

## ISO 14064

# 温室气体排放和清除量化的验证



### 背景和挑战

气候变化被人们普遍认为是当前人类面临的重大威胁。针对这一威胁，世界各国政府和工业界纷纷设定目标和方案以降低大气中温室气体(GHG)的含量。越来越多的投资者、品牌商、消费者开始要求相关组织披露其温室气体有关的信息，并在有限的范围内采取实质行动实施减排。一些著名品牌和厂商已经开始行动起来，在其组织内部或外部供应链上实施和推动碳管理。越来越多的组织开始识别和量化与温室气体有关的信息，编制组织温室气体年度报告。

### ISO 14064—组织碳管理的有效工具

2006年3月1日，国际标准化组织(ISO)发布了关于温室气体管理的最新标准ISO 14064:2006。作为温室气体的量化、报告与验证的实用工具，应用于组织碳管理领域。该标准旨在以一个新的、中性的标准来提升温室气体量化与报告的可靠性和一致性，以实现可比较的结果。标准增强了组织温室气体排放数据的一致性和公开性，提高了可信度和透明度，让组织可以更加有效地管理与其温室气体资产或负债相关的风险，以提升利益相关者（包括投资者、客户和消费者）的信心。

### 我们的解决方案

#### 组织温室气体量化和报告—迈向组织碳管理的第一步

对组织的温室气体排放和清除的信息进行量化和报告，是实施组织碳管理的第一步，也是开展其他碳管理活动的前提和基础。

组织可以自行组织人员开展内部温室气体盘查。也可以委托外部专业机构开展第三方碳审计。其实施的流程基本一致，包括以下基本步骤：

- \* 确定组织边界和运营边界
- \* 确定基准年
- \* 识别温室气体排放源和清除汇
- \* 设计组织温室气体清单
- \* 减量行动的策划与实施（基准年不要求）
- \* 盘查年度排放数据收集和计算
- \* 数据控制和不确定度分析
- \* 编制温室气体年度报告
- \* 内部核查、改善与高层评审
- \* 盘查结果（报告与声明）发布

## ISO 14064 Greenhouse Gas Emission and Removal Verification



### Background & Challenge

Many consider climate change to be the greatest threat facing humanity at present. In response to this threat, governments of all countries and the global industrial community have set goals and established programs to reduce the greenhouse gas (GHG) content in the atmosphere. What's more, a growing number of investors, businesses, and consumers now require companies to disclose their GHG-related information. Some well-known brands and manufacturers are addressing these pressures by identifying and quantifying GHG emissions and removals, both within and outside their organizations. This information is often documented in a corporate report.

### ISO 14064 - an effective tool for corporate carbon management

The international standard ISO 14064:2006 is a practical tool for the quantification, verification, reporting, and control of corporate GHG emissions and removals. The standard aims to improve the reliability and consistency of GHG quantification and reporting, improve emissions credit trading, and promote openness of corporate GHG emissions data. Implementing ISO 14064 enhances an organization's credibility and transparency, and enables it to more effectively manage GHG assets or risks - and ultimately, increase the confidence of investors, customers and consumers.

### Our Solution

#### Corporate GHG quantification & Report - Initial step for corporate carbon management

It is initial step for corporate carbon management to quantify and report corporate GHG emission and removal information, and also a prerequisite and foundation for developing other carbon management activities. Organizations may organize their own personnel to conduct an internal GHG quantification, or may entrust a second-party carbon audit to an external body.

GHG quantification requires personnel who have certain professional and technical competence, such as an environmental engineering background. Organizations could perform GHG quantification by themselves, or seek for a third-party carbon audit as well. The basic processes are the same, including the following,

- \* Identify organizational and operational boundaries
- \* Determine the base year and the quantification year
- \* Identify GHG emission sources and removal sinks
- \* Plan and implement emission reduction action (the base year is not required)
- \* Collect and calculate emissions data
- \* Establish a corporate GHG inventory
- \* Control data quality and analyze uncertainty
- \* Develop GHG reports
- \* Internal verification, improvement and top review
- \* Publish quantification results (reports and assertions)

