WHITEPAPER

CORPORATE PPAs & HALF HOURLY MATCHING

The industry edition

ENTRNCE
Spot on power.

Dear industry: Corporate PPAs? It's only a start!

More and more corporate consumers are signing Power Purchase Agreements (PPAs) to prove their energy is clean. But how do these organisations guarantee their levels of sustainability? The answer: they do not really. Industry powerhouses and large corporates should consider timing of generation and consumption to make a proper contribution within their Science Based Targets.

First of all: this article is not about bashing sustainable goals and ambitions.
We fully appreciate the fact that CPPAs are stimulating the development of renewable generation sites all across the world. These agreements provide DER developers guaranteed levels of income and offer corporates a means to drive sustainability goals. It is the great win-win story of the renewable energy market.

However, we do see one element glaringly lacking in the dynamics between large generators and high volume consumers: co-ordination.

In the current energy system, there is no commonly accepted way of proving the origination of power within the half hourly timing of the energy market.
In a world where large consumers seek transparency about their levels of sustainability, we have created an administrative labyrinth (fig. 1) to facilitate origination.

A system which is clearly flawed, and – in some cases – somewhat shady: Renewable Energy Guarantees of Origin, or REGOs for short. There's even a case to say these green certificates are outdated.

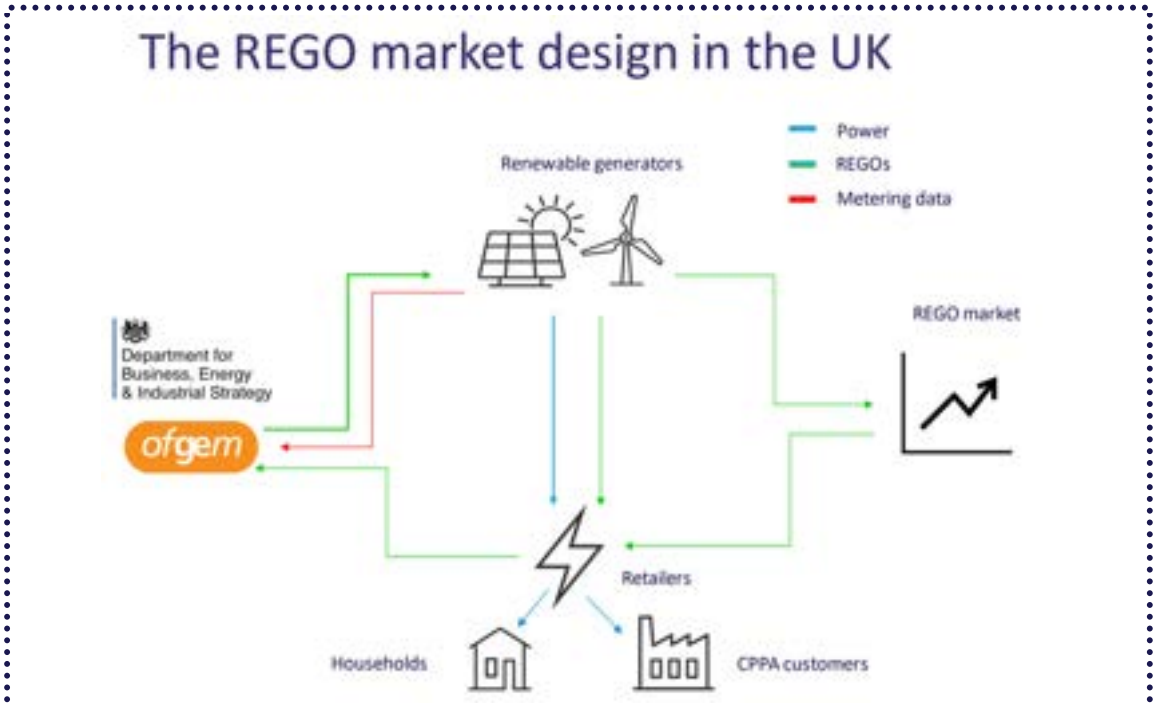

Figure 1: The REGO market design in the UK

"Will my train arrive on time if the wind isn't blowing?"

