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First major revision in the past 11 years.

Here to develop new Guidance. That's where our standards come in. Our methods and framework for reporting should ideally capture and reflect back to corporate decision-makers the risks/opportunities associated with that activity. It should also reflect impacts of actions to reduce emissions and mitigate risk. It should fully engage and incentivize all the levers companies have to reduce emissions.

We believe our new guidance dramatically improves how companies report, and will inspire procurement decisions that can transform the industry and the market.



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Scope 2 Guidance

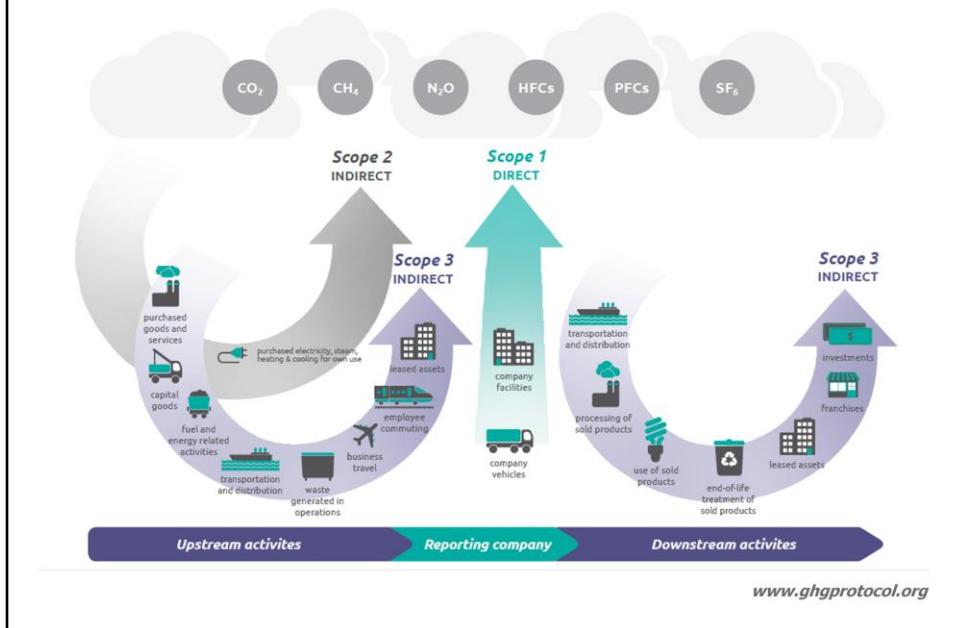
New developments in corporate GHG accounting for electricity

Mary Sotos, Associate at World Resources Institute

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Scopes Across the Value Chain – GHG Protocol



Nearly synonymous with our organization is the framework and terminology we developed in establishing GHG accounting standards. The term GHG accounting – as standardized, clear, mainstream as financial accounting. Scope 1 includes emissions from sources or activities you own or operate. S2 and 3 are indirect emissions, physically occur at a source owned/operated by someone else, but the

Produced by someone else – utility, or just the company that owns solar panels on your roof. Division of ownership and control.



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40%
global
emissions

50%
electricity use
by business

60%
Fortune 100
have set clean
energy and GHG
reduction targets

Measuring electricity emissions matters!

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Electricity emissions matter on a global level: 40 global emissions from the generation of electricity, steam, heat and cooling (see WRI CAIT data). But it specifically matters for businesses using our standards. According to IEA, over half of electricity use is by commercial or industrial end-users. In addition, according to Power Forward 2.0 report, 60% of Fortune 100 companies have set clean energy and GHG reduction targets. All this means that there is huge investment potential and emissions reduction potential from the sector – which is why we need to get the accounting right!



Why New Guidance?

