Scope 2 Accounting Guidance: What it means for corporate decisions to purchase environmental instruments - January 2015

Corporate Scope 2 accounting has traditionally been relatively straight forward. Common practice has been to multiply corporate energy use by grid average emissions factors to arrive at Scope 2 emissions. Grid average emission factors tend to be widely available for most grids and are published frequently by reputable organisations such as the EIA (Energy Information Administration) and EPA (Environmental Protection Agency) in North America, and Defra (Department for environment food and rural affairs) in the United Kingdom.

In recent years there has been much debate in the greenhouse gas accounting community about alternative methods for allocating grid emissions to energy consumers. The Greenhouse Gas Protocol (GHG Protocol) has been driving this debate over the last four years as it has worked to develop international Scope 2 guidance that clarifies these alterative Scope 2 methods. In parallel, both CDP and Defra have re-evaluated their Scope 2 guidance, to reflect this emerging thinking.

The GHG Protocol is the most widely used international accounting tool for business leaders and governments to understand, quantify, and manage greenhouse gas emissions. From a decade-long partnership between the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), it provides the accounting framework for nearly every GHG standard and programme in the world, including those prepared by most individual companies.

This paper has two main purposes: the first is to explain the new recommendations made by the three influential bodies developing Scope 2 accounting guidance: the GHG Protocol, CDP and Defra; the second objective is to consider the likely impact of these recommendations on corporate decisions to purchase environmental instruments to mitigate their GHG emissions. Through the use of case studies, the paper explores how corporates report the cancellation of renewable energy instruments and retirement of carbon credits within their GHG inventory.

Scope 2 accounting context

The GHG Protocol has been leading the process to develop Scope 2 accounting guidance, to accompany its Corporate Standard (guidance for companies and organisations preparing a GHG emissions inventory). This new guidance was published in January 2015, and its discussions and materials have informed parallel processes to develop Scope 2 accounting guidance by CDP and Defra.

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The requirement for specific guidance on reporting Scope 2 emissions is being driven by a number of factors: firstly, the desire to encourage greater consistency within corporate GHG Scope 2 reporting; secondly, the need to reflect the impact of significant developments within energy supply chains since the Corporate Standard was published in 2004; and thirdly, a desire for customers' energy choices to play a role in changing supply by building demand and the belief this can be facilitated by reflecting those choices within reported Scope 2 emissions.

Within their respective Scope 2 guidance, the GHG Protocol, CDP and Defra have all travelled in the same direction. The direction of travel has been to encourage corporates to move away from reporting Scope 2 emissions using grid average emissions factors, towards more specific emissions factors where they exist. While moving in the same direction, the GHG Protocol, CDP and Defra have arrived at slightly different destinations in terms of how a corporate reports renewable energy instruments within their GHG inventory. The key recommendations and differences between these three approaches are explored in the next section.

GHG Protocol recommendations on Scope 2 accounting

The final version of the GHG Protocol Scope 2 Guidance published in January 2015, runs to over 100 pages and is the product of over four years of extensive consultation. In the guidance, the GHG Protocol set out the following requirements for companies with operations in markets providing a choice of energy supplier or energy product:

1. Report the Scope 2 inventory as two numbers: one Scope 2 number based on the location-based method which uses grid average emissions factors, and one Scope 2 number following the market-based method which derives emissions factors from contractual instruments, where a contractual instrument can be any type of contract between two parties for the purchase of energy or conveyance of attribute claims from that energy. This represents a broad category that can include power purchase agreements (PPAs), supplier-specific information such as the fuel mix disclosure requirements on European suppliers[1], or renewable energy instruments such as Renewable Energy Certificates (RECs) or Guarantees of Origin (GOs). If reporting a single corporate GHG inventory total, across scopes 1, 2 and 3, rather than two totals, the reporting company shall disclose which Scope 2 method was chosen for this purpose.

2. Ensure that all contractual instruments used in the market-based method meet the following quality criteria:

    a. Convey the direct GHG emission rate attribute associated with the unit of electricity produced.

    b. Support unique claims for the reporting company by being the only instruments that carry the GHG emission rate attribute claim associated with that quantity of electricity generation. Equally energy attributes sold via contractual instruments must be excluded from the grid average emissions factor. This ensures they are not double counted - once by the owner of the contractual instrument and a second time within the grid average calculation. If a

[1] Directive 2009/72/EC of the European Parliament

residual mix is not currently available, reporters shall note that an adjusted emissions factor is not available.

