**Table: GHG Reporting Compliance by Business Turnover and Sector**

| **Business Turnover** | **Sector** | **Compliance Requirement** |
| --- | --- | --- |
| < £36 million | Small Enterprises | Not mandatory; encouraged for transparency and participation in voluntary carbon markets. |
| £36 million - £500 million | Medium Enterprises | Encouraged to comply with ISO 14064-1 and report Scope 1 and Scope 2 emissions; Scope 3 optional. |
| > £500 million | Large Enterprises | Mandatory to comply with ISO 14064-1, ISO 14064-2 (if applicable), and report Scope 1 and Scope 2 emissions; Scope 3 recommended. |
| > £36 million | Energy Sector | Mandatory to comply with ISO 14064-1 and ISO 14064-3; all three scopes must be reported due to high GHG impact. |
| > £36 million | Manufacturing Sector | Strongly encouraged to comply with ISO 14064-1 and report Scope 1, Scope 2, and relevant Scope 3 emissions. |
| > £36 million | Transportation Sector | Mandatory to comply with ISO 14064-1 and report Scope 1 and Scope 2 emissions; Scope 3 for downstream emissions. |
| > £36 million | Financial Sector | Required to report on Scope 1 and Scope 2 emissions; Scope 3 related to financed emissions is highly encouraged. |
| All Turnovers | Public Sector | Increasingly required to comply with ISO 14064-1 and report on all relevant scopes, especially for government transparency. |
| < £36 million | Voluntary Carbon Market Participants | Encouraged to comply with ISO 14064-2 and report project-level emissions reductions. |

**Comprehensive Review and Analysis of ISO 14064 Standards**

**1. ISO 14064-1: Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals**

**Overview:** ISO 14064-1 focuses on the quantification and reporting of greenhouse gas (GHG) emissions and removals at the organisation level. It provides a standardised approach for organisations to quantify, monitor, and report their GHG emissions, including those from direct and indirect sources.

**Key Components:**

* **GHG Inventory:** Development of a GHG inventory including all relevant sources of emissions.
* **Emission Boundaries:** Categorization of emissions into Scope 1 (direct emissions), Scope 2 (indirect emissions from energy consumption), and optionally, Scope 3 (other indirect emissions).
* **Quantification Methodologies:** Specific methodologies for calculating GHG emissions.
* **Reporting Requirements:** Details on what should be included in GHG reports, such as base year selection and disclosure of methodologies.

**Purpose:** ISO 14064-1 helps organizations understand their GHG impact, identify areas for emission reductions, and enhance transparency through consistent reporting. It is particularly useful for organisations looking to align with international GHG reporting standards and participate in carbon trading schemes.

**2. ISO 14064-2: Specification with Guidance at the Project Level for Quantification, Monitoring, and Reporting of Greenhouse Gas Emission Reductions or Removal Enhancements**

**Overview:** ISO 14064-2 provides guidelines for quantifying, monitoring, and reporting emission reductions or removal enhancements at the project level, applicable to activities aimed at reducing GHG emissions or enhancing carbon sequestration.

**Key Components:**

* **Project Design:** Detailed project description, including the baseline scenario, project boundaries, and expected GHG reductions or removals.
* **Baseline Methodology:** Establishing a baseline scenario to calculate the actual reductions achieved.
* **Monitoring Plan:** A comprehensive plan for monitoring the project's performance.
* **Additionality:** Demonstration that the GHG reductions or removals are additional to what would have occurred without the project.

**Purpose:** ISO 14064-2 supports the development of GHG reduction projects, ensuring they deliver verifiable and credible emission reductions. It is relevant for organizations involved in carbon offset projects or seeking to enhance their sustainability initiatives.

**3. ISO 14064-3: Specification with Guidance for the Validation and Verification of Greenhouse Gas Assertions**

**Overview:** ISO 14064-3 provides guidance on the validation and verification of GHG assertions, ensuring that GHG reports and claims are accurate, consistent, and transparent.

**Key Components:**

* **Validation and Verification Process:** Defines steps for validating a GHG project plan and verifying GHG assertions.
* **Verification Planning:** Development of a verification plan that outlines the objectives, criteria, and methodologies.
* **Assessment of GHG Assertions:** Evaluation of the accuracy and completeness of the data and conformance with applicable standards.
* **Reporting:** Provision of a verification statement that includes findings, conclusions, and any qualifications.

**Purpose:** ISO 14064-3 ensures the credibility of GHG claims through rigorous validation and verification procedures, essential for organizations seeking third-party verification of their GHG inventories or projects.

**Expanded Explanation of Scopes**

**Scope 1: Direct GHG Emissions**

* **Definition:** Emissions from sources owned or controlled by the organisation, including combustion in boilers, vehicles, and emissions from on-site processes.
* **Top 10 Sources:**
  1. On-Site Fuel Combustion
  2. Company-Owned Vehicles
  3. On-Site Chemical Production
  4. Stationary Combustion
  5. Fugitive Emissions (e.g., refrigerants)
  6. Process Emissions (e.g., cement production)
  7. Agricultural Emissions (e.g., livestock)
  8. Waste Treatment Facilities
  9. On-Site Energy Generation
  10. Emergency Power Systems

**Scope 2: Indirect GHG Emissions from Energy**

* **Definition:** Emissions from the generation of purchased electricity, steam, heating, and cooling consumed by the organisation.
* **Top 10 Sources:**
  1. Purchased Electricity
  2. Purchased Steam
  3. Purchased Heating
  4. Purchased Cooling
  5. Purchased Hot Water
  6. Energy Imports
  7. Transmission and Distribution Losses
  8. Electricity from Renewable Sources
  9. Virtual Power Purchase Agreements (VPPAs)
  10. Leased Properties Energy Use

**Scope 3: Other Indirect GHG Emissions**

* **Definition:** Emissions from the activities of the organization but occur from sources not owned or controlled by the organisation.
* **Top 10 Sources:**
  1. Purchased Goods and Services
  2. Business Travel
  3. Employee Commuting
  4. Waste Generated in Operations
  5. Transportation and Distribution (Upstream and Downstream)
  6. Capital Goods
  7. Use of Sold Products
  8. End-of-Life Treatment of Sold Products
  9. Leased Assets (Upstream and Downstream)
  10. Franchises