The energy market has changed profoundly

- Deregulation
- Increase in consumer choice
- New purchasing options and instruments (e.g. certificates)
- More government requirements for sourcing renewable energy
- Growth of the renewable electricity markets

Accounting for purchased electricity should meet 5 GHG Protocol principles:

- Accuracy, Completeness, Consistency, Transparency and Relevance

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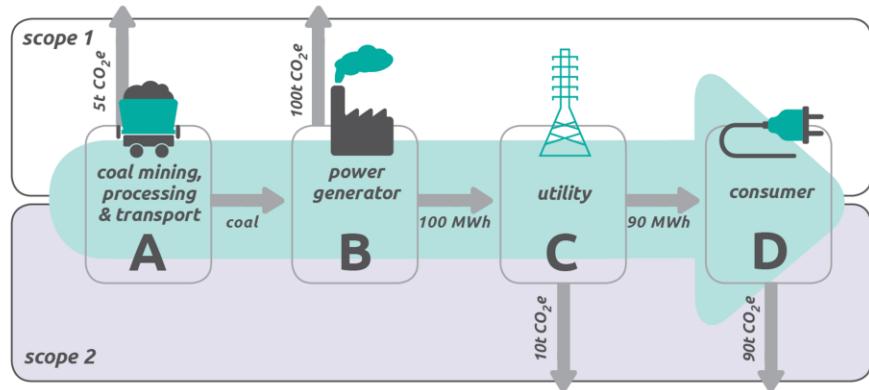
Deregulation or liberalization takes different forms, but broadly it means more choice in electricity supplier or product. With that comes increasing disclosure requirements, since the very premise of choice is that there can be a way to distinguish products. Electricity looks the same coming out, but how it's made can be high or low carbon.

Changes incentives about what to buy, or whether to produce yourself. Many of those policies are designed to attract corporate investment, and companies who were once just energy consumers are now potential energy producers.

Growth of RE markets: market instruments



Emissions across an electricity value chain

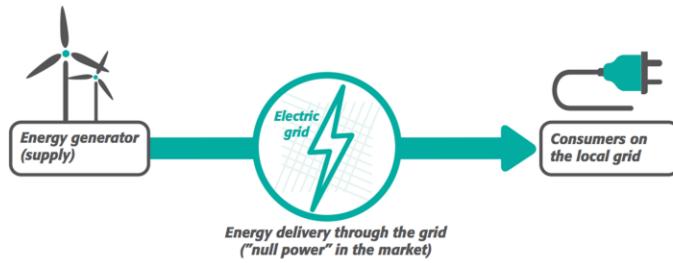


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This was how we proposed accounting for emissions from electricity generation and use throughout the supply chain. This works if you have a single generation source, a single utility. In fact, we have seen that grids have *multiple* generation sources (not just one power generator), and a more complex system for exchanging information *about* the generation, including its attributes like GHG emissions.



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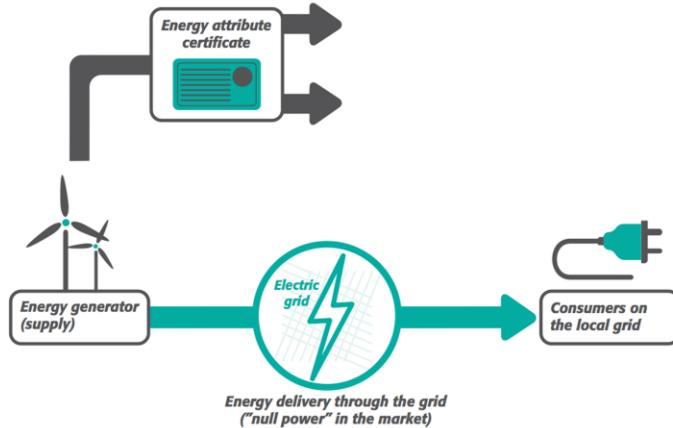


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We found in fact, there are two processes happening in electricity grids– a bottom and upper part of this diagram. The “bottom” part depicted here represents the physical flow of electricity from a generator (here, wind) into a grid. In fact there will be *multiple* power plants providing electricity to the grid throughout the day to meet fluctuating demand. Their dispatch is determined by the grid operator, or utility.



