Final Proposal for Technical Working Group on Scope 2 Accounting and Reporting

October 2013

Proposal Purpose and Outline

This Proposal outlines the key accounting and reporting approaches that will be the basis of the final Scope 2 the Scope 2 Accounting and Reporting Guidance. Areas requiring specific TWG input are identified in the accompanying Proposal Questions document.

I. Summary of Scope 2 Accounting and Reporting Steps

Summary

Companies with facilities in market-based claims systems (see Box 1) that meet Quality Criteria must report two figures: a "market-inclusive" scope 2 figure reflecting data derived from contractual instruments, and a location-only figure reflecting data on production trends in the facility's grid. Companies can choose whether these figures are is reported side-by-side in scope 2, or whether the location-only figure is disclosed separately. Companies with no facilities in market-based claims systems will only report a single scope 2 figure based on the location-based method. Companies should also report their electricity consumption and key features about their procurement.

Box 1. What Are Market-Based Claims Systems for energy consumption?

Corporate GHG inventories include GHG emissions from facilities that purchase and consume electricity, heat, steam and cooling. In the case of electricity in particular, these facilities may be either located in markets that support contractual claims on purchased electricity, or in countries/regions without these systems. Many energy markets use a combination of information tracking and labeling systems to disclose GHG emission rate information about energy production to consumers, and which support consumer claims based on that information. These are also termed "book-and-claims" systems, and can serve to allocate GHG emission rate claims to energy consumers. In general, these types of markets are where:

1. Consumers have choice of electricity product or supplier

2. Electricity is tracked through certificates to enables voluntary consumer claim, and/or where

3. Electricity suppliers disclose the GHG-intensity of their supply

For GHG accounting purposes, information used to convey GHG claims in these market-based systems must meet Quality Criteria in order to be used in a market-inclusive scope 2 figure.

Steps in calculating and reporting scope 2 emissions

STEP 1. Determine if jurisdiction already requires a method other than market-based or location-based method.

If so, calculate scope 2 according to the emission factor data required by the jurisdictional authority for those facilities, and disclose as "jurisdictionally-required method" (ex: emission factors calculating by end-usage, including heating, lighting, etc. is calculated by the program Ademe in France. Ademe offers this methodology as an option for consumer calculation of scope 2 emissions). This can take the place of the data used in the market-inclusive figure (Step 2) or the location-only figure (Step 3), depending on the circumstance.

STEP 2. Calculate a market-inclusive scope 2 figure

If you have any facilities in the corporate inventory in locations that meet the definition of "markets with contractual claims systems" and where market-based method data meets Quality Criteria (see Section IV), calculate emissions for those facilities using market-based method hierarchy of data listed in Table I. All facilities in contractual claims markets should aim to use data listed in the market-based method, including residual mixes to cover consumption that is not matched with a contract, supplier-specific figure or certificate. This accounting method should be the basis for all types of contractual purchases that meet criteria – not just "green power" programs.

Use the next available option down on the *location-based method data* hierarchy to calculate emissions where:

- Facilities within the overall inventory are not in contractual claims markets; or
- Data on the market-based method table is not available; or
- Where individual instruments do not meet Quality Criteria

This final calculation represents a **market-inclusive scope 2 figure** for the total corporate inventory**.** "Market-inclusive" means the scope 2 figure includes data from contractual instruments that meet Quality Criteria for scope 2 accounting, but may also contain location-based method data where specific contractual information is not available, or for facilities not in a contractual claims market. It provides an indication of the choices a company has made in its electricity market, including choice of electricity supplier, electricity products and/or other types of contracts. These market choices collectively represent a means to influence supply over time and thereby reduce GHG emissions from energy production.

If no facilities in the entire inventory are located in markets with contractual claims systems, or where no instruments within those systems meet Quality Criteria, go to Step 3.