c. Be tracked and redeemed, retired, or cancelled by or on behalf of the reporting entity. Certificate tracking systems and registries track the ownership of certificates. A uniquely numbered certificate is issued for each unit of electricity from generation facilities registered in the system. These can be transferred between account holders' accounts, and are retired or cancelled once claims are made based on their attributes.

d. Be issued and redeemed as close as possible to the period of energy consumption to which the instrument is applied.

e. Be sourced from the same market in which the reporting entity's electricity-consuming operations are located and to which the instrument is applied. For example if you consume power in North America, it is appropriate to address this with North American RECs (USA and Canada). It is sufficient to match consumption with contractual instruments at a regional or grid connected level, meaning corporates are not required to match power consumption with RECs at a State level, although this is possible. Similarly in Europe, power consumption can be addressed with GOs from any European national market and it is not necessary to match the European country of consumption with the country that originates the GO, although this is possible.

3. Disclose the basis for goal setting. Identify which Scope 2 method, location-based or market-based, forms the basis for setting corporate reduction targets, and the basis for calculating Scope 2 base-year information against which progress is measured.

These items summarise the core requirements of the Scope 2 Guidance. Beyond the requirements the guidance recommends a number of further disclosures. Key recommendations include reporting companies:

- Disclosing key features about their contractual instruments for added transparency about the context of their procurement choices. These disclosures help company decision-makers and stakeholders gain a clearer picture about how well the purchase aligns with broader company goals. In particular, stakeholders evaluating a company's contribution to mitigating global emissions may be interested in how a company is driving change in electricity supply. For example understanding the relationship between certificates cancelled by the reporting entity and supplier quotas within the same market, to determine if the MWh is surplus to those counted towards national renewable energy targets.

- Reporting total electricity use in terms of the volume of kWh consumed. The kWh figure should be reported separately from the scopes, in order to ensure continued focus on energy efficiency.

- Where relevant, disclosing the impact of their procurement activity on driving new low-carbon projects. Companies should elaborate in narrative how any of their contractual instrument sourcing decisions contributed to the implementation of additional renewable energy projects.

- Where relevant, reporting avoided emissions from projects or actions separately from the scopes using a project-level methodology. This is relevant for corporates reporting GHG reductions from carbon credit purchases that have been verified in accordance with third party carbon standards, such as the Verified Carbon Standard. For an illustration, see the examples on page 6.

CDP recommendations on Scope 2 accounting

The CDP published its Scope 2 guidance in 2013[2], ahead of the GHG Protocol. CDP acknowledge that the GHG Protocol is leading the process to clarify scope reporting within the Corporate Standard and sets the expectation that further changes to its guidance will be made to align with the GHG Protocol Guidance. CDP has indicated this alignment will be achieved for the 2016 disclosure, when corporates are largely reporting activity data from 2015, the period in which the final Scope 2 Guidance was published.

At 43 pages, the CDP Scope 2 guidance, while less extensive than the GHG Protocol, contains a wealth of contextual information about important aspects of Scope 2 accounting and includes a focus on Scope 2 emissions factors, and the sources of these factors, which form the basis of their recommendations. In summary, the CDP recommends that companies responding to the CDP climate change questions follow the hierarchy of guidelines listed below when selecting emission factors for Scope 2 accounting.

1. Use source specific emission factors, based on renewable energy tracking systems.

2. If a company is not buying tracking instruments then it should be using supplier specific emission factors, particularly where this is an established country practice and there are robust methodologies/regulations in place requiring this type of disclosure from suppliers.

3. If a company is not buying tracking instruments and option 2 above is not possible, then it should follow the guidance listed below:

    a. Use “corrected grid average factors” (residual mix). These are grid average emission factors that have been corrected to take into account renewable electricity that has been produced within the grid region but sold separately using tracking instruments.

    b. If there are no “corrected grid average emission factors” available then it should use emission factors that reflect import and export of electricity for the given geography that better reflect the consumption of electricity in that geography.

    c. If the option above is not available, then it should use production based emission factors, such as the ones provided by the IEA, where the emission factor reflects the production of electricity within a given geography.

Under this three tier hierarchy, renewable energy instruments tracked via renewable energy tracking systems sit at the top of the hierarchy. For example, EECS standardised Guarantees

[2] Accounting of Scope 2 emissions – Technical notes for companies reporting on climate change on behalf of investors & supply chain members 2013

of Origin (GO) would meet these criteria. A tracking instrument documented via audited attestation, for example a North America Green-e REC, would be the next best option where a tracking system is not used. This is equivalent to the market-based approach outlined by the GHG Protocol. CDP then steps down the hierarchy with decreasing specificity of the emissions factor, down to unadjusted grid averages (3c). All the options under (3) are equivalent to the location-based approach outlined by the GHG Protocol. In the United States the eGRID initiative, and the grid emissions factors published by Defra in the United Kingdom are examples of (3b), as both grid factor calculation methodologies account for the import and export of electricity but do not consider the sale of renewable energy certificates, i.e. they are not corrected to determine the residual grid mix.