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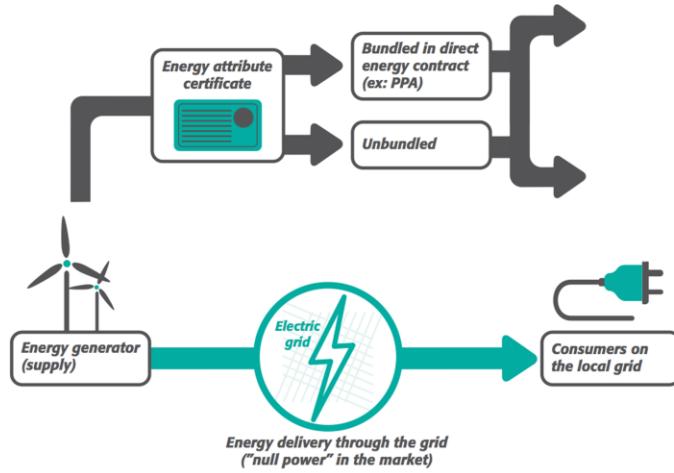


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In parallel to this physical distribution, there are SYSTEMS for ENERGY ATTRIBUTE TRACKNIG – receipts to label what's produced, and the holder of that receipt (certificate) can make claims about what they've contractually purchased.

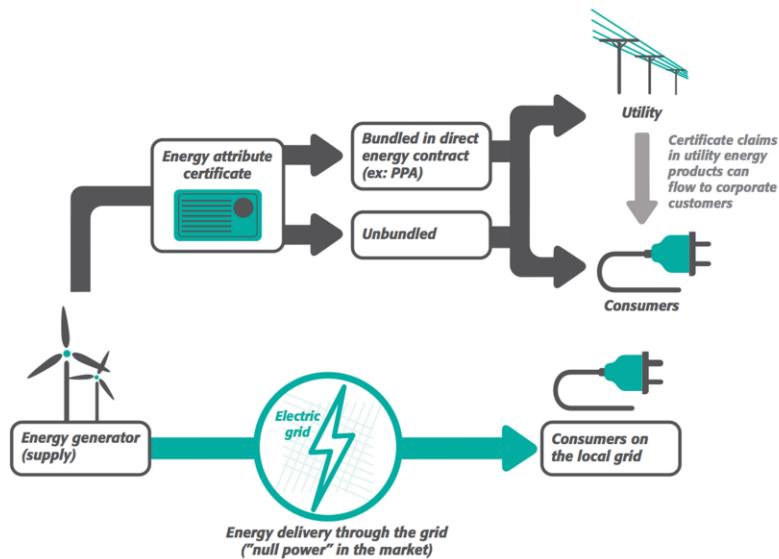


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This certificate can be bundled or unbundled with contracts for energy flow.



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In either case (bundled or unbundled), the certificate flows either either to a utility, who uses that information for several purposes including:

- **Consumer disclosure**— either required by regulation, or to validate the green portion of a voluntary label or tariff.
- **Supplier quotas:** for regulation like RPS, lets a utility prove a % of supply from renewables. If those certificates contain attributes, then the claim can flow ultimately to the consumer as well

Or in some markets, the certificates can flow directly to consumers, particularly large industrial or commercial (who can purchase unbundled or bundled with energy).

In either case, the claim ultimately ends with information that informs a consumer about the electricity they've contractually purchased.



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How should emissions associated with energy purchases in the market be accounted and reported in scope 2?

CONCEPT

Grid vs.
market?

Double
counting?

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So this leads to the question: if companies are buying specified energy, if there is regulation to require this labeling, and if this labeling has the potential to drive changes in supply—how should those emissions be accounted for?

Our previous standard implied grid average emission factors (the bottom path), and mentioned vaguely “emerging green power programs and contracts” (the upperpath). But it did not address the following questions, which our companies and experts were increasing asking about:

- The concept of accounting for emissions based on purchase information. We’re very comfortable and prefer supplier information for all other goods/services, but electricity is a weird product. You can’t store it, you can’t know what you’re consuming, and what causes generation to happen is local demand.
- Doesn’t the market-based method have double counting? What about if you don’t buy specified power?

Can’t use either/or – both depend on complete implementation.



How should emissions associated with energy purchases in the market be accounted and reported in scope 2?