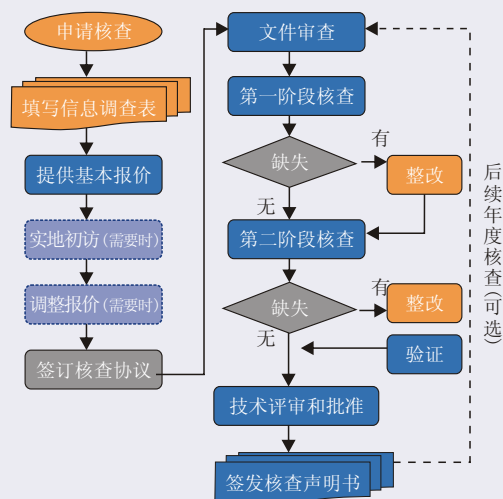


## 组织温室气体报告验证—证实并展示您的碳管理

为证实组织的温室气体量化结果全面、客观、真实和可追溯，组织可申请对其年度温室气体报告进行第三方验证（也称核查、查证、确证）。组织温室气体报告的第三方验证可有效证实组织的温室气体盘查过程和盘查结果符合所声明的要求，并为社会公众提供信任保证。

第三方温室气体报告验证服务的通常流程如下：

- \* 申请验证(核查)
- \* 填写《客户GHG信息调查表》
- \* 提供基本报价
- \* 实地初访(必要时)
- \* 调整报价(适用时)
- \* 签订验证协议
- \* 文件审查
- \* 第一阶段核查
- \* 缺失整改(如存在)
- \* 第二阶段核查
- \* 缺失整改和专项验证(如存在)
- \* 技术评审和批准
- \* 签发《GHG核查声明书》



## 为什么选择Intertek

作为全球领先的碳管理服务机构，Intertek始终关注和参与产业界碳管理的发展进程。Intertek和WBCSD/WRI、Carbon Trust、CDP、ISO等组织建立有长期联系或密切合作关系。凭借分布全球100多个国家的1,000多个分支机构以及26,000多名员工，Intertek通过领先的服务理念和创新的解决方案，帮助您锐化竞争优势，迎接来自全球市场及买家的挑战和要求。

凭借位于全球各地区的碳服务研发团队的整合资源，Intertek可以为客户提供一系列的碳管理解决方案，除了ISO14064-1外部验证（核查）服务之外，还包括有：碳披露问卷填写辅导、CDP碳披露计划咨询、组织碳数据统计和测算、组织碳信息报告编制辅导、组织第三方碳审计、组织供应链碳管理咨询、产品LCA生命周期碳分析和评估、产品碳标签认证、材料碳数据评估、Credit 360软件碳测算、Intertek碳中和计划，以及碳管理领域相关培训服务等。

欲了解Intertek碳服务的详细情况，请访问Intertek中文网站[www.intertek.com.cn](http://www.intertek.com.cn) 或与Intertek区域销售代表联系。

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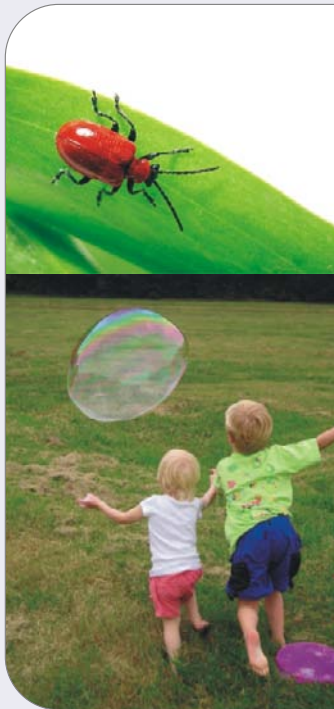
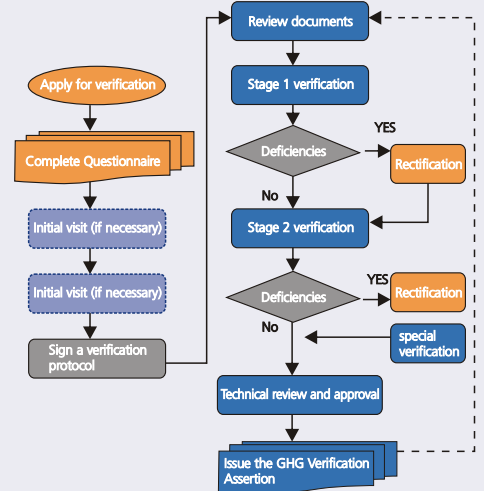
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## Corporate GHG Report Verification - Demonstrate & publicize your carbon management

In order to demonstrate comprehensiveness, objectivity, validity, and traceability of corporate GHG quantification results, organizations could apply for a third-party verification for its annual GHG report. Third-party verification for a corporate GHG report could prove that corporate GHG quantification process and quantification results conform with requirements, and provide a reliable guarantee for their customers.