Defra recommendations on Scope 2 accounting

In July 2013, Defra published updated guidance for companies on how to report their greenhouse gas emissions[3]. As part of the development of that guidance, in March 2014 Defra launched a consultation on the way companies should report renewable electricity purchases. The prevailing guidance from Defra on reporting emissions from renewable energy has been to use grid average emissions factors, which is consistent with the location-based approach outlined by the GHG Protocol Scope 2 guidance.

Consistent with the views of the GHG Protocol and CDP, Defra wishes to revise the guidance so it is possible for companies who purchase renewable energy to report a lower GHG emissions figure. Therefore the consultation indicates Defra will recommend a contractual approach, consistent with the market-based reporting approach outlined by the GHG Protocol. The two options Defra consulted on for presenting this information within a corporate GHG report are as follows:

> **Option 1:** Gross / net approach. In this approach, the emissions calculated using the grid-average emissions factor (i.e. location-based emissions) are presented as part of the overall "gross" emissions of the organisation. Any purchased renewable electricity would be reported within a separate "net" emissions figure (using the market-based accounting approach) along with other greenhouse gas reduction activities, such as the purchase and retirement of carbon credits through a carbon offset programme.
>
> **Option 2:** Two gross figures. In this approach, both the location-based and market-based electricity figures are included within the overall "gross" emissions of the organisation and presented side-by-side, rather than as gross and net. These figures would need to be clearly labelled as "gross location-based emissions" (calculated using the grid-average emissions factor) and "gross market-based emissions" (calculated using the requisite reduced emissions factor).

The timing of the outcome of the Defra consultation has not been communicated, but with the publication of the GHG Protocol Scope 2 guidance, it is expected that Defra will move swiftly to clarify its approach to Scope 2 accounting. Relative to the GHG Protocol, Defra's option 2 aligns well with the overall recommendations of the GHG Protocol Scope 2 guidance, as it requires

[3] Environmental Reporting Guidelines: including mandatory greenhouse gas emissions reporting guidance

corporates to report two gross figures that represent different approaches to allocating GHG emissions from the electricity grid.

The challenge for Defra is that, while option 1 is consistent with the reporting guidance Defra published in 2013 which established the net and gross approach, it is not consistent with the GHG Protocol Scope 2 guidance. The GHG Protocol is clear that renewable energy instrument purchases do not represent emission reductions but they represent a choice about the origin of electricity. The purchase and retirement of renewable energy attributes allows a corporate to credibly report a lower allocation of emissions from the electricity grid. Hence both the location-based figure and the market-based figure are considered to represent gross emissions figures, and not gross (location-based) and net (market-based) figures, as proposed by Defra.

Implications for corporates making renewable energy instrument and carbon credit purchase decisions

Clearly across the three reporting frameworks there is the need for further consistency, as standardised and comparable frameworks are fundamental to corporate reporting. Encouragingly, it is the intention of CDP and Defra to align with the GHG Protocol where possible. Setting aside the conceptual differences, it is clear that all three reporting frameworks are moving in the same direction. All three are encouraging contractual and market-based reporting of renewable energy instruments within corporate GHG reporting. This recognition within leading GHG reporting frameworks reinforces renewable energy instruments as a credible option for corporates to report lower Scope 2 emissions figures.

With corporates able to credibly reduce their reported carbon footprint with both renewable energy instruments and carbon credits it raises the question of what is the optimum portfolio of environmental instruments to achieve a given emission reduction goal?

For a corporate to address this question they need to clarify the goals and objectives of their emission reduction programme. These goals and objectives need to be considered relative to the attributes of carbon credits and renewable energy instruments. From a corporate communications perspective the interesting attributes of renewable energy instruments can be summarised as follows:

- Clarity of message: statements such as “powered by 100% green power”, are widely understood.
- The main technologies; wind, hydro and solar are well-established and widely understood.
- Relatively low cost compared to reporting an equivalent GHG reduction using carbon credits.
- Nationally focused and only currently widely available in a number of developed economies.
- Suitable for mitigating Scope 2 GHG emissions only.