CONCEPT

Grid vs.
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Double
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INSTRUMENTS

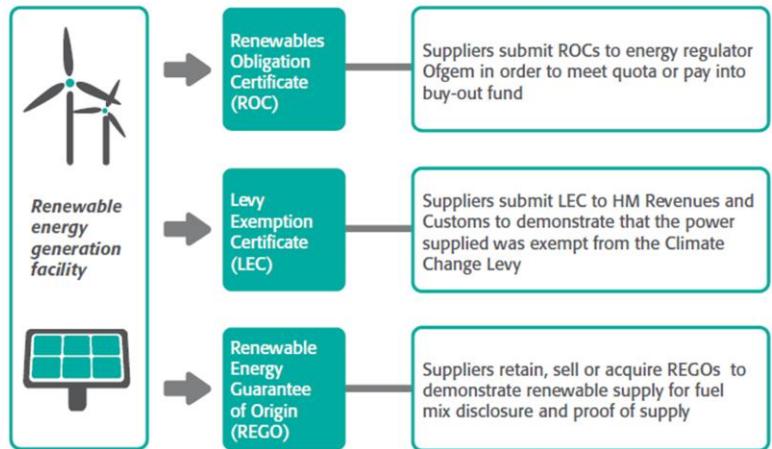
What counts?

How to
compare?

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Also questions about instruments: the original *Corporate Standard* only mentioned US RECs and contracts with suppliers. But we've seen the emergence of energy attribute tracking systems worldwide – EU countries, Japan, Australia, as well as the US. Upon investigating them, we see that these systems have very similar premises and purposes, but different program design elements, different relationships between voluntary and regulatory instruments, for instance. Companies were unclear about whether any, or how, these instruments were appropriate for consumer claims.

The other related question is, how do these instruments *compare*? These differences in program design lead to important differences that affect a sense of the underlying policies – their “fairness,” their effectiveness in driving change in low-carbon supply.



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For example, in the UK, this certificate pathway is even more complex since there are three potential certificates that could be issued from a given MWh – the ROC, Lec and REGO. Need to ensure there is only one that conveys GHG emission rates about generation to the end consumer.



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How should emissions associated with energy purchases in the market be accounted and reported in scope 2?

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INSTRUMENTS

How to
compare?

What counts?

IMPACT

Directly or
indirectly
reduce GHG
emissions
over time?

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On the question of impact: Many companies and experts are familiar with offset methods, where you guarantee that a new RE project results in a certain quantity of reduced emissions. Accounting for emissions for electricity is more like a product or service – needs to fit within corporate paradigm. Still, some instruments and procurement methods have a bigger direct impact (new energy) than others. Was this whole system for market-based accounting effective at driving change? Or should individual instruments be held to a standard to drive this change?



What will this Guidance do?



Provide:

- Codified accounting methods
- Scope 2 Quality Criteria
- New reporting requirements
- Disclosure recommendations

Over time can help support:

- Better electricity supply data
- More electricity market opportunities
- Reduced emissions

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Basically three things: requirement to dual report, criteria, and recommended disclosures.

Improve the consistency of reporting. With consistency comes comparability.
Enhance interpretation of results.

' impact on scope 2 emissions

A little more disclosure can help distinguish differences



How was this Guidance developed?

200+ Technical Working Group members

23 countries

4 years

5 discussion drafts

1 public comment period

2 final TWG reviews

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Key Concepts Underpinning the Guidance

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We just gave an overview of what the guidance is and does – but we'll go into a little more detail about the key concepts.