The general application process for third party GHG report verification service is as follows;

- \* Apply for verification
- \* Complete the Customer GHG Information Questionnaire
- \* Initial visit (if necessary)
- \* Sign a verification protocol
- \* Review documents
- \* Stage 1 verification
- \* Rectification of deficiencies (if any)
- \* Stage 2 verification
- \* Rectification of deficiencies and special verification (if any)
- \* Technical review and approval
- \* Issue the GHG Verification Assertion



## Why Choose Intertek

Intertek, a leading provider of carbon management services, has always been concerned and involved in industrial carbon management. We maintain partnerships with industry organizations such as WBCSD/WRI, Carbon Trust, the Carbon Disclosure Project (CDP), and the International Organization for Standardization (ISO) in order to stay abreast of the latest GHG regulations. With over 26,000 employees in more than 100 countries, Intertek is ready to help you meet the challenges and requirements of the global market with innovative solutions.

When combined with our deep expertise as a leading global management systems registrar, it means we can offer a unique solution to ISO 14064 auditing and certification: thorough, process-based audits covering the very latest market and government requirements.

With the integrated resources of carbon service R&D teams all over the world, we also offer a wide range of carbon management solutions in addition to ISO 14064 registration:

- \* Carbon disclosure questionnaire counseling
- \* (CDP) participation consulting
- \* Carbon data calculation
- \* Carbon information report compiling
- \* Third-party carbon audit
- \* Supply chain carbon management consulting
- \* Product life cycle assessment (LCA) and product LCA carbon emissions accounting
- \* Carbon label certification for products
- \* Carbon data evaluation for materials
- \* Credit 360 carbon estimates
- \* Carbon sequestration projects
- \* Carbon neutrality and service platforms
- \* Training in carbon management - integrated and various modules

## Regional Contact

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## 常见问题

1、问：温室气体有哪些？为什么我们有时将温室气体代称为“碳”？

答：自然界里面具有温室效应的气体有很多种，例如水汽就是其中最主要的一种，但造成目前全球气候变化的主要原因是人类活动增加了大气中部分温室气体的含量。《京都议定书》中规定了6类温室气体，分别是二氧化碳(CO<sub>2</sub>)、甲烷(CH<sub>4</sub>)、氧化亚氮(N<sub>2</sub>O)、氢氟碳化物(HFCs)、全氟化碳物(PFCs)、六氟化硫(SF<sub>6</sub>)。因为这6种气体尤其以二氧化碳最为主要，而且在实际监测和计算中，常依据各种气体温室效应的能力不同，统一换算成二氧化碳当量(CO<sub>2</sub>e)来进行对比和研究，因此我们习惯上用“碳”来代称温室气体。例如我们称“温室气体减排”为“碳减排”。

2、问：什么是温室气体盘查，什么是温室气体验证？

答：企业要实现碳信息披露，就必须对企业内温室气体排放和清除的信息实施量化和报告。我们通常称这种量化与报告活动为温室气体盘查(GHG Quantification)，当这种盘查活动由组织外部专门机构提供服务时，则通常称之为碳审计(Carbon Audit)。温室气体验证是由第三方验证机构依据验证标准、认可要求和验证机构工作程序，对GHG盘查结果所进行的系统的、独立的并形成文件的评价。针对组织层面的GHG验证我们通常称为核查，而针对项目层面的GHG验证则分为核查和审定两个方面。

3、问：温室气体盘查和验证分别可依据什么标准？

答：组织温室气体盘查依据：ISO 14064-1:2006《温室气体-第一部分：组织层次上对温室气体排放和清除的量化和报告的规范及指南》进行；项目层面温室气体盘查依据：ISO 14064-2:2006《温室气体-第一部分：项目层次上温室气体减排和清除增加的量化和报告的规范及指南》进行；温室气体验证则依据ISO 14064-3:2006《温室气体-第三部分：温室气体声明审定和核查的规范及指南》进行。

