

1. Introduction to scope 2 emissions

Since the publication of the *Corporate Standard* in 2004, companies around the world have been seeking innovative strategies to measure and manage their greenhouse gas (GHG) emissions. For most companies, emissions from purchased electricity, steam, heating, and cooling (termed “scope 2” emissions) represent a significant emission source and operational cost. To reduce these emissions, companies typically turn to energy conservation, efficiency upgrades, and low-carbon electricity supply. But the mechanisms that allow corporate consumers to *choose* a low-carbon grid-delivered energy supply vary by electricity market. Some companies can work with their electricity suppliers to purchase a low-carbon product, or enter into power purchase agreements with individual generators. Consumers can also separately buy electricity attributes via certificates that conveys information about energy production.

2. The need for scope 2 guidance and international consistency

Accurately accounting for scope 2 emissions is essential in order to manage and reduce them. However, companies have not had standards that address whether and how emissions from these diverse instruments should be accounted for in a GHG inventory. As a result, scope 2 emission reports have varied between companies significantly, leaving internal and external decision-makers unable to assess and compare corporate performance. The uncertainty around whether and how energy purchases contribute to meeting scope 2 emission reduction goals has impeded corporate investment in, and demand for, low-carbon energy.

3. What this Guidance provides

This Guidance provides a unified, internationally-consistent, transparent basis for companies to account for electricity purchases in their GHG inventory. The Guidance acts as an amendment to the *Corporate Standard*, revising and updating the previously brief treatment of scope 2 accounting boundaries and methods. It introduces:

- **Requirements:** Accounting and reporting requirements which companies must meet to be in conformance with the *Corporate Standard*.
- **Quality Criteria:** A list of Scope 2 Quality Criteria that all electricity purchasing instruments—termed here “contractual instruments”—need to meet in order to be used in market-based method accounting.
- **Recommendations:** Additional features companies should disclose about their electricity purchases, as

Box 1 How this Guidance was developed

The Greenhouse Gas (GHG) Protocol is a multistakeholder partnership of businesses, nongovernmental organizations (NGOs), governments, and others convened by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). Launched in 1998, the GHG Protocol seeks to develop internationally accepted GHG accounting and reporting standards and tools to promote their adoption in order to achieve a low emissions economy worldwide. All GHG Protocol standards and guidance are available at www.ghgprotocol.org.

This Scope 2 Guidance represents a policy-neutral, collaborative solution guided by GHG Protocol principles. It was developed over four years of international consultation and discussion with participation from businesses, NGOs, GHG reporting programs, energy utilities and retailers, renewable energy certification programs, government agencies, and scientific and academic institutions from around the world. It included scoping workshops conducted in London, Washington DC, and Mexico City in 2010 and 2011; a Technical Working Group (TWG) that contributed to discussion papers, conference presentations, and draft proposals on accounting and reporting solutions; and a public comment period in spring 2014, including six webinars and three in-person workshops in London, Dusseldorf, and Washington DC.

well as other metrics such as total electricity, steam, heating, and cooling consumed, and what percentage of corporate operations have market-based method data available.

4. Who should read this Guidance

This Guidance amends and adds to the *Corporate Standard* requirements on scope 2 accounting and reporting. All organizations compiling a corporate GHG inventory following the *Corporate Standard*—including companies, governments, NGOs and other organizations—should use this Guidance. The term “companies” is used throughout this document as shorthand for any organization compiling a corporate inventory.

Electricity suppliers, advocates, and policy makers will also be well served to understand the new GHG accounting and reporting requirements, as well as the Scope 2 Quality Criteria (see Chapter 7). These affect whether a given energy label, green power program, or other instrument can be used in corporate GHG inventories, and will influence the type of energy products and information companies request. Market-based electricity tracking and purchasing programs inherently interact with policies affecting the electricity sector, such as emission cap-and-trade regulations, supplier fuel mix and emissions disclosure rules, supplier quotas to source renewable

energy, and specific subsidies or support schemes for renewable energy. Policy makers play a key role in determining the relationship between voluntary purchasing programs and regulatory policies.

5. Key changes introduced by the Guidance

5.1 For most companies, scope 2 is no longer one number—it is two.

For companies with any operations in markets providing product or supplier-specific data in the form of **contractual instruments**, companies shall report scope 2 according to a location-based method and a market-based method. Each method’s results reflect different risks and opportunities associated with emissions from electricity¹ use, and can inform different decisions and levers to reduce emissions. Companies shall choose which method’s results to use for goal setting and other benchmarks.

Box 2 Key Terms

Some terms used in this guidance are used for precision but are synonymous with other more familiar terms. For example:

Contractual instruments: Any type of contract between two parties for the sale and purchase of energy bundled with attributes about the energy generation, or for unbundled attribute claims. Markets differ as to what contractual instruments are commonly available or used by companies to purchase energy or claim specific attributes about it, but they can include energy attribute certificates (RECs, GOs, etc.), direct contracts (for both low-carbon, renewable, or fossil fuel generation), supplier-specific emission rates, and other default emission factors representing the untracked or unclaimed energy and emissions (termed the residual mix) if a company does not have other contractual information that meets the Scope 2 Quality Criteria.