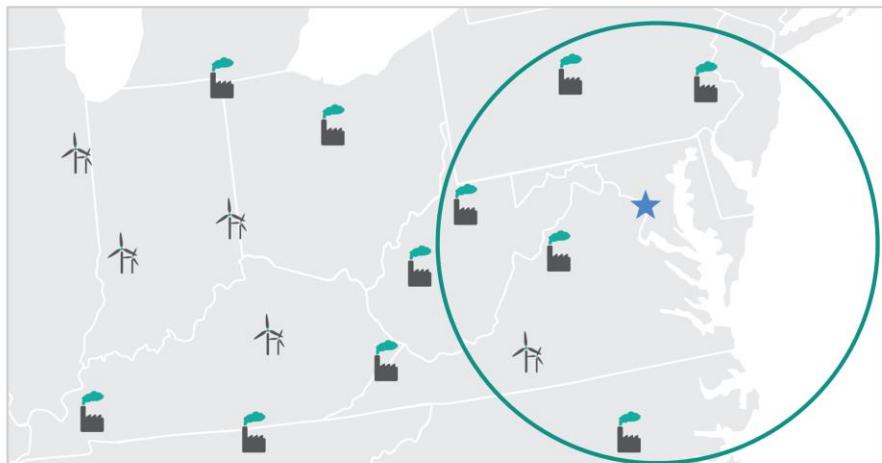


Understanding Scope 2 Accounting Methods

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About **methods**: they are ways of allocating GHG emissions from the point of production to the electricity user reporting on them.

Location-based method



(map not representative)

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This reflects the “bottom part” of the earlier electricity diagram: physical distribution.

Advantage: reflects actual generation and distribution, the causal relationship between collective demand and generation, and to keep a focus on energy efficiency (e.g. focusing on consumption). **Disadvantage:** No incentive to reflect purchases or influence supply. To reduce emissions you can only reduce your consumption (activity data). In terms of the 5 principles, its information was less relevant for making decisions about purchases, less complete for showing risks/opportunities associated with individual suppliers.

Location-based method emission factor hierarchy

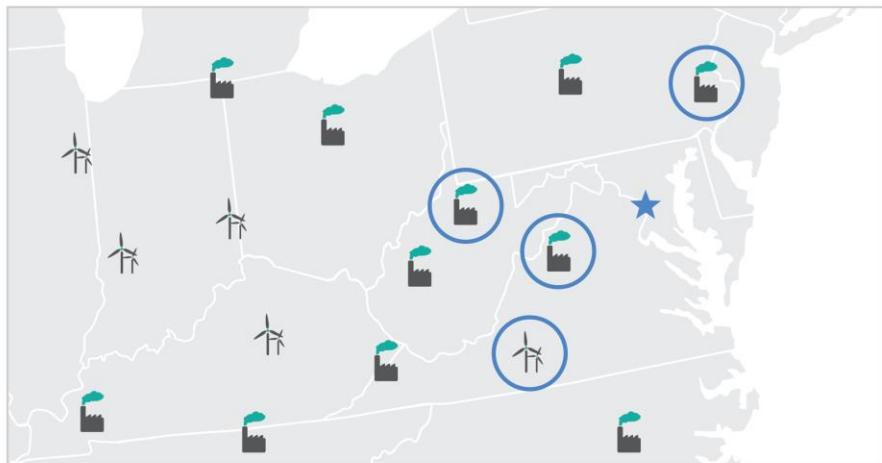
1. Regional or sub-national emission factors
2. National production emission factors

Data forms listed here should convey combustion-only (direct) GHG emission rates, expressed in metric tons per MWh or kWh.

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The goal is for the emission factors to reflect the mix of electricity actually used in the region where you are consuming. It should approximate a “distribution area,” which may be more accurately a sub-national boundary (such as US regions shown through eGRID) or multi-national boundaries (such as Nordic region, where there are many physical exchanges of energy across borders, making a regional factor more accurate than a national production factor only. However, a national factor’s accuracy for the location-based method can be improved if it takes into account emissions from physical energy exchanges across borders.

Market-based method



(map not representative)

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The premise of the market-based method is to linking specific units of electricity generation to consumers through a “contractual instrument.” Not limited to green power – as a method, needs to be completely and comprehensively applied to avoid double counting. **Advantage:** better reflects risks and opportunities associated with supplier portfolios. Your exposure to fluctuating costs, GHG regulation are shown to you through your supplier, not through a general regional figure. Furthermore, you have a chance to mitigate those risks through choosing cleaner supply and negotiating your own supply prices through contracts. Contractual instruments are the only way for consumers to influence supply through their demand, providing an additional lever to reduce overall emissions. **Disadvantage:** there can be questions/concerns with this method’s reliability and the overall impact voluntary purchasing has. However, as explained in the next few slides, this Guidance addressed some of those concerns.