4、问：为什么需要对温室气体盘查数据实施验证？

答：温室气体验证机构依据统一的标准和程序实施温室气体核查服务，确保了验证结果的客观、公正、可信。同时验证机构以自己的机构信誉为基础，为申请验证的客户签发验证声明书，确保经验证的盘查数据能被更广大的目标用户所接受。因此，当需确保盘查结果可信，并向外部展示所声明的结果已被证实，组织需要对温室气体盘查数据实施验证。

5、问：温室气体验证与通常的管理体系认证有什么不同的特点？

答：企业温室气体验证不同于通常的管理体系认证。准确地说，它不属于一个管理体系认证项目。温室气体验证项目对验证机构的要求是依据ISO 14065:2007标准，而不是通常管理体系认证机构所依据的ISO 17021:2006标准。在具体实施中，温室气体验证也与通常的管理体系认证有很多不同的特点，例如温室气体验证的对象是某一年的温室气体报告，所签发的《温室气体核查声明书》没有有效期，验证也没有年度监督审核的要求，组织可以一次申请一个年度的验证，也可以一次申请对过去多个年度的验证等。

6、问：温室气体验证主要验证哪些内容？

答：企业温室气体验证除了验证申请年度的温室气体排放量数据（均以二氧化碳当量CO<sub>2</sub>e标示）之外，还会验证温室气体有关的组织边界和运营边界确定是否合理、排放源和清除的汇识别是否充分、活动数据收集和控制体系是否合适、量化方法和计算公式是否准确、合理、所声称的温室气体盘查结果不确定度是否客观真实等内容。



## FAQs

Q1: What are greenhouse gases (GHGs)? Why do we sometimes call GHGs "carbon"?

A: There are a variety of naturally-occurring greenhouse gases, such as water vapor. But the main reason for the current global climate change is the increased proportion of GHGs in the atmosphere caused by human activity. The Kyoto Protocol specifies six manmade GHGs: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). Among the six GHGs, CO<sub>2</sub> is the most commonly occurring. In monitoring and calculation, any GHG can be converted to a carbon dioxide equivalent (CO<sub>2</sub>e) for comparison and research purposes. Therefore, GHGs are often called "carbon" and "GHG emissions" are called "carbon emissions".

Q2: What is GHG quantification, and what is GHG verification?

A: In order to achieve carbon disclosure, an organization must calculate and report its GHG emissions and removals. This process is called GHG quantification. If GHG quantification is performed by an external third-party, it is often called a carbon audit.

GHG verification is a systematic, independent, and documented process in which a third-party verification body assesses the organization's GHG quantification results based on international standards, accreditation requirements, and its working procedures. The purpose of verification is mainly to provide a compliance assessment for GHG reports and claims - not to be confused with validation, which provides verified conclusions for certified emission reductions (CERs).

Q 3: What standards are GHG quantification and verification based on?

A: Corporate GHG quantification is performed based on ISO 14064-1:2006 (Greenhouse gases -- Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals), GHG quantification on the project level is based on ISO 14064-2:2006 Greenhouse gases -- Part 2: Specification with guidance at the project level for quantification and reporting of greenhouse gas emissions and removals) and GHG verification is carried out based on ISO 14064-3:2006 (Greenhouse gases -- Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions).

Q 4: Why does GHG quantification data need to be verified?

A: Organizations should consider verifying GHG quantification data when it is necessary to ensure that the data are credible and will be accepted and recognized by external stakeholders. GHG verification bodies provide independent, third-party verification against uniform standards and procedures. They do so under the control of accreditation requirements in order to ensure the objectivity, fairness and credibility of their results.

Q 5: What are the differences between GHG verification and management system certification?

A: Corporate GHG verification is not a management system certification project. The difference is in the specific implementation. For example:

- \* GHG verification aims to provide a GHG report for a certain year
- \* The issued GHG Verification Assertion is valid forever
- \* Verification does not require annual surveillance audits
- \* Organizations may apply for verification of the current year or of past years

Q 6: What are the main contents of GHG verification?

A: In addition to verifying GHG emissions data (CO<sub>2</sub>e) for the application year, corporate GHG verification also seeks to determine:

- \* Are GHG-related organizational and operational boundaries reasonable?
- \* Are emission sources and removals sinks adequately identified?
- \* Are activity data collection and control systems appropriate?
- \* Are quantification methods and computational formulas accurate and reasonable?
- \* Is the uncertainty of the claimed GHG quantification results objective and true?

Additionally, a statement of the verification results is also recorded in the GHG Verification Assertion.