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Accounting for Avoided Emissions from Distributed Energy Projects

A Position Paper to Inform the GHG Protocol Scope 2 Guidance Revisions

The Problem

- The Greenhouse Gas (GHG) Protocol currently offers users no ability to report avoided emissions from market-based energy procurement, providing a disincentive to consider energy choices through the lens of real-world emissions impact.
- The GHG Protocol acknowledges project-based comparisons using marginal emissions displacement are appropriate for understanding the impact of distributed energy projects in its 2007 guidance for *Quantifying GHG Reductions from Grid Connected Electricity Projects*[1] but currently offers no guidance for how users should integrate these project-based calculations into corporate reporting.
- Under the current Scope 2 reporting framework, a company moving from grid power to an onsite distributed solution would transition the carbon intensity of the MWhs reported from the grid average in most circumstances (based on location-based Scope 2 quality criteria) to a supplier specific market-based emissions factor. Thus, any sense of the carbon impact created by such a procurement decision would drive a comparison between grid average rates and supplier specific rates.
- Importantly, as distributed energy projects do not displace the basket of generation resources making up the grid average, but rather specific marginal resources, it is important that these are the resources that should be recognized in an avoided emissions calculation to drive carbon reducing onsite energy generation.

Recommendation

In alignment with suggestions made by the Clean Energy Buyers Institute (CEBI)[2] Bloom Energy recommends that WRI introduce a required avoided carbon emissions impact reporting category in Scope 2 alongside location-based and market-based reporting categories.

Additionally, we suggest that any framework advanced be aligned with prevailing guidance for reporting avoided emissions from the market-based use of renewable fuels across the scopes.

[1] https://www.wri.org/research/guidelines-quantifying-ghg-reductions-grid-connected-electricity-projects

[2] https://cebi.org/blog/cebis-four-key-recommendations-for-updating-the-greenhouse-gas-protocol-will-help-advance-systemic-grid-decarbonization/

Background

Bloom acknowledges the leadership from WRI and WBCSD for the creation and maintenance of critically important environmental standards, which help to drive climate action. As Bloom Energy works toward its mission to make clean, reliable energy affordable for everyone in the world, The GHG Protocol remains an important guide for us and our customers.

Bloom and WRI have worked in the past to clarify GHG Protocol reporting guidance for corporate disclosure of emissions from distributed energy generation. Bloom, WRI, RMI and WattTime collaboratively created the attached *Inventory Level vs. Project Level GHG Accounting* primer in 2018. The work aimed to help buyers of distributed energy understand, value and report associated emissions impacts.

The Primer suggested that companies should quantify and report the GHG emissions impacts of purchased energy originating from distributed projects both as a part of annual Scope 2 inventories and separately report the real-world climate impacts as "optional information" calculated via a project level impact accounting methodology. The guidance acknowledges that reductions in emissions as reported by the inventory approach, referencing average grid emissions baselines, may not always capture the actual emissions impacts of new projects accurately. A more accurate project accounting would use marginal emissions baselines.

Our experience since the Primer was created is that since there is no place for the optional, project-based comparisons to be consistently and transparently reported, it is difficult for them to be valued by ESG investors or prevailing carbon and energy leadership programs. As such, when emissions impacts cannot be reflected in annual inventories, most companies operate as if they have never occurred.

Over the last several years, there has been an explosion of Environmental, Social and Governance (ESG) investment rating frameworks. ESG ratings firms ascribe significant value to a company's ability to set and meet GHG reduction targets from purchased energy as evidenced through their Scope 2 inventory. Within ESG frameworks, companies are encouraged to implement financial incentives for key executives tied to GHG performance as evidence of strong sustainability driven corporate governance. Reported Scope 2 carbon inventory performance can now materially impact ESG ratings, stock price, executive compensation and individual performance evaluations which actively inform energy procurement. More than ever, companies rely on the GHG Protocol to provide accurate and standardized carbon accounting approaches to guide procurement related decision-making, target-setting and climate action plans.

Despite WRIs best efforts to create an accessible Scope 2 inventory reporting framework, a mismatch between Scope 2 GHG reporting and real-world emissions impacts from distributed energy projects persists. The nuance found in the Inventory Level vs. Project Level GHG Accounting Primer has been lost in the rush for ESG investors to isolate comparable carbon performance metrics. The rise of financial incentives for executives now drives project performance evaluation more focused on reportable impacts than real world outcomes.

