How to Select the Best ESG Calculator

With the increased prominence of Environmental, Social, and Governance (ESG) in corporate and financial reporting, it is increasingly important to ensure you have accurate, verifiable data underlying your reports. Choosing the right ESG calculation engine is a critical part of compliance with rapidly evolving requirements and regulations.

Calculations in ESG Reporting

In order to ensure compliance, you need a calculation engine that can handle the ESG calculations and rollups, but also provide full visibility into how each number was calculated. The following calculations are used throughout ESG reporting:

- GHG calculations and other emissions metrics
- Conversions between multiple measurement units used worldwide
- Tallying Social Governance measures and survey results
- Rollup Calculations across your organization hierarchy
- Normalization of indicator totals by business performance metrics

GHG & Emission Calculations

What is a GHG emissions inventory?

A greenhouse gas (GHG) emissions inventory describes the total greenhouse gases attributed to a facility, business, or organization's activities. Activities could include direct emissions such as burning natural gas for office heating, and indirect emissions such as emissions associated with producing the electricity used to light a building, emissions associated with business travel, or emissions associated with oil and gas upstream or downstream activities. Understanding a company's GHG inventory is crucial to managing climate change strategies. GHG inventories may be the result of mandatory state, regional, or national reporting programs such as California Air Resource Board (AB32), U.S. EPA Mandatory Reporting Rule, or European Union Emissions Trading Scheme (EU ETS). However, many inventories may be the direct result of investment due diligence, stakeholder communication, or other marketing strategies.

GHG Calculations

The requirements and procedures for GHG reporting are complex and rapidly evolving. In order to ensure compliance, you need a calculation engine that can handle complex equations using appropriate emission factors, conversion factors, and calculation methodologies for each reporting program. The right calculation engine can reduce the stress, time, and potential inaccuracies found in home-grown accounting methods such as spreadsheets, silo databases or hand-written notes.

Because of the increased attention and scrutiny on GHG emissions requirements, a key requirement for most GHG accounting tools is transparency of how the emissions are calculated. A GHG verifier must be able to see exactly how the calculations are performed, and determine the source of each of the inputs. For this reason, calculation engines that operate as a "black box" to users are largely unusable for GHG accounting.

Other emission and discharge metrics also include complex calculations, including tonnage of materials discharges to water or air (e.g. metals, particulates, etc). These typically involve a discharge flow rate, concentration of the material in water or air, and factors or conversions to quantify the total mass discharge. The ability to trace these discharge values to the source data is a critical component of a defensible ESG report.

Measurement Unit Conversions

For any organization that operates in multiple countries, ESG inputs are likely measured in multiple different measurement units. Fuel volume and travel distance metrics commonly face this issue. In the US, these are most commonly measured in gallons and miles, but the rest of the world would have these metrics in liters and kilometers. The measurement conversions are not complicated, and could be done outside of the ESG reporting system prior to data entry. However, this increases potential for calculation errors, and also reduces the transparency of the overall data collection effort, since the values entered into the system would not match supporting documentation. Using ESG software that includes anticipated unit conversions would avoid these issues.

Tallying Social Governance Measures

Unlike the strictly numeric inputs associated with GHG, such as kilowatt hours of electricity used, social governance data may not be strictly numeric. Responses to questions such as “Do you have a Corporate Sustainability policy?” must be converted to a numeric form, and also may lead to follow-up questions (such as the details of that policy) or even application of questions in other areas of your corporate hierarchy (such as sustainability programs at a specific facility). The calculation engine must be able to quantify responses, and use them to provide overall measures for your ESG program. When this type of information is collected from multiple sources, such as suppliers or divisions within an organization, these metrics may also be summarized in the form of a percentage.

Rollups Across Any Organizational Hierarchy

Social governance measures are often obtained through surveys and questionnaires that may be applied only at the top-level (for example, “How many women serve on your Board of Directors?”) levels or at every level of your organization (such as “Has training been conducted at this facility?”). Other numerical metrics such as energy use can be tracked at facility level, or at very granular levels including individual equipment and assets. As such, you need a way to tally the data that will enable you to plug the required indicator or question at whatever level is appropriate, and rollup automatically across the entire organization.

Normalization by Business Performance Metrics

In addition to quantifying the total for each ESG metric for your organization, under some reporting programs these metrics are normalized using an appropriate measure of business performance for the industry. The business performance metric could be related to the amount of production, number of employees, or revenue. These normalized metrics (e.g. metric tons of CO2 equivalents per ton of product) allow comparisons across facilities of different sizes within an organization, and also allow benchmarking against industry peers for the entire organization. Calculation of normalized metrics is relatively simple, but it requires reliable integration with other data sources such as ERP systems or production databases.

ESG Inventory Reporting

The complexity of ESG reporting is approaching the same level as financial reporting. Many of the calculation methods are elaborate and require significant technical knowledge to understand and apply the principles. Often they are presented in long guidance documents that are time-consuming to read and difficult for the non-technical reader to understand. Typically, the standards involve many pages of documentation and contain a number of associated documents, software tools, guiding principles, nuances, exceptions and worked examples. ESG and carbon accounting tools have both a variety of calculation methodologies and also a wide range of applications. They require complex, nested, and iterative calculations with many dependencies.

Organizations need an ESG calculation engine that has the capability to automatically and accurately calculate ESG data based on the activities at all of their facilities anywhere in the world.

Because it is impossible to evaluate the accuracy of a calculation engine when its workings are not transparent, the calculation methodology and dynamic dependencies must be visible and easily traceable. The accuracy of calculations is affected by the factors used and the calculations and assumptions used to link them in the enterprise rollup.

What to Look for in an ESG Calculation Engine

Organizations need an ESG calculation engine that has the capability to automatically:

- Accurately roll up data across any hierarchy
- Calculate GHGs from all emission producing activities at all of their facilities anywhere in the world
- Provide calculation of any Key Performance Indicator (KPI) or management metric
- Forecast future behavior
- Support a number of calculation tools to cover different sectors and emission sources; and methodologies such as USEPA, state-specific, and multiple voluntary protocols (GRI, SASB, DJSI)

Giving end users the power to view, analyze, and make changes to analytic model data enables users to tailor their calculation engine to meet their organization needs and requirements. This ensures that the calculations are correct and verifiable.

Essential characteristics of an ESG calculation engine include:

Data Integrity: Raw data is stored in the database and is accessible to anyone with the appropriate privileges and an Internet connection. The raw data remains intact throughout the calculation process and is never altered.

Flexible Data Input: Data can be uploaded/gathered using tailored methodologies and different time intervals specific to a particular business's processes and/or reporting requirements.

Full Audit Trail: All calculation methods and values are stored and time-stamped in the database. If data are revised, the calculation is refreshed and the system creates a new calculation value with a new time-stamp for comparison. Only the current value is used for reporting.

Verified Factors: Emissions factors are categorized by reporting program and year so that the appropriate factor is always used in calculations.

Formulae Visibility: All formulae are visible to end users and can be verified by approved verifiers.

Summary

Benefits of a Configurable, Verifiable, Transparent ESG Calculation Engine:

- Users with appropriate privileges can edit calculations or raw data without programming knowledge
- Calculations are completed automatically upon entering new data or revising existing data
- Supports data input in many different formats
- Natively supports and applies any required unit conversions
- Supports complex and nested calculations (formulae can link to other calculated values)
- Can link to data gathered using other software or systems
- Customizable to the organization's needs such as time intervals
- Instantly creates separate reports to each specified reporting program
- Organizes metrics by type (Social, Governance, GHG)
- Generates report-quality tables and charts for boardroom and regulatory reporting

ESG data are increasingly important to stakeholders, regulators, and financial auditors. The right calculation engine should be able to assist you with ensuring accuracy and making emissions calculation methods and reporting formats transparent. The process of selecting ESG reporting software and a calculation engine should not be taken lightly, as it will play a crucial part in determining the overall success of your ESG program.

(650) 960-1640

info@locustec.com

locustec.com