Scrutiny

To explain why this 'proof' will eventually face scrutiny, an example from The Netherlands jumps to mind. A couple of years back, the national rail company published a press release, boldly claiming Dutch trains ran 100% on domestic wind. To which one sharp commuter answered in a short tweet: 'So will my train arrive on time if the wind stops blowing?'
However obviously humorous, the traveller does touch upon an interesting point. How can trains be powered by wind if there is no wind generation available? Is there a form of massive storage in place? No, not at all.

Dutch trains, like all other forms of high volume consumption, still rely on a chunk of carbon generation to run their operations when renewable assets are not producing enough sustainable power. So, you might be wondering: how do these companies back up their bulky sustainable claims?

Corporate PPAs – the indirect structure

Three types of PPAs

To explain, we must define what types of Corporate PPAs are currently available in the market. There are in fact three: physical (or private wire), virtual (or synthetic, fig. 2) and sleeved variation (fig. 3). With all three types of CPPAs, energy procurement managers depend on annual matching of volumes to demonstrate their levels of sustainability within their green ambitions.

Let us break that down: in the first case, a physical CPPA, consumption is matched with onsite generation: basically, the metering delta between generation and consumption is compensated through a retailer, mostly backed up by green certificates.

If the generation assets – predominantly wind and solar – are not physically connected to the consumer, two ways of setting up a power agreement remain: the virtual PPA and the sleeved PPA.

A virtual CPPA is nothing more than a financial agreement: the utility sets up a PPA with the generator and an energy contract – like any other – with the consumer. The only physical trade that takes place are the volume based green certificates to cover for consumption, bought directly by the consumer from the generator.

