

NAVIGATING THE GHG PROTOCOL SCOPE 2 GUIDANCE

Is your organization prepared?

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Overview

In January 2015, the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) released the GHG Protocol Scope 2 Guidance, an amendment to the GHG Protocol Corporate Standard. This guidance is one of the most significant updates to the GHG Protocol since it was released. It is intended to address questions and concerns in Scope 2 reporting that have emerged over time. Electricity procurement options have expanded in recent years, and on one hand, there has been concern that GHG emission reductions were being claimed for products that might not warrant an emissions claim, such as Levy Exemption Certificates in the United Kingdom. On the other hand, there has been concern that higher-quality products were not being recognized or utilized because there was not a widely-accepted set of acceptance criteria. Moreover, there has been inconsistency and lack of transparency in reporting, with some companies including the impact of green power purchases and others not, while not making clear the approach taken. The key benefits of the new guidance are to advance consistency in Scope 2 calculation and reporting, to require minimum quality standards for Scope 2 contractual products, and to recommend additional best-practice quality criteria for products.

KEY BENEFITS OF GUIDANCE

- Advance Scope 2 calculation and reporting alignment
- Establish a minimum quality standard for Scope 2 products
- Outline best-practice quality criteria for products

The guidance defines many reporting requirements that have not previously been formalized in GHG Protocol documentation. However, several of these concepts have been included for many years in guidance from the U.S. EPA on green power reporting and from the Green-e certification program. WSP has recommended most of these now formalized approaches to the companies we advise.

The requirements in the guidance apply to most organizations. The only exceptions are cases in which an organization's operations are entirely in developing economies, where there is no opportunity to purchase instruments such as renewable energy certificates (RECs), or to enter into a power purchase agreement (PPA) with an electricity provider.

This document outlines the primary issues and changes in Scope 2 reporting defined by the guidance. While the focus is on reporting of electricity emissions, the guidance equally applies to purchases of steam, hot water, and chilled water.

Timing for implementation

The Scope 2 guidance does not formally indicate when it should be implemented. However, GHG Protocol staff has indicated that it is appropriate to apply the new guidance for reporting of 2015 emissions. CDP is also taking this approach by modifying its 2016 climate change questionnaire to reflect the new guidance.

Dual reporting

The most significant change introduced by the guidance is the requirement that companies must quantify and report two Scope 2 emissions totals, using a *location-based method* and a *market-based method*. The location-based method considers average emission

factors for the electricity grids that provide electricity to a reporting organization. The market-based method considers contractual arrangements under which the reporting organization procures power from specific suppliers or sources, such as renewable energy.

Many organizations already follow a type of dual reporting by reporting gross and net Scope 2 emissions, with gross emissions equivalent to the location-based method and net emissions reflecting reductions from green power purchases. The gross/net approach for Scope 2 emissions will need to be replaced by the location-based and market-based approaches defined in the guidance.

GHG accounting for green power purchases

The approach to quantifying the impacts of contractual instrument purchases has also been modified from what has been common practice to date. Currently, many organizations calculate gross Scope 2 emissions based on the location-based method. If an organization is including green power purchases in its inventory, net Scope 2 emissions are calculated reflecting reductions from green power purchases. This approach considers green power as a type of offset that reduces emissions.

Market-based emission factor hierarchy

The guidance defines a hierarchy of emission factors for quantifying market-based emissions, which is shown in [Table 1](#), in order from most precise to least. The order does not imply a preference about procurement methods. An important aspect of implementing the new guidance is to determine which of these emission factors are appropriate for each facility, and then to research and obtain the appropriate emission factors.

Treatment of biomass

For electricity generated through combustion of biomass, CH₄ and N₂O should be included in the emission factors, and CO₂ should be reported separately from the scopes. This applies to both location-based and market-based emission factors. Currently, emission factors in Canada's National Inventory Report, as well as other commonly-used emission factors, do not report biomass.

Impact on GHG goals

GHG reduction goals that include Scope 2 emissions can be based on either the location-based method or market-based method, though reporting organizations should specify which is being used. Each organization can report two inventory totals (Scope 1 and 2) based on both methods, or they can report the total based on only one method, provided that is the same method used for tracking progress toward their goal.

