WHITEPAPER

CORPORATE PPAs & HALF HOURLY MATCHING

Balancing consumption and generation to meet customer demands

ENTRNCE
Spot on power.

Seeking transparency in sustainability

More and more large-scale corporate consumers are signing Power Purchase Agreements (PPAs) to prove their energy consumption is clean. But how do these organisations guarantee their levels of sustainability?

The answer: they do not really. Greenwashing is still very much the norm and is slowing down new customer propositions. Retailers need to do better for their high volume clients.

In the current energy system, for retailers, 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, which is clearly flawed, and – in some cases – somewhat shady: Renewable Energy Guarantee of Origin certificates (in short: REGOs).

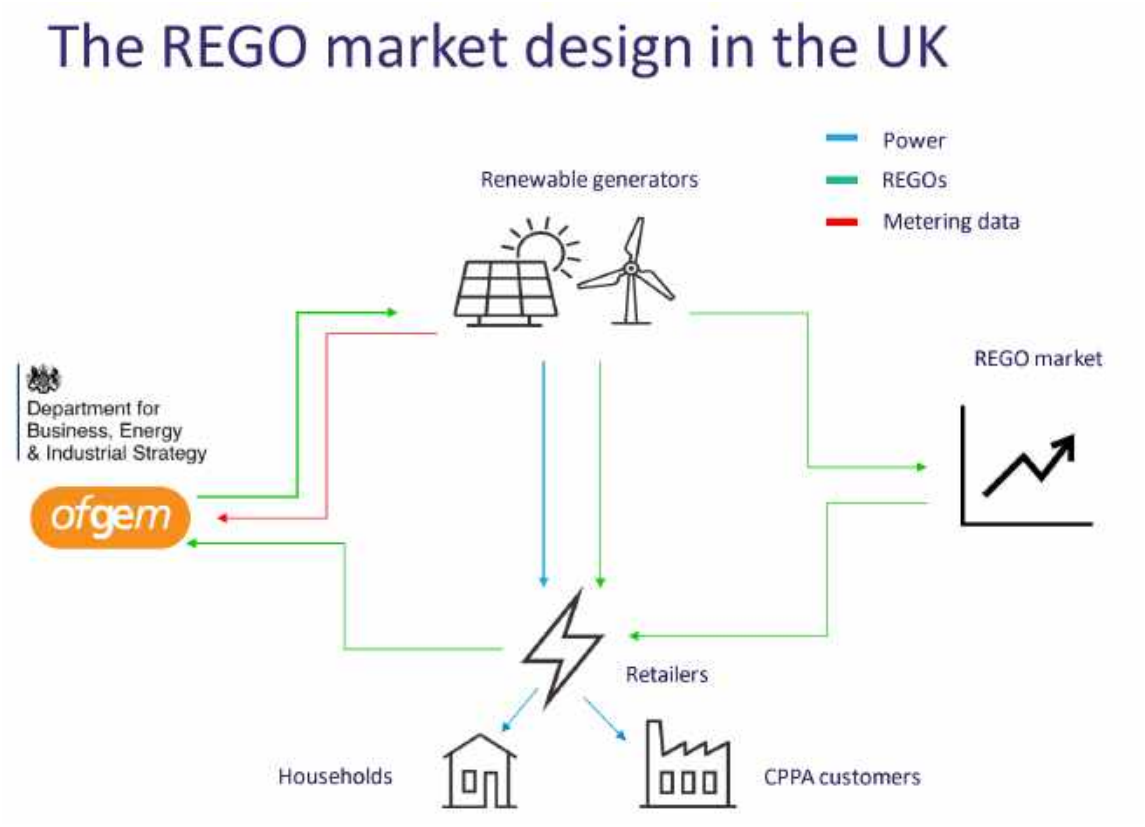

Figure 1: The REGO market design in the UK

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

Scrutiny

To explain why this 'proof' faces scrutiny, an interesting example jumps to mind. A couple of years back, one of the Dutch rail companies published a press release, boldly claiming Dutch trains ran on 100% domestic wind. To which one sharp commuter answered in a short tweet: 'So will my train arrive on time if the wind isn't 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 for utilities 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 for their high volume clients.