From a corporate communications perspective this compares to the following attributes of carbon credits:

- Going beyond business as usual: all carbon projects are required to pass an additionality screen.
- Innovation: the carbon market provides support for innovative low carbon technologies to achieve scale.
- Deliver a variety of co-benefits: for instance food and financial security, biodiversity and ecosystem protection, water stewardship and health impacts.
- Widely available in the developing and emerging economies.
- Suitable for mitigating Scope 1, 2, and 3 GHG emissions.

By considering the attributes and relative strengths of each instrument in the context of the goals of an emission reduction programme, a corporate can determine the most appropriate mix of environmental instruments to deliver those programme goals. For example, if a corporate wishes to mitigate Scope 2 emissions with a clear message of support for domestic renewable energy within North America, then a portfolio comprised of North American wind renewable energy certificates would deliver against the programme goal. Alternatively, if the objective is to link an emission reduction programme related to business travel with a broader corporate citizenship target around improving human health, then a portfolio of carbon credits from clean cookstove projects in the developing world would be a good fit against the programme goals. Equally, for a multinational company with a global carbon neutral programme, it would be appropriate to have a diversified portfolio of environmental instruments, comprising GOs to address Scope 2 emissions from European operations, RECs to address Scope 2 emissions from North American operations, and carbon credits to address global Scope 1 and 3 emissions, with a combination of co-benefits that delivers against broad set of corporate citizenship indicators.

Preparing GHG inventories for a global carbon neutral programme consistent with the Scope 2 guidance

Continuing with our example of a corporate sourcing a diversified portfolio of environmental instruments to support a global carbon reduction programme. The paper now explores how these instruments would be reported within GHG inventories, prepared in accordance with the latest guidance from the GHG Protocol, CDP and Defra. The portfolio of environmental instruments consists of:

1. RECs to address 50% of Scope 2 emissions from North American operations
2. GOs to address 50% of Scope 2 emissions from European operations
3. Carbon credits to address 100 % of global Scope 1 and 3 emissions

Illustrative Corporate GHG Inventories

GHG Protocol: Requires both location-based and market-based figures, with avoided emissions reported separately to the scopes:

In accordance with the Corporate Standard (including the new Scope 2 Guidance)

Emissions (000 tonnes CO_2e)	Location-based	Market-based	Notes
Global Scope 1	50	50	
North American Scope 2	200	100	Texas Wind Green-e RECs with regulatory surplus
European Scope 2	100	50	Dutch Wind GOs with production support
Global Scope 3	200	200	
Global total Scope 1, 2 & 3	550	400	

In accordance with the Project Standard (avoided emissions from carbon credits are accounted for separately to the scopes)

Avoided emissions		(400)	VCS carbon credits from Kenya

CDP: Requires only a single figure to be reported, with a preference for market-based Scope 2 emissions factors.

In accordance with CDP Scope 2 guidance

Emissions (000 tonnes CO_2e)	Market-based	Notes
Global Scope 1	50	
North American Scope 2	100	Texas Wind Green-e RECs
European Scope 2	50	Dutch Wind GOs
Global Scope 3	200	
Global total Scope 1, 2 & 3	400	

CDP requires that avoided emissions from carbon credits are reported separate to the scopes.

Avoided emissions	(400)	VCS carbon credits from Kenya

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Defra: Has consulted on one of two options, either location-based with gross and net figures or duel reporting with net and gross figures.

Illustration based on Defra's Scope 2 consultation

Emissions (000 tonnes CO_2e)	"Option 1" Location-based	"Option 2" Market-based	Notes
Global Scope 1	50	50	
North American Scope 2	200	100	Texas Wind Green-e RECs
European Scope 2	100	50	Dutch Wind GOs
Global Scope 3	200	200	
Global gross Scope 1, 2 & 3	550	400	
Less renewable energy	(150)	(included above)	
Less carbon credits	(400)	(400)	VCS carbon credits from Kenya
Global net emissions	0	0	

Summary

Based on a desire for corporates' energy choices to play a role in changing energy markets by building demand, all the major GHG reporting frameworks are moving to reflect energy procurement choices within reported Scope 2 emissions. Where available, there is a strong preference for contractual instruments managed on tracking systems that fully support the principles of avoided double-counting. With a further preference for contractual instruments from newly built renewable energy plants generating energy above and beyond the renewable energy commitments already made by national governments. Many of these preferable attributes are embodied within high quality carbon credit standards and the associated registry infrastructure. Sophisticated corporates are likely to evaluate renewable energy instruments and carbon credits as equally compelling instruments for addressing their corporate carbon footprint and will source portfolios of instruments that meet their specific emission reduction programme goals.

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