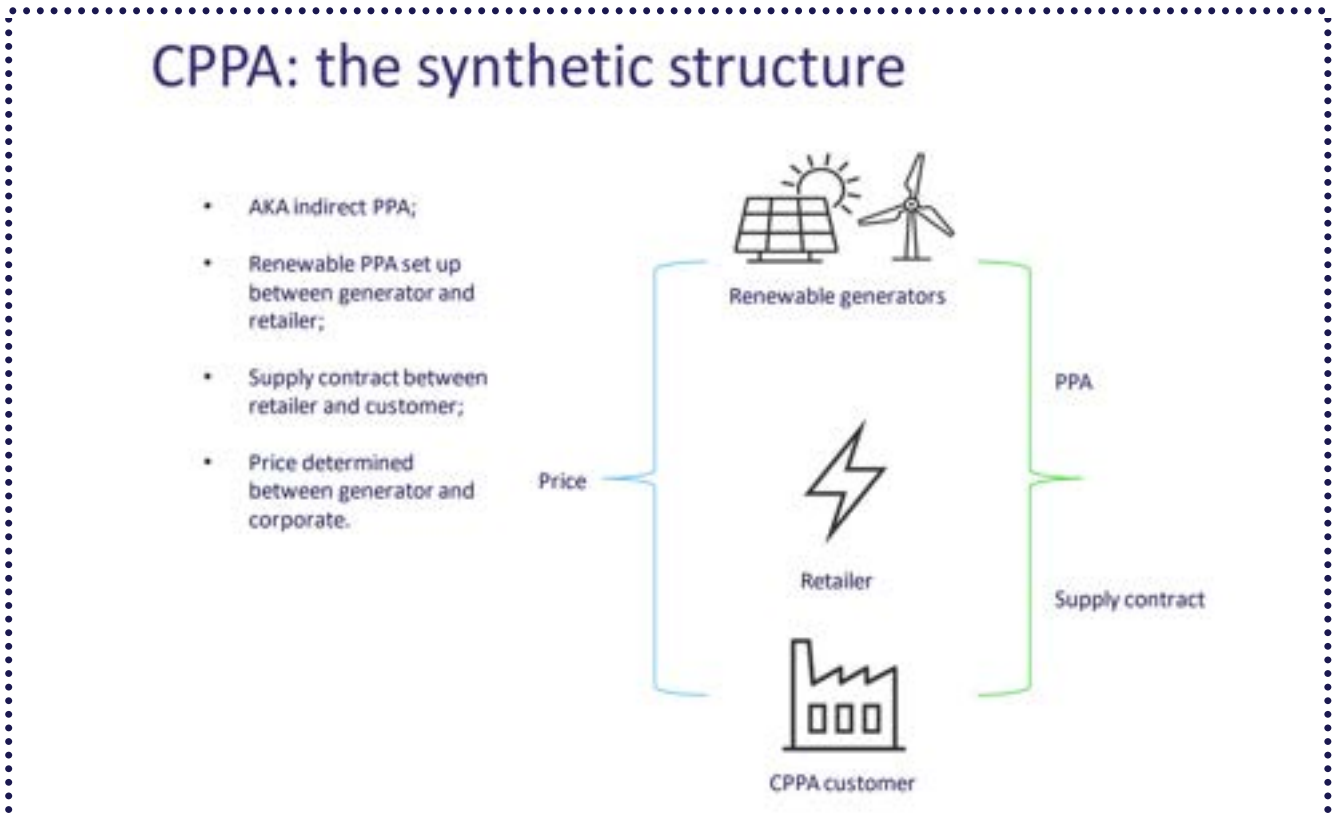

Figure 2: The synthetic structure

Corporate PPAs – the direct structure

Another way of setting up a CCPA is the sleeved agreement, the most common variety in the UK. It is similar to the virtual PPA, but the sleeved version is set up between the generator and the buyer. The intermittency of the source's output is managed by the utility to align optimally with the consumption of the buyer; this service is compensated for through a sleeving fee.

In all three cases, a level of – let us put it mildly – 'creativity' is involved in the administration.

Hard line critics will call this 'green-washing', a tricky way of covering up for times when no sustainable generation was available, and companies resorted to carbon sources to keep operations running.

Trading certificates as commodities has led to some dodgy situations all across Europe, with Norwegian hydro REGOs proving the sustainable ambitions of Dutch corporates in some cases... How 'virtual' or 'synthetic' can you get?

