CASE STUDY

Optics over Impact

Hourly matching risks more greenwashing

Pragmatic Scope 2

Introduction

The Greenhouse Gas Protocol (GHGP) has proposed only counting clean energy that is hourly matched to load in its upcoming Scope 2 carbon accounting revisions. Hourly matching is often referred to as 24/7, which is 100% hourly matching. While hourly matching is a well-intentioned attempt to make sure clean power purchases are rigorous, it unfortunately often points companies in the wrong direction. It rewards procurement that looks good in the newspaper but doesn't necessarily reduce carbon, and can block clean energy investments where they're needed most. Let's look at a couple real-world examples that would become more commonplace if the GHGP pushes hourly matching.

Hourly matching rewards projects that look good, but don't cut carbon

Google recently announced a $3B agreement to buy energy from 3 GW of existing hydropower in the US over the next 20 years. That looks great, both in the newspaper and under an hourly matching Scope 2 accounting framework - Google will be able to run some of its data centers day and night, and report zero emissions.

But that $3B isn't building any new clean energy - which every study of hourly matching says is needed for impact - it's stockpiling what's already out there.[1,2,3,4] The first contracts under the agreement are for 670 MW of existing hydropower in Pennsylvania, which represents 74% of all hydropower in the state.[5] Less than 5% of electricity generation in Pennsylvania is from renewable sources, leaving homes and businesses that were already using that hydropower with few other clean options. Google's purchase decreases the emissions on Google's books, but increases the emissions of the rest of the grid users, leaving no actual carbon reduction on the system. In effect, it just reallocates Google's emissions to everyone else using that same grid.

Instead of optimizing for what looks good under hourly-matching carbon accounting, Google could have used that funding to continue their laudable and high-impact purchase commitments from projects that have not yet been built, helping them secure financing and actually increasing the total amount of clean energy on the grid.. For example, $3B could finance over 800 MW of solar power in the same region, roughly doubling solar capacity in

the state, reducing power prices, and saving 1.5 million tons of CO2 each year (equivalent to the annual emissions of 170,000 homes).[6,7,8]

Since solar doesn't produce power around the clock, the hourly matching accounting framework would give this approach little credit. Ultimately, an hourly matching approach stockpiled 23% of local clean power to make one company's carbon footprint look smaller instead of increasing local clean power generation by 25% if the same dollars were focused on carbon impact.

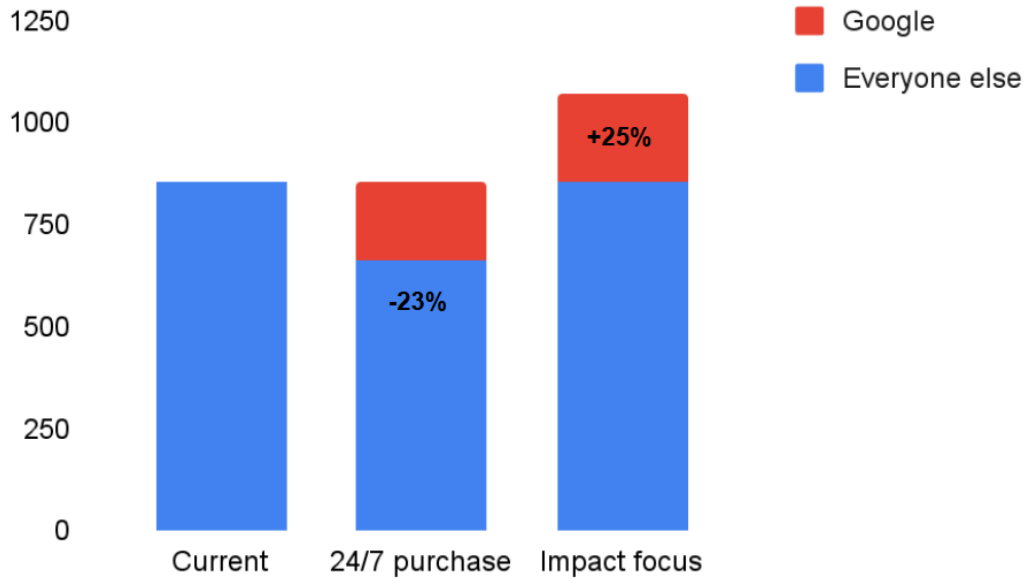

Figure 1: Clean power in Pennsylvania (thousand MWh per month)[9,10]

Hourly matching would prevent projects that cut the most carbon from getting credit

Boston University (BU) is targeting matching all of their power with renewables in order to achieve carbon neutrality by 2040. However, they operate in the 2nd cleanest grid region in the US, where adding more renewables would have relatively limited impact on emissions.[7] So instead of making their green grid a little greener, BU went searching for larger impact.