Market-based method emission factor hierarchy

1. Electricity attribute certificates or equivalent instruments
2. Contracts for electricity, such as PPAs
3. Supplier/Utility emission rates
4. Residual mix (sub-national or national)
5. Other grid-average emission factors (sub-national or national) see location-based data

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These are listed in order from most precise to least, but this doesn't reflect a "preference" about procurement method. In the first three, these instruments become carriers of GHG and other attribute information (if they meet the Quality Criteria). But not having qualifying data does **not** mean non-conformance: just means you should use the residual mix, or absent that a grid average factor. **Residual mixes** are not available everywhere yet, but in Europe widely available for each country. They are essentially grid average factors but with the tracked energy "removed"



Concerns with market-based method instruments

Concept of market-based accounting?

Execution of market mechanics?

Impact of markets and instruments?

Dual reporting

Scope 2 Quality Criteria

Additional reporting recommendations

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We heard a variety of concerns with the market-based method. These can fall into three “camps”: **Concept:** There’s concern that contractual instruments, by definition, do not reflect the “causal connection” between the physics of energy generation and consumption. They’re a separate information flow disconnected from that. For some stakeholders, this alone was problematic for understanding the “GHG impact” of consumed electricity. To answer this, we acknowledge the important differences and the value of the location-based method in capturing those relationships. So we require DUAL REPORTING.

Execution: This is for a group that believes in the premise of the market-based method, but has concerns around the mechanics – consistency in rules, clarity around which instruments count, preventing double counting (ex: having data like the residual mix for those who haven’t purchased specified energy). To answer that, we established a list of 8 Scope 2 Quality Criteria to ensure the clear functioning of the market-based method, and that the instruments could be reliable carriers of information.

Impact: Even if the concept is solid, and we can work through the mechanics, there’s a concern that not all instruments or procurement methods have equal impact on the market or new build. That it’s too incomparable internationally. How do we keep companies moving towards the most impactful actions, even if it’s beyond the scope of corporate GHG accounting rules? To answer that, we established recommended disclosure on the features of the instruments and policy context – these disclosures are *indicators* of impact, and can more clearly distinguish the policy-

specific differences behind those instruments. They are *recommended* and not required, because they are policy and program-specific.



Policy-Neutral

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We develop policy-neutral accounting standards, but electricity (particularly low-carbon or renewable) inherently comes into contact with policies – its very existence is a consequence of some policy. By even recognizing it, some felt we were making a policy statement. We disagree. Our mission is to provide standards that meet the 5 principles, including relevance. Emissions information conveyed by choices in the market are relevant.



This Guidance does not:

- Require new markets
- Make requirements or express preferences about the design of markets
- Address any non-GHG accounting aspects of market design
- Promote specific energy generation technologies, electricity labels or programs

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Might be easier to understand how we've navigated policy neutrality by looking at what this Guidance does **not** do (see list).

What this means is that the Guidance focuses on actual emissions accounting at the point of generation, however local markets have designed the policies for conveying and communicating those claims. There is an important role for programs, policymakers, all actors in an electricity value chains

of energy policy or market-based accounting systems for consumers, including: social impacts, financial costs or effectiveness relative to other policies at achieving specific climate abatement or other outcomes;

that would determine which types of electricity facilities *should* produce certificates or contractual instruments. The Scope 2 Quality Criteria in this Guidance relate to features required of the instruments themselves in order to support accurate accounting; the Criteria do not address which generation facilities should produce those instruments.



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New Accounting and Reporting Requirements

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For companies with operations in markets without choice in electricity product or supplier

No change.

Only one scope 2 total will be reported
based on the location-based method.