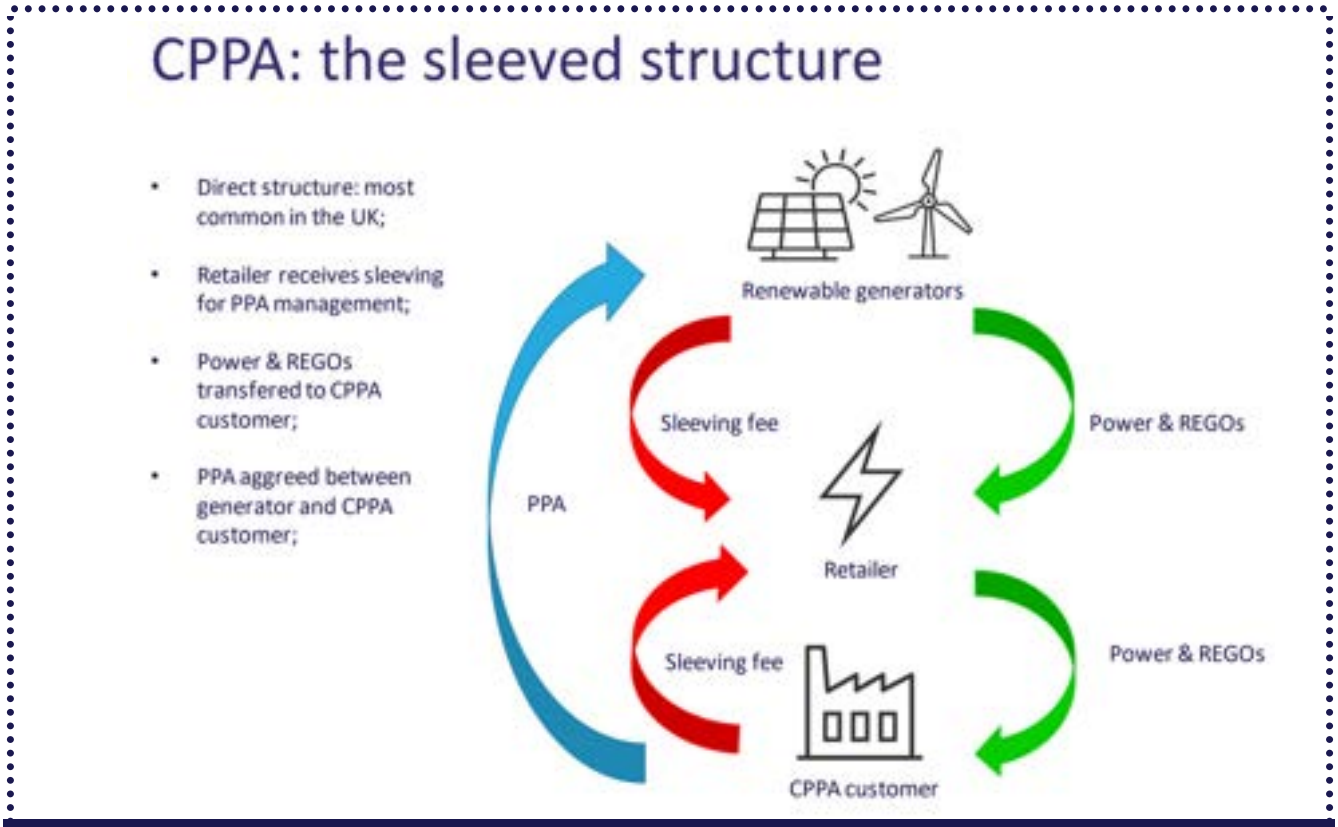

Figure 3: CPPA: the sleeved structure

Greenwashing corporate PPAs? We need to do better!

Despite these creative set-ups, the more ambitious corporate clients are slowly starting to demand increasingly advanced insights into their consumption, at a more defined granularity. And for good reason: one of the keys to success in this transition is matching demand to less predictable - and more challenging to manage – renewable power outputs.

Let's just go back to the mentioned rail operator example. A relatively high level calculation reveals that only half of the contract term consumption can be matched with the output of a wind source.

Questions therefore can be raised about how sustainable the actual usage is and how these contracted corporate PPA volumes are actually lowering carbon emissions.

CPPA clients must realise they hold great responsibility in bringing the transition forward. We can't influence the weather: the main challenge is not one of costs and volumes, but one of timing: using power when it is readily available, instead of driving a ramp-up of carbon volumes to answer demand. As we move towards a sustainable future, the timing of consumption is becoming more valuable than the actual volumes we consume.

In time, the more innovative retailers will switch towards a service-orientated approach to create customer value and corporates should demand they do exactly that. A utility's value should become more advisory in the sense of shaping the renewable technology landscape to fit their clients' demand. And, on top of that, to advise their corporate clients about multi-technology PPAs and flexibility in their power demand.

The evolution of the corporate consumer

Consumers on the other hand, hold a certain responsibility in asking their retailers the right questions about their renewable ambitions.

For example: how should my CPPA be shaped to match my demand? Insights into how profiles line up can help in choosing a direction towards a more balanced energy mix, but can also open up discussions about demand response and flexibility.

Once the limits of that energy strategy have been reached, obviously storage can enter the mix to optimise even further.

