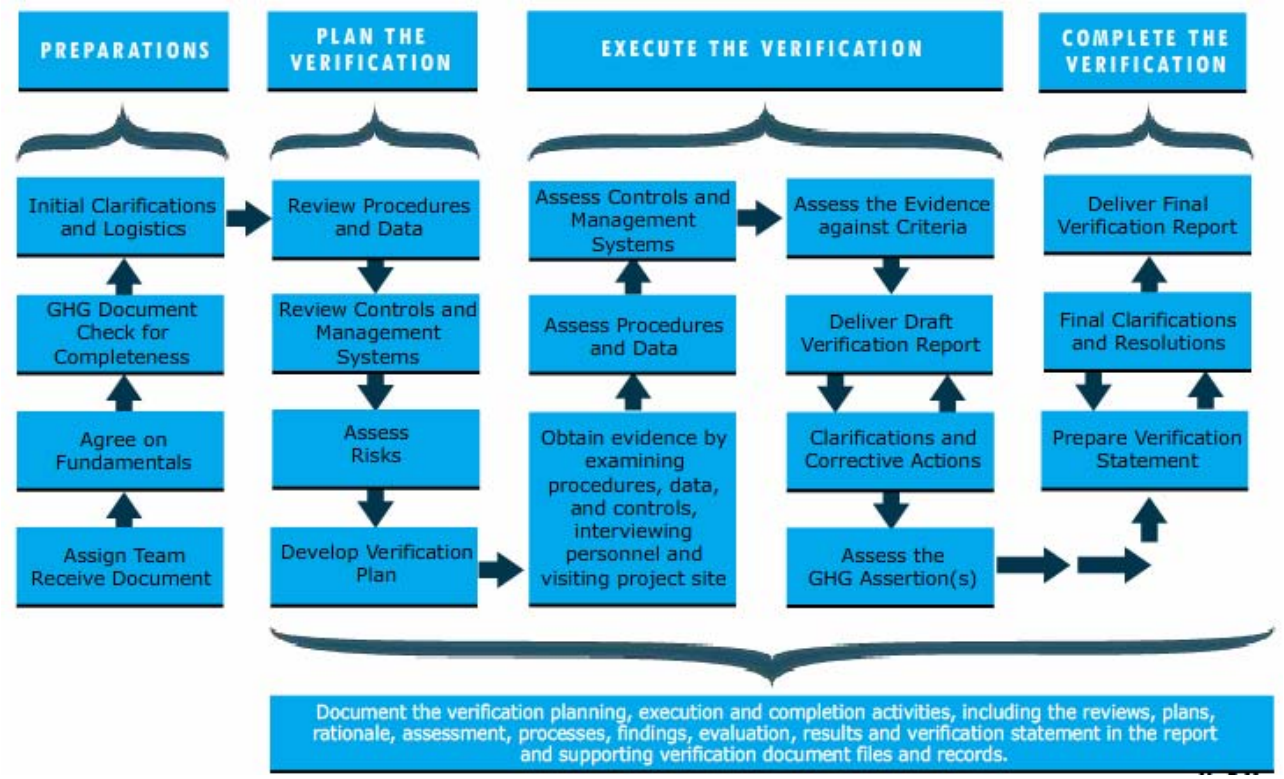
The Verification Process

This course explains the steps you will need to take, and requirements you will need to meet for planning, executing and completing a GHG verification.

The diagram you see here illustrates the general steps in the verification process. Click on the boxes in the diagram for explanations of each step.



Further Reading and Useful Links

ISO 14064-3 is provided with this course. You must thoroughly and carefully read this Standard before continuing on to the next lesson.