Inventory vs. Project-based Reporting Examples

As a practical example, Bloom Energy typically sells power generated by its grid-connected solid oxide fuel cells to customers through a PPA, where Bloom maintains operational control. The power sold is Scope 2 purchased energy for most customers. As potential corporate customers evaluate the reportable emissions impacts on their Scope 2 inventories, they will compare a typical Bloom emissions profile of 818 lbs. of CO_2 per MWh to the average GHG intensity of grid power they would otherwise stop procuring. In California for example, 2021 EPA eGRID data indicates customers would be reporting an average grid intensity of 534 lbs. of CO_2 per MWh. So, potential Bloom customers would need to report a year over year Scope 2 emissions inventory *increase* of 35% if switching to an onsite fuel cell system.

In reality, adding a Bloom system to a corporate site displaces marginal power generators on the local grid, which are the most expensive to operate and often least efficient power producers with the highest emissions rates. These generation resources carry a much different GHG intensity than the grid average. In California, eGRID data indicates the average marginal (non-baseload) emissions profile inclusive of line losses is 1,099 lbs. of CO_2 per MWh. A proper comparison of Bloom vs. a marginal emissions resource in California would show a 25% year over year emissions *reduction* for the project. Zero emissions projects are similarly subject to this undercounting. An onsite solar installation carrying an emissions factor of 0 lbs.of CO_2 per MWh would be viewed by a potential corporate customer as generating 520 lbs. of CO_2 emission reduction per MWh in a corporate Scope 2 inventory, when in reality the project reduces twice that much CO_2 by displacing much higher marginal grid emissions.

Allowing for project-based reporting also allows corporations to better understand the real-world impacts on the potential projects by understanding the marginal locational impact. For example, a 1 MW project in California would displace 1,099 lbs/MWh v. 1,236 lbs/MWh if located in Texas based on the marginal grid resources in these two states. For a company comparing projects across geographies, an avoided impact metric provides crucial information that allows it to direct procurement dollars towards the largest impact.

These examples illustrate that there are vastly different emissions impacts that result from the competing approaches to GHG accounting for energy projects. More troublingly, they illustrate scenarios where current GHG reporting guidance sends conflicting signals to stakeholders about the climate impacts of potential projects, stalling critical climate mitigating investments at a time when the world can least afford it. We must have GHG reporting standards guidance in place that helps incentivize the adoption of energy resources with the lowest environmental impact possible, and uses ESG market pressure to drive emissions reductions and energy sector transformation.

Implications for Renewable Fuel Utilization

Bloom has been at the forefront of market-based gas sector activity since our customer's first pipeline directed renewable natural gas (RNG) transactions in 2012. Now, we look to drive further transformation through our position in the emerging certificated natural gas market and in the hydrogen landscape as an electrolyzer manufacturer.

Prevailing focus on renewable fuel utilization, including RNG and green hydrogen, has been in a Scope 1 context, but these fuels will be increasingly used for distributed energy generation. RNG to electricity renewable fuel pathways in California's Low Carbon Fuel Standard Program (LCFS) and the

recent establishment of the eRIN program in the Federal Renewable Fuel Standard Program (RFS)[3] reinforce the future of RNG and hydrogen as an important fuel feedstock to electricity projects at a national level.

These developments further reinforce the need for a GHG Protocol reporting framework capable of ingesting carbon intensity (CI) values from fuel feed stocks used in distributed energy production. We encourage the GHG Protocol to coordinate efforts to build Scope 1, 2 and 3 avoided emissions reporting capability, with an eye toward the applicability of directed renewable fuels and use of associated energy attribute certificates across all the scopes.

Conclusion

Many businesses throughout the US are underserved by their local utility, and either can't get reliable power or new electric service altogether. On-site space considerations and resilience needs dictate they choose a fuel-based distributed generation system, and a precision avoided emissions methodology that also contemplates the potential for directed renewable fuel use is critical to advancing the energy transition.

Bloom looks forward to collaborating with corporations and industry groups on the inclusion of an impact-based reporting option for Scope 2. We are prepared to dedicate staff and other resources to support the Scope 2 guidance and pilot processes, which would further clarify or emphasize the need for project-based avoided emissions assessments for distributed energy projects and other emissions reducing initiatives.

[3] https://www.federalregister.gov/documents/2022/12/30/2022-26499/renewable-fuel-standard-rfs-program-standards-for-2023-2025-and-other-changes