Looking at the evolution illustrated in Figure 4, most corporates are slowly finding ways to move from phase 2 to phase 3. CPPAs are a booming business, and slowly the industry is starting to ask questions about the timing of origination.

For now, we see six phases in the energy awareness of high volume corporate consumers:

Evolution of the corporate consumer

Basically, we see six phases in the evolution of the high volume consumer:

Phase 1. Long term fixed pricing contracts – commodity era

Phase 2. Focus on costs & energy efficiency – owned generation & efficiency measures

Phase 3. REGO driven energy portfolios – CPPA era

Phase 4. Matching generation to consumption – Half hourly matching insights

Phase 5. Optimising energy mix, adding flexibility – Storage in the mix

Phase 6. Access to energy markets – large corporates trading independently

Figure 4: The evolution of the corporate consumer

To remain competitive in the CPPA arena, market players will require a more advanced administrative system to meet customer demands.

Matching is the next step

But how can we prove corporate consumption is matched with a renewable source when the light is switched on? How can consumers use science based data to align consumption and renewable generation, if we remain dependent on annual, volume based statistics? How do large corporates make a data driven switch to actually make a difference?

Well, one thing's for sure: greenwashing and trading certificates as financial commodities is not paving the way towards an optimised future energy system. Zero carbon is not an issue of clever contracts and administrational acrobatics. We need action. If high volume consumers are to make an impact, a more direct approach is required. And that all starts with insights into how power usage is being aligned to the output of renewable assets, on a real-time basis (fig. 5).