Table 1. Market-Inclusive Scope 2 Data Hierarchy and Indicative Examples

Data forms listed here should convey combustion-only GHG emission rates, expressed in metric tons per MWh or KWh. Reporting entities should ensure that market-based method data sources meet Quality Criteria (see Section IV).

	DATA TYPE	INDICATIVE EXAMPLES
Market-based method	1. **Electricity tracking certificates** (unbundled or bundled with electricity) or equivalent instruments	• *Renewable Energy Certificates (US, Australia)* • *Guarantees of Origin (EU)*
	2. Contracts such as power purchase agreements (PPAs)[1]	• *Power purchase agreements* • *Any contract (both low-carbon power **and fossil-fuel energy)** related to purchase and use of energy and conveying GHG emission rate claim*
	3. Supplier/Utility emission rates	• *Default fuel mix and emission rate disclose for any utility, included on a utility bill or otherwise made available* • *Supplier labels such as EKOenergy*
	4. Residual mix (sub-national or national)[2]	• *Calculated by EU country under RE-DISS project [3]*
Location-based method	*5.* Advanced grid studies on real-time information	• *Currently academic inquiry only[4]*
	6. Emission factors including all energy production occurring in a defined grid distribution region that approximates a geographically-precise energy consumption area (often reflecting energy imports/exports across boundary). *Depending on grid-area, may be a sub-national, national, or cross-national national boundary*	• *eGRID total output emission rates (US)[5]* In many regions this approximates a consumption-boundary, as eGRID regions are drawn to minimize imports/exports • Defra annual grid average emission factor (UK)
	7. Emission factors including all energy production occurring in a defined grid distribution region (national or otherwise). *No adjustment for imports or exports, not representative of energy consumption area*	• IEA national electricity figures[6]

[1] This type of instrument may particularly apply in jurisdictions without electricity tracking certificate systems. Where certificate systems exist, certificates may be bundled with a contract or extracted and traded separately. If traded separately, no GHG emission rate claim remains with the contract.

[2] An electricity production emissions rate for a defined region reflecting the removal of emission rate information contained in sold/transferred/retired certificates or contracts. A residual mix reflects the energy emissions that are left (residual) for other consumers to claim who do not have specific instruments or data for claims.

[3] http://www.reliable-disclosure.org/static/media/docs/RE-DISS_2012_Residual_Mix_Results_v1_0.pdf

[4] See Fromman, Kurt and Evan DiValentino, *Calculation and Application of Hourly Emission Factors for Increased Accuracy in Scope 2 Emission Calculations.*Transaction of the Canadian Society for Mechanical Engineering. Vol 36, No. 2, 2012. http://www.tcsme.org/Papers/Vol36/Vol36No2Paper3.pdf

[5] http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html

[6] http://data.iea.org/ieastore/product.asp?dept_id=101&pf_id=304

STEP 3. Calculate a location-only scope 2 figure

Separately, calculate the electricity emissions from all facilities using only the location-based method hierarchy of data sources on the bottom half of Table 1. This data may already have been used in the market-inclusive scope 2 figure for facilities not in a contractual claims market. This calculation represents a **location-only scope 2 figure**. It is not reflective of market claims that may be legally-enforceable in some areas.

As a companion to market-based scope 2 totals, this location-only information can provide a baseline comparison between market choices and energy trends within a country or region. It should also inform a broader assessment of risks/opportunities and where applicable, provide a baseline comparison between market-based claims and location-based trends on grids where facilities are located. With temporally and spatially-specific data through advanced grid studies, this information may also inform targeted decisions around energy consumption, which can reduce overall energy demand and GHG emissions.

STEP 4. Choose how to report market-inclusive and location-only scope 2 figures.

If no facilities in the entire inventory are located in markets with contractual claims systems, or where no instruments within those systems meet Quality Criteria, location-only figure will be single scope 2 figure reported in the inventory.

But where a market-inclusive figure is calculated, two reporting options are possible.

- **Side by side.**
  The reporting entity will report the market-inclusive figure and location-only figure side by side in scope 2, labeled by method. If a reporting entity chooses to set a target, the figure used to assess the target shall be disclosed clearly. The market-inclusive figure will more closely reflect the actions a company has taken in its market and the claims that are enforceable in consumer marketing rules; therefore, the market-inclusive figure may be better suited for goal setting. Two targets (one for market-inclusive scope 2 and location-only scope 2) may also be set.

  Side-by-side reporting may be appropriate where:
  - A jurisdictional authority or a reporting program affecting a reporting entity's facilities has mandated the use of location-based method for scope 2
  - Data used for location-only figure is high quality based on Table 1 hierarchy, and data quality indicator evaluation (see Section III).
  - The reporting entity has new facilities that contribute significantly to electricity load in given grid (e.g. data centers) and wish highlight production trends in that grid region

- **Location-only figure as supplemental information.**
  The market-inclusive figure will be reported as the single scope 2 figure and used for target-setting if a company sets a target. The location-only figure shall be disclosed as supplemental information**,** and a footnote should be made in scope 2 noting this separate disclosure.

Supplemental reporting of location-only figure may be appropriate where:

- A jurisdictional authority or a reporting program affecting a reporting entity's facilities has required the use of a market-based method for scope 2
- The location-only data quality is low based on Table 1 hierarchy, and data quality indicator evaluation (see Section II).

STEP 5. Report additional information on data used in scope 2 calculations

Requirements (Shall)

- Document methods and data: Reporting entities **shall** provide a description of the methodologies used to calculate emissions, including documenting data types used for calculating location-only figure, market-inclusive figure (if applicable), and jurisdictionally-defined method (if applicable), as well as global warming potential (GWP) values.
- Ensure quality criteria: Reporting entities **shall** ensure that market-based method data met Quality Criteria, signified by a statement in the inventory
- Disclose on goal setting: If a reporting entity sets a scope 2 reduction goal, the entity **shall** clarify whether it is based on a location- only scope 2 figure or market-inclusive figure (a market-inclusive figure may be more appropriate for demonstrating company actions)
- Disclose on scope 3 data uses: If two scope 2 figures are reported side-by-side, the reporting entity **shall** identify which one is provided to other entities to calculate scope 3, product life-cycle analysis inventories, or other GHG inventory uses.

Recommendations (Should)

- Electricity consumption: Reporting entities **should** report total energy consumption in MWh or KWh separately from the scope 2 emission totals, for added transparency
- Contractual instrument features (see section IV): Reporting entities **should** report on key instrument features for added transparency about the procurement choices in different markets
- Data quality: Reporting entities **should** provide an assessment of data quality (both activity data and emission factors) based on data quality indicators (listed in Section III). This is particularly applicable to location-based method emission factors since several of these indicators are already implicitly covered in the required Quality Criteria for contractual instruments.
- Non-accepted purchase disclosure: If a reporting entity's energy purchases did not meet Quality Criteria, the entity **should** note this separately (Location-based method data will be used for scope 2 quantification if no market-based method data meets criteria).

Other reporting options (May)

- Avoided emissions estimation: Consistent with chapter 8 of the *Corporate Standard,* this Guidance will describe how companies **may** separately report an estimation of GHG emissions avoided from a project or action. This quantification should be based on project-level

accounting, with methodologies and assumptions documented (including to what the reduction is being compared).

II. Quality Criteria for Contractual Information

Both location-based method data and market-based method data can vary in availability and in quality (see evaluating data quality in Section III). However, the *method* of calculating scope 2 emissions based on an allocation through contractual instruments depends on a larger system to ensure integrity and completeness of information. In addition, the lack of a reliable system for tracking or assuring claims poses risks for consumer claims. Therefore, this Proposal identifies a set of minimum criteria (called Operational Criteria in prior drafts) that relate to the integrity of the market instruments as reliable conveyers of GHG emissions rate information and claims, as well as system-wide GHG allocation features and the prevention of double counting. They specify the minimum qualities necessary to implement GHG emissions allocation to consumers within an electricity market. They do not address or require specific features about the energy generation producing the power (i.e., specific technologies, when the project came online, what type of funding it received, etc.) The market-based accounting method is designed to reflect all types of contractual claims, not just specific green power programs. Many of these generation features can be disclosed under Market Instrument Features (section IV). The difference between Quality Criteria and Instrument Feature disclosure is illustrated in Box 1.

Table 3. Quality Criteria checklist
This applies to instrument types listed in the market-based method data hierarchy in Table 1. Instruments must meet criteria to be used in market-inclusive scope 2 figure.

Criteria Required for All Market-Based Method Data
✓ The contractual instrument must convey with it the direct GHG emission rate attribute claims associated with the quantity of electricity produced.
✓ The contractual instrument must be the only instrument that carries the GHG emission rate attribute claim, for the purpose of delivery and use of electricity.
✓ The contractual instrument must be applied to the inventory year in which it was generated (i.e., energy and instruments produced in calendar year 2013 should be applied to a 2013 calendar year GHG inventory).
✓ The contractual instrument must be sourced from within the same electricity market as the reporting facility to which it is applied. This market boundary includes areas where the laws and regulatory framework governing the electricity sector are consistent between the areas of production and consumption. It may also require a consistent tracking system and ability to calculate a residual mix. Some programs may restrict the use boundary further, e.g. to an interconnected electricity region.
✓ The contractual instrument must be tracked and retired/ canceled by or on behalf of the reporting entity in order to support a claim in a GHG inventory. This can be done through a tracking system, an audit of contracts, or third-party certification.
✓ A residual mix[7] characterizing the GHG intensity of the electricity purchased by consumers that do not make purchases of specified sources of electricity is made available for consumer scope 2 calculations, or a procedure or threshold is identified by which a residual mix emissions rate can be calculated. If neither

[7] As noted in Table 1, a residual mix typically "removes" retired/claimed instruments' emission rates from the generation and emissions information for a defined regional, sub-national or national boundary, in order to avoid double counting the instruments' attribute claims by other electricity consumers. *A* residual mix should include instruments that are retired and claimed for public benefit, such as with US state RPS programs.

adjusted emissions factors nor a threshold is available, and the instrument meets all the other applicable Quality Criteria, the instrument may be used in the market-method, but the reporting company must disclose as a footnote that a residual mix figure is not available.

Additional Criteria for Reporters Using Supplier- or Utility-Specific Emission Factors

✓ The utility or supplier-specific emission factor may be a standard product offer or a different product (e.g. a "green power product" or tariff), and must be disclosed (preferably publically) according to best available information, and where possible best practice methods, such as The Climate Registry Electric Power Sector Protocol. As part of the calculation, the utility or supplier should disclose whether and how electricity tracking certificates are used in the emission factor calculation. In particular, if the supplier has a differentiated product (e.g. a "green power product"), the certificates used for those products should only be used once for that product and not mixed into other product offers.

Additional Criteria for Reporters Purchasing Electricity Directly from a Renewable Electricity Generator or Using On-Site Renewable Electricity Generation

✓ No other instruments have been issued from the contracted energy that convey this claim to another end user. All instruments conveying emissions claims were included in the contracts and transferred to the reporting entity. The contract and claim associated with it should be verified by a third party to convey unique or sole ownership right to the claim GHG emission rate claim.

III. Assessing data quality

The *Scope 3 Standard* identified five commonly used data quality criteria[8], describing both the representativeness of data (in terms of technology, time, and geography) and the quality of data measurements (i.e., completeness and reliability of data). These indicators are documented in Table 2, with example assessments of location-based method data.

Table 2. Examples of location-based electricity emission factor evaluation based on data quality indicators

Indicator (representativeness to the activity in terms of:)	Description	Examples of scoring location-based emission factor data on different quality indicators
Technological representativeness	The degree to which the data set reflects the actual technology(ies) used	*High quality*: Accurate emissions information from all technologies used on the grid *Poor quality:* lack of accurate information on technologies, so proxy data or assumptions from neighboring countries used
Temporal representativeness	The degree to which the data set reflects the actual time (e.g. year) or age of the activity	*High quality*: real-time dispatch information on daily basis, capable of being aggregated over annual period for inventory *Good quality:* annual publication of average grid emissions for defined region for the same inventory year *Poor quality:* data with several years difference between inventory year to which it is applied
Geographical representativeness	The degree to which the data set reflects the actual geographic location of the activity (e.g. country or site)	*High quality*: spatial boundaries specific to the dispatch region to reflect the emissions from generation sources supporting local energy consumption *Fair quality*: production information from broader geographic boundaries such as national borders

[8] *Corporate Value Chain (Scope 3) Accounting and Reporting Standard*, p. 76

		Poor quality: Data from an area without a grid emission factor (i.e., using the factor of a neighboring country)
Completeness	The degree to which the data is statistically representative of the relevant activity. Completeness includes the percentage of locations for which data is available and used out of the total number that relate to a specific activity. Completeness also addresses seasonal and other normal fluctuations in data.	** The activity is consuming electricity so the emission factor should represent a consumption-based boundary. But all generation produced and consumed within a region should be accounted for.* *High quality:* All GHG emissions from all electricity generation within in defined spatial region, with methodology applied consistently across the regions where electricity is imported/exported (national or even trans-national). *Poor quality*: Only CO_2 emissions from selected electricity generation facilities (i.e., systematically excluding certain facilities or types of resources)
Reliability	The degree to which the sources, data collection methods and verification procedures used to obtain the data are dependable.	*High quality*: Verified data based on quality control checks published by government or other academic association, using consistent methods. *Low quality*: Data not verified, no indication of quality control checks used.

IV. Instrument feature disclosure

In market-based claims systems, there may be a variety of ways consumers can purchase and claim electricity attributes, as enumerated under the list of data types in Table 1. For many stakeholders, the type of procurement method is important to know in order to assess whether and how the purchaser is meeting other types of performance goals (beyond GHG accounting). As noted in this proposal, accurate allocation of emissions via instruments does not *require* energy facilities to demonstrate any particular features—in fact, a market-based method aims to apply to all generation, so long as it conveys a GHG emission rate claim following the Quality Criteria. However, in practice markets differ greatly as to what types of generation facilities are currently producing instruments that are used in corporate GHG inventories. Therefore, this proposal recommends that companies should disclose key features in order to make their procurement decisions more transparent and to enable clearer interpretation of inventory results. These features should include, but are not limited to, those listed in Table 3. The difference between Quality Criteria and Instrument Feature disclosure is illustrated in Figure 1.

Table 3. Disclosure on contractual instrument and generation features *Reported features should include, but are not limited to:*
• **Technology type—**What is the technology type of the claimed energy?
• **Project location —**Where is the plant or plants located (state, nation) where the instrument was generated?
• **Facility vintage—**In what year was the generation facility established that created in the certificate/contract?
• **Regulatory surplus—** Were the MWh's reflected in this instrument used to meet a supplier regulatory requirement? (If separate regulatory instruments were issued from those MWh's that contain GHG emission rates, then this is not allowed as per required operational criteria. If the instrument structure does not already cover this as operational criteria, as with US)
• **Cap and Trade**—Is the energy instrument purchased from facility affected by a cap and trade policy, either as a directly regulated entity or as part of a regulated sector?
• **Offsets**—Is the energy instrument from a project producing other instruments such as offset credits?
• **Funding** – did the plant receive public subsidy such as a feed-in tariff?

Figure 1. Comparing Quality Criteria and Instrument Features