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 REGOs to cover for consumption, bought directly by the consumer from the generator.

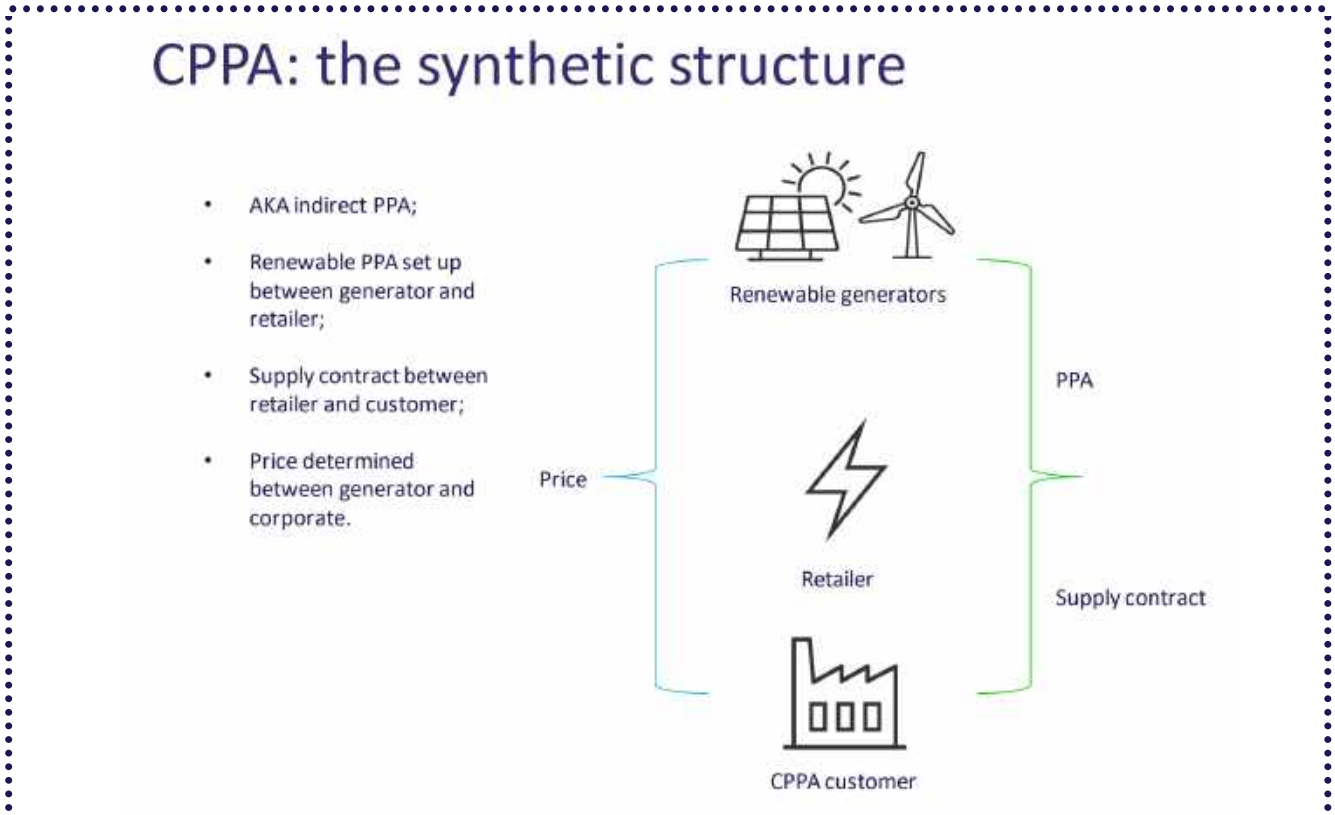

Figure 2: The synthetic structure

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 this green administration.

Critics will call this 'greenwashing', a tricky way of covering up for times when no sustainable generation was available, and companies resorted to grey energy to keep operations running.

This has led to some dodgy situations, with Norwegian hydro REGOs proving the sustainable ambitions of Dutch corporates in some cases…

How 'virtual' or 'synthetic' can you get?