Energy attribute certificate: A category of contractual instrument that represents certain information (or attributes) about the energy generated, but does not represent the energy itself. This category includes a variety of instruments with different names, including certificates, tags, credits, or

generator declarations. For the purpose of this guidance, the term “energy attribute certificates” or just “certificates” will be used as the general term for this category of instruments.

Energy generation facility: Any technology or device that generates energy for consumer use, including everything from utility-scale fossil fuel power plants to rooftop solar panels.

Energy supplier: Also known as an electric utility, this is the entity that sells energy to consumers and can provide information regarding the GHG intensity of delivered electricity.

Generators: Here used to mean the entity that owns or operates an energy generation facility.

Green power product/green tariff: A consumer option offered by an energy supplier distinct from the “standard” offering. These are often renewables or other low-carbon energy sources, supported by energy attribute certificates or other contracts.

Methods for scope 2 accounting are “allocation” methods—allocating generator emissions to end-users. A **location-based** method reflects the average emissions intensity of grids on which energy consumption occurs (using mostly grid-average emission factor data). A **market-based method** reflects emissions from electricity that companies have purposefully chosen (or their lack of choice). It derives emission factors from contractual instruments, which include any type of contract between two parties for the sale and purchase of energy bundled with attributes about the energy generation, or for unbundled attribute claims.

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In this way, *all* companies required to report according to the market-based method will have some type of data option. Not having contractual data for every site will not cause non-compliance with the GHG Protocol *Corporate Standard* and *Scope 2 Guidance*. As with scope 3, a range of data may be available. Companies should consult the hierarchy of emission factors for both location-based and market-based methods. Any data on those hierarchies (including using location-based emission factors in the absence of contractual information) are acceptable.

Contractual instruments recognized in the market-based method include more than green power purchases. These contractual purchases include green power programs, any supplier-specific label or delivery metric, and fossil fuel contracts. Those companies without specified purchases must use a residual mix—a type of emission factor representing the average emissions from all unclaimed energy.



Contractual instruments in the scope 2 market-based method are not carbon offsets. Renewable energy projects in some parts of the world may be eligible to produce a carbon offset, which conveys with it a claim about tons of GHG emissions avoided by the operation of that project compared to a business-as-usual scenario. By contrast, contractual instruments convey an emission rate—that is, emissions per megawatt hour (MWh) associated with that generation’s facilities. This emission factor is expressed in the same units used in location-based emission factors.

5.2 Instruments used as emission factors in the market-based method must meet Scope 2 Quality Criteria.

These criteria ensure the overall integrity and reliability of reported market-based results. These eight Scope 2 Quality Criteria, designed around existing best practices around the world, specify the mechanics that ensure market-based accounting works in practice and prevents double counting. These criteria are summarized in Table 1.

Table 1 Scope 2 Quality Criteria

All contractual instruments used in the market-based method for scope 2 accounting shall:
<ol style="list-style-type: none"> 1. Convey the direct GHG emission rate attribute associated with the unit of electricity produced. 2. Be the only instruments that carry the GHG emission rate attribute claim associated with that quantity of electricity generation. 3. Be tracked and redeemed, retired, or canceled by or on behalf of the reporting entity. 4. Be issued and redeemed as close as possible to the period of energy consumption to which the instrument is applied. 5. Be sourced from the same market in which the reporting entity's electricity-consuming operations are located and to which the instrument is applied.
In addition, utility-specific emission factors shall:
<ol style="list-style-type: none"> 6. Be calculated based on delivered electricity, incorporating certificates sourced and retired on behalf of its customers. Electricity from renewable facilities for which the attributes have been sold off (via contracts or certificates) shall be characterized as having the GHG attributes of the residual mix in the utility or supplier-specific emission factor.
In addition, companies purchasing electricity directly from generators or consuming on-site generation shall:
<ol style="list-style-type: none"> 7. Ensure all contractual instruments conveying emissions claims be transferred to the reporting entity only. No other instruments that convey this claim to another end user shall be issued for the contracted electricity. The electricity from the facility shall not carry the GHG emission rate claim for use by a utility, for example, for the purpose of delivery and use claims.
Finally, to use any contractual instrument in the market-based method requires that:
<ol style="list-style-type: none"> 8. An adjusted, residual mix characterizing the GHG intensity of unclaimed or publicly shared electricity shall be made available for consumer scope 2 calculations, or its absence shall be disclosed by the reporting entity.

5.3 Companies should disclose key features and policy context of their contractual instruments.

Contractual instruments can come from a variety of energy generation facilities depending on the market. In some markets, only renewable energy facilities can produce certificates, while in other markets all generation may be eligible to produce certificates. Some voluntary certificates are from single-instrument systems, meaning that the voluntary certificate is inherently in addition to any supplier quotas. Other markets use multiple instruments simultaneously, meaning that multiple instruments may be issued from a single MWh, for voluntary consumer claims and to meet regulatory requirements.

These variations can make it difficult to compare and understand the procurement choices a company has made in different markets. This Guidance recommends companies disclose information about the energy generation facilities and policy context reflected in their contractual instruments, in order for company decision-makers and stakeholders to get a clearer picture about how well the purchase aligns with other 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 supply.

Some of these key features are elaborated in Table 2.

Table 2 Example instrument features and policy context

Instrument labels
<p>Certification or label name (if applicable). This can include certification such as Green-e Energy (U.S.), EcoLogo (Canada), or labels such as EKOenergy and Naturemade in the EU. The certification or label name should also specify what is being certified, e.g. in the U.S. Green-e Energy certifies against a set of requirements described in their National Standard.</p>
<p>Incremental funding programs. This should specify whether the instrument is associated with a certification label or supplier program that contributes incremental funding to new projects, and if so what quantity of funding is included with the company's contractual purchase.</p>
Energy generation facility features
<p>Energy resource type. Instruments should clearly identify the resource generating the certificate. For supplier-specific emission rates, the resource type could be "mix" for standard offers, "multiple renewable" for certain green power products, or cite the specific resource used. Residual mix will typically be a "mix."</p>
<p>Facility location. Depending on the information available from the certificate, supplier, or contract, the generation facility location could be identified at a national or subnational level (either geopolitical such as a U.S. state, and/or a grid region such as a North American Electric Reliability Corporation (NERC) region).</p>
<p>Facility age. Stakeholders may wish to know whether the purchase consists largely of generation attributes from older facilities or more recently constructed projects. Companies should note the year the generation facility that created the certificate/contract was first operational or substantially repowered.</p>
Policy context
<p>Supplier quotas. The contractual instrument claimed will relate differently to instruments used for supplier quotas, depending on the market. Companies should note the relationship between their contractual instruments following the list of options in Table 10.2.</p>
<ul style="list-style-type: none">• Cap and Trade. Is the facility that produced the instruments you claim affected by a cap and trade policy? (Y/N)<ul style="list-style-type: none">• If yes, does the cap and trade program allocate allowances for retirement on behalf of voluntary renewable electricity purchases from this facility? (Y/N)• If yes, were allowances retired on behalf of your voluntary purchase of instruments from this facility? (Y/N) If so, these allowances should be reported (in metric tons) separately from the scopes.
<p>Funding/Subsidy Receipt. The funding disclosed here can highlight recent funding or subsidy policies directly and substantially affecting the generation facility.</p>
<p>Offsets. Is the facility producing offset credits from the same MWh reflected in the contractual instrument? (Not applicable to contractual instruments in most industrialized electricity markets.)</p>
<p>Other policy instruments. This includes any other policy instruments bundled/retired voluntarily by the company itself, a certificate certification program, supplier label, etc.</p>

Endnote

1. Electricity is used as shorthand to include purchased steam, heat, cooling, and electricity.

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World Resources Institute

WRI is a global research organization that works closely with leaders to turn big ideas into action to sustain a healthy environment—the foundation of economic opportunity and human well-being.

Our Challenge

Natural resources are at the foundation of economic opportunity and human well-being. But today, we are depleting Earth's resources at rates that are not sustainable, endangering economies and people's lives. People depend on clean water, fertile land, healthy forests, and a stable climate. Livable cities and clean energy are essential for a sustainable planet. We must address these urgent, global challenges this decade.

Our Vision

We envision an equitable and prosperous planet driven by the wise management of natural resources. We aspire to create a world where the actions of government, business, and communities combine to eliminate poverty and sustain the natural environment for all people.

Funders

This standard development process was generously supported by Walmart, H&M, Microsoft, EY, the United Kingdom Department for Environment, Food & Rural Affairs, and the United States Environmental Protection Agency.

World Business Council for Sustainable Development (WBCSD)

The WBCSD is a CEO-led, global coalition of some 200 companies advocating for progress on sustainable development. Its mission is to be a catalyst for innovation and sustainable growth in a world where resources are increasingly limited. The Council provides a platform for companies to share experiences and best practices on sustainable development issues and advocate for their implementation, working with governments, non-governmental and intergovernmental organizations. The membership has annual revenues of USD 7 trillion, spans more than 35 countries and represents 20 major industrial sectors. The Council also benefits from a network of 60 national and regional business councils and partner organizations, a majority of which are based in developing countries.



Printed on Chorus Art Silk, an FSC-certified paper with 30% pcw recycled content and with inks that are of soy content.

Stock photography: Shutterstock.com

Design: Alston Taggart, Studio Red Design, with assistance from Elliott Beard and Alex Kovac.

ISBN: 978-1-56973-851-1

Printed in USA



GREENHOUSE GAS PROTOCOL

The Greenhouse Gas Protocol provides the foundation for sustainable climate strategies. GHG Protocol standards are the most widely used accounting tools to measure, manage and report greenhouse gas emissions.