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For companies with operations in markets with choice in electricity product or supplier:

1. Dual reporting
2. Scope 2 Quality Criteria
3. Recommended additional disclosures

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Country	Location-Based Total (mtCO ₂ e)	Market-Based Total (mtCO ₂ e)	Instrument Types
USA	650	0	RECs to cover 100% of consumption
Norway	100	500	Residual mix
China	800	800	N/A
India	850	400	Collaborative solar PPA to cover 50% consumption
Mexico	400	0	PPA to cover 100% of consumption
TOTAL	2,800 mtCO₂e	1,750 mtCO₂e	

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Very simplified report here – but you can see the different totals represented for each method based on the instrument types chosen.



Scope 2 Quality Criteria

Contractual instruments shall:

1. Convey GHG information
2. Be an exclusive claim
3. Be retired
4. Match up to inventory period
5. Be sourced from same market as company

Utility emission factors shall be:

6. Calculated based on delivered electricity

Direct purchases shall:

7. Convey GHG claims to the purchaser

Using any instruments requires:

8. Adjusted residual mix, or disclose its absence

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Help navigate whether the information they have is usable for credible, accurate market-based method. Designed to ensure accurate application of market-based allocation of generator emissions to end-users

Policy-neutral, Objective, Built on existing rules and practices

Does **not** address other goals/impact of voluntary market on new build



Additional recommended disclosures

To distinguish differences in purchases between markets, and enhance transparency, Guidance recommends disclosing:

- **Instrument labels**
- **Power plant features**
 - resource type, facility location, facility age
- **Policy context**
 - Supplier quotas like RPS?
 - Cap and trade?
 - Funding/subsidy receipt?

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Certification helps the market. In the push to support certain types of energy, disclose location/facility age. The policy context information shows the relationship between voluntary and mandatory programs – those relationships vary significantly by market.

All of these features help tease out the differences between purchases, and provide an indication of impact.



How can companies go further with electricity procurement?

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We know that systems for energy attribute tracking—e.g. labeling electricity, creating voluntary programs, and establishing a system for claims—all these may *or may not* result in demonstrable change in supply. As a method, it is intended to reflect an allocation of consumer preferences as determined by the market, and show the risks/opportunities associated with consumer choices. The idea is that overtime, the *collective* consumer demand can impact *supply*; but the ability for this to manifest in the short term is limited. In short, no labeling program or system alone will automatically result in new low-carbon energy.

This Guidance lays out the policy-neutral mechanics of a market-based method for scope 2 accounting, so that regardless of what causes the project to be built, the energy attribute certificate still serves as the instrument conveying claims about the attributes of the underlying energy generation for consumers. It views the market-based method not only in terms of *individual consumer choices* about suppliers, contracts or *individual instruments* but how the market can *in aggregate* change global GHG emissions.

Still, there is a need for companies to set ambitious targets and drive the most impact with their given resources.



Choices by all players in the market can have an impact

Jurisdictional policy

Certification schemes

Utility/
supplier
labels

Corporate
policy and
decisions

Companies can:

1. Contract directly with new low-carbon energy projects
2. Work with electricity suppliers for new projects
3. Establish “eligibility criteria” for corporate procurement
4. Provide incremental funding or donations

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First, it's important to understand that the overall “effectiveness” of an energy attribute tracking system at driving new low-carbon supply is a consequence of several factors. Let's start with **Jurisdictional policy**: the policy decisions regarding the relationship between voluntary and regulatory instruments can greatly impact claims and investment. Those policies also affect what types of contracting are even possible – are PPAs available? What kind of corporate offtaker role is possible? **Certification schemes** and **Utilities** can both have a significant impact too, in designing programs that are focused on new low-carbon build. They can target specific kinds of generation for their program's portfolio's, directing corporate demand.

But companies can also have an impact. There are four approaches we highlight here to using a market-based energy attribute tracking system to grow low-carbon energy supply.



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Closing

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- **Final publication** in January 2015, available at:
http://www.ghgprotocol.org/scope_2_guidance

- **Launch events:**

- London, January 21st
- Brussels, January 22nd
- Washington DC, January 30th

Events registration at <http://www.wri.org/events>

- Integrated into *Corporate Standard* webinar trainings

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