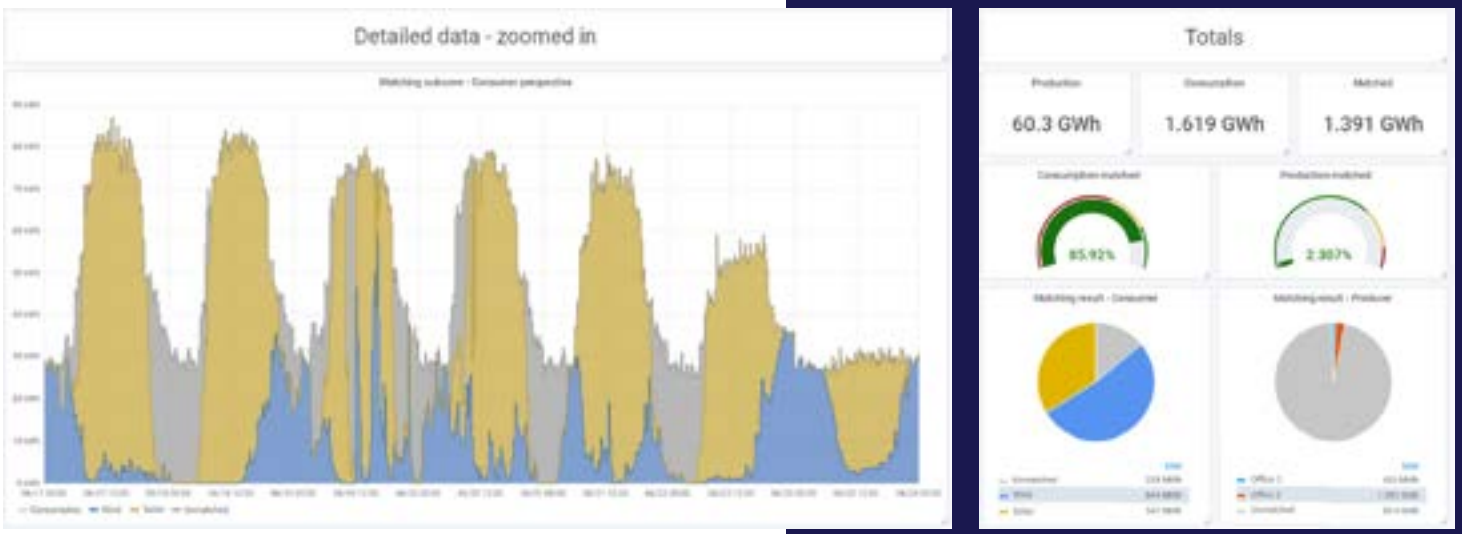

Figure 5: Matching example from ENTRNCE platform

Half hourly matching

At ENTRNCE, we call this 'Half hourly matching CPPAs'. In an ever growing market, corporates are showing different levels of ambition. We are challenging industry leaders to consider their role in the transition and to look beyond corporate PPAs. To see them as a good start, but most definitely not the end game.

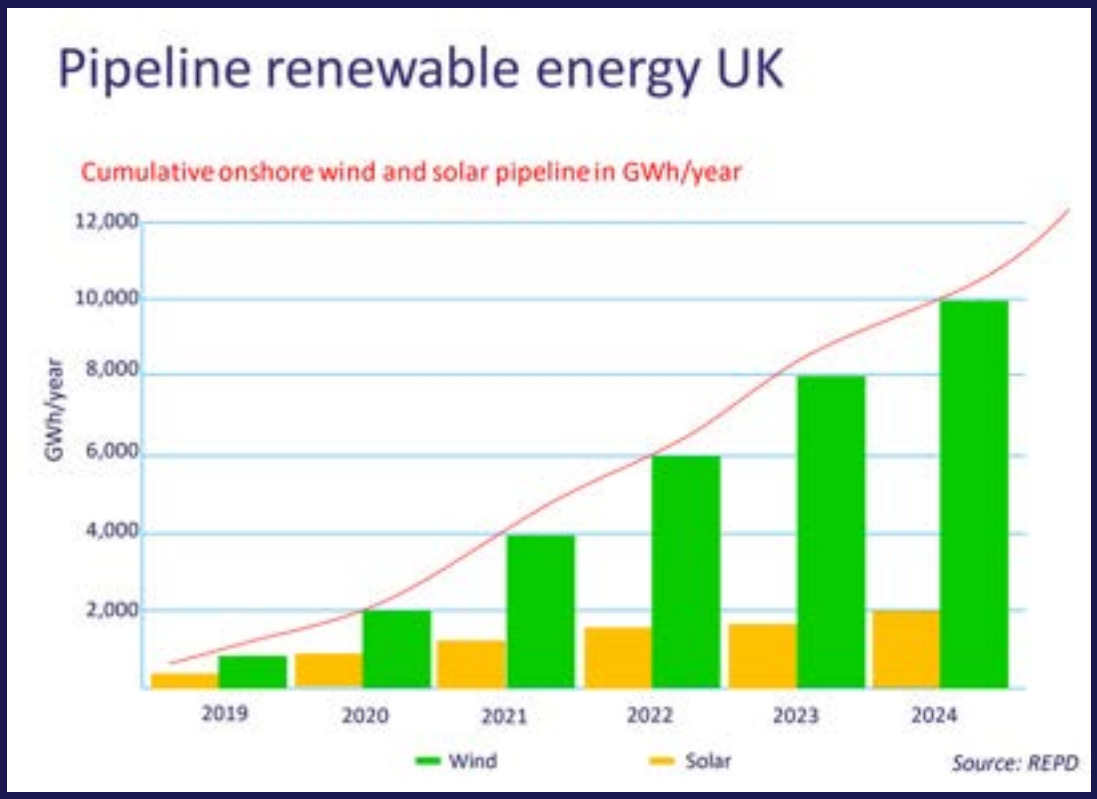

Figure 6: Pipeline renewable energy UK

Let's meet!

Can we possibly help you towards a phase 4 level corporate consumer? We are keen to take high volume consumers on a journey with us towards an optimised sustainable energy portfolio and – eventually – more independency in energy management.
By all means, feel free to drop us a line.

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