They found it in South Dakota, the 2nd dirtiest grid region in the US, where they signed a 20-year power purchase agreement (PPA) with the developer of a 48 MW wind farm.[7] BU's commitment got the project built - their guaranteed payments let the developer secure

financing for construction. Since the project came online, it has saved 167,000 tons of CO2 per year, equivalent to 19,000 homes or 53% of BU's total emissions.[7,10]

Under an hourly matching framework, BU wouldn't get credit for this clean power because it isn't in their grid region. But if they had built the same project in their backyard, it would have saved 2-3 times less carbon, equivalent to just 21% of their total emissions.[11] The planet doesn't care if carbon is coming from Boston or South Dakota, it just needs less of it. Hourly matching would have killed the incentive for BU to focus on impact, and cut less emissions.

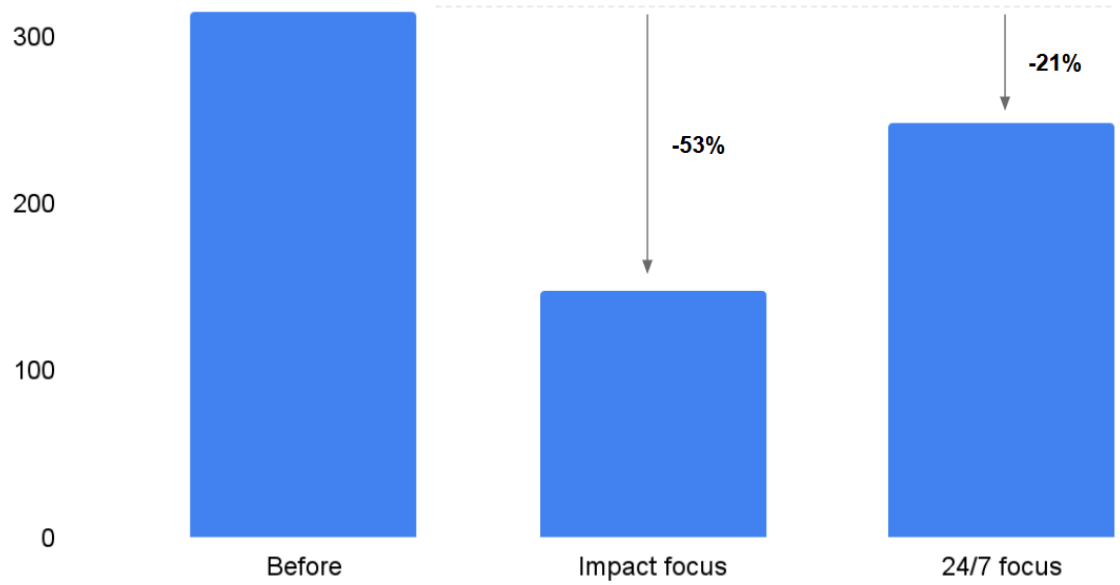

Figure 2: Boston University net emissions after PPA (thousand tons per year)[7,11]

Conclusion

The IEA says that renewables penetration doesn't impact grid operation or require precise planning (e.g., hourly matching) until a grid generates more than 35% of its electricity from variable renewable sources (e.g., wind, solar).[12] In the US, ERCOT and SPP are the only two ISOs above this threshold; globally, only 6% of countries are above.[5,13] The other 5 US ISOs and 94% of countries need to "build baby, build", bringing as much renewable generation online as possible regardless of local power demand. Hourly matching will actively hamper development efforts in these countries, greatly reducing the climate benefits of voluntary corporate clean energy investments, which are more important now than ever.

Hourly matching will create unhelpful competition for limited existing resources as larger corporations snap up cosmetic renewables projects and leave smaller organizations and retail users, who don't have the scale to directly drive new generation, in the lurch. It will also remove any incentive for companies to prioritize larger emissions impact over their own

accounting book. At a time when we should be making it easier to purchase clean energy, hourly matching will make it more complex, expensive, and lower impact..

Sources

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