The choice of the method used for goal setting and tracking will have an impact on the opportunities available to reduce Scope 2 emissions. Several opportunities will reduce both location-based and market-based emissions: company-owned on-site renewable electricity (where all instruments are retained), energy efficiency, locating operations in areas with a low-emissions grid supply², or establishing a direct line supply connection with a low-emissions generator. Some opportunities will only reduce market-based emissions: purchase of instruments, establishing PPAs, or selecting a low-emissions supplier. This is important to keep in mind when setting goals and planning for how to achieve them.

Table 1: Market-based emission factor hierarchy

| Emission Factors | Examples | Description |
|---|--|---|
| Direct line connection³ | Campus central plant, neighboring facility, on-site generator owned by others | An organization may purchase electricity through a direct line connection (as opposed to an electricity distribution grid) from a known electric generation source, such as a generation facility located at a central plant of a campus or other nearby building, or an on-site generation facility that is owned or operated by another organization. |
| Energy attribute certificates | Renewable Energy Certificates (RECs), Guarantee of Origin (GOs) | Applies to any technology, whether it is for electricity from renewable, nuclear, or fossil-fuel sources. Use the emission factor of the specific source the certificate represents. Typically these certificates represent renewable energy and have an emission factor of zero, but the factor could be higher if there is a fossil-fuel generation component. |
| Electricity contracts | Power purchase agreement (PPA) | If no attribute certificates are generated, the contracts themselves are the basis for an emission factor. The notes above for certificates also apply to contracts. |
| Supplier-specific emission factors | Factors provided by supplier of products in a deregulated market, or a utility in a regulated market | Supplier-specific emission factors may be used in the market-based method, if they meet specific requirements. To be eligible, factors must reflect all electricity delivered by the supplier, including electricity generated and purchased by the supplier. Best practice is for the supplier factor to be based on the grid location where the purchased electricity is consumed, not the supplier’s organization-wide average. Factors must also reflect purchases and sales of certificates. We anticipate that a standardized system will develop for suppliers to publicly and consistently report these factors. In the meantime, it is left to the judgment of reporting organization on how aggressively to seek the factors. |
| Residual mix | Available for European Union countries | The mix of generation that remains after certificates, contracts, and supplier factors have been claimed. Residual mix factors are currently available for European countries. The guidance requires companies to disclose if factors are not available. We anticipate that these factors will be developed in Canada and elsewhere over time, similar to Canada’s National Inventory Report and international factors. |
| Location-based factors | International Energy Agency (IEA), U.S. EPA eGRID, U.K. Defra | If none of the above options are available, which will be common in the near future, organizations should use regional or national factors as in the location-based method. |

Base year adjustments

Implementation of the new guidance will likely represent a methodology change to an organization’s GHG inventory. Organizations should define both a location-based and a market-based emissions total back to the base year of their goal. If market-based emission factors (see the hierarchy in Table 1 above) are not available back to the base year, and it is likely they will not be, then market-based emissions can be set equal to location-based emissions for past years. However, if green power was purchased in previous years, market-based emissions will not equal location-based emissions. Market-based emissions for past years should be recalculated to be consistent with the new guidance. If an organization has historically used the gross and net approach to reporting emissions, total market-based emissions in the base year may be higher than previously calculated as ‘net.’ Despite this, it is important that both location-based and market-based emissions for the base year and the current year are calculated using the same methodology to the extent possible, so that emissions are comparable over time to allow accurate tracking of progress toward reduction goals.

Implications for GHG inventory systems

The dual reporting approach will require more sophistication from the system or tool used by organizations to quantify their GHG emissions. To allow for accurate tracking and reporting by an organization, any system or tool will need to incorporate both location-based and market-based emissions into summary tables and goal tracking. This will require that the tool quantify both a location-based emissions total and a market-based emissions total for each facility. To do this accurately, the tool will need to define at least two electricity emission factors for each facility, one or more factors for location-based emissions and one or more factors for market-based emissions. Ideally the tool would also

have a way to document which emission factor type(s) are being used, and the source for the factor(s). The tool will need to be able to handle situations where there are multiple sources of electricity at a facility. For example, consider a facility that purchases a portion of its electricity through a direct-line connection with a neighboring combined heat and power (CHP) facility and a portion from a grid supplier, as well as purchasing RECs.

Organizations should also ensure that their inventory documentation, such as an Inventory Management Plan or standard procedures document, is updated to reflect the new inventory processes implemented as a result of the new Scope 2 guidance. These processes could include data management, calculation procedures, and sources of emission factors.

Minimum quality criteria for market-based instruments

Any certificates, contracts, or supplier-specific factors must meet the Scope 2 Quality Criteria to be used in quantifying market-based emissions. Several of these criteria have been followed by most companies already. For example, the criteria ensure that the instrument is the only one that carries a claim of a specific emission rate (zero in the case of renewable energy) and ensure appropriate tracking and retirement on behalf of the reporting company. The criteria require that the vintage of the electricity generation be matched as closely as possible to the year of the GHG inventory to which the instruments are applied.

The most significant change in the quality criteria is the requirement that the instruments “be sourced from the same market in which the reporting entity’s electricity-consuming operations are located and to which the instrument is applied.” A market is defined as a geographical area which has a common system for trading and retiring contractual instruments. Markets are defined more by national borders than by

electricity grid boundaries. For example, the guidance specifically defines Canada as a single market, despite provincial grid boundaries. The guidance also indicates that a single country is an appropriate market, even if there are electricity grid interconnections between countries, unless countries have defined a common system for instruments. In cases where a common system is defined across multiple countries, that can be considered a single market. The guidance specifically identifies the European Union as one such market.

The impact of this market matching requirement depends on how aggressive an organization’s green power purchasing efforts are. For example, if an organization has a goal to purchase 20% renewable energy and more than 20% of the organization’s electricity purchases are in Canada, that organization could purchase all of its renewable energy in Canada. In the past, however, Canadian organizations may have purchased RECs from projects outside of Canada and applied them to

operations in Canada. This is no longer acceptable under the guidance. For example, if a company has a goal to purchase 100% renewable energy, it should aim to buy green power in each market in proportion to its electricity consumption in that market to be consistent with the market matching requirement. Though this is not possible in every country at this time, green power options outside Canada are growing in response to this new guidance.

Best-practice quality standards

The Scope 2 guidance defines accounting guidance and minimum quality criteria. While the guidance doesn’t require best practice solutions, it does encourage organizations to consider defining quality criteria for their electricity and green power purchases that go beyond minimum requirements. Our experience is that leading companies do establish quality criteria on a range of issues, and we recommend that our clients do so. The key quality issues are listed in [Table 2](#) below. Some certification standards, such as Green-e, require compliance with some of these best practice standards.

Table 2: Best-practice quality standards

| Criteria | Best Practice |
|---|--|
| Certification | Green-e in U.S. and Canada. Other standards are still emerging elsewhere |
| Installation date of the generating facility | Installed within the past 15 years is good practice. More recent installation is better practice |
| Incremental funding | Certificate purchases support an incremental funding program that directly funds development of new renewable energy resources |
| Regulatory surplus | Ensure that the purchase of renewable energy is not also used to meet a regulatory requirement for renewable energy supply |
| Aggregated GHG benefits | In areas with a cap on GHG emissions, retire GHG allowances along with the voluntary electricity certificates so that the certificate is “fully aggregated” including the GHG benefits |
| Bundled purchase of energy and attributes | Certificates purchased together with the underlying electricity through a power purchase agreement |
| Commitment period | Certificates purchased through long-term contracts of 10 to 20 years |
| Technology type | Renewable energy technologies that meet Green-e requirements |

¹ Reporting gross and net emissions is appropriate when applying GHG offsets to the inventory, but the gross and net approach should no longer be used for green power purchases.

² This can typically reduce market-based emissions for facilities using residual mix or grid-average emission factors, provided that the company has not selected a supplier with a higher emission factor than the grid.

³ In the guidance, the direct line connection scenario is presented in a separate table from the market-based emission factor hierarchy. We have included it in this table because the emission factors that should be applied depend first on whether a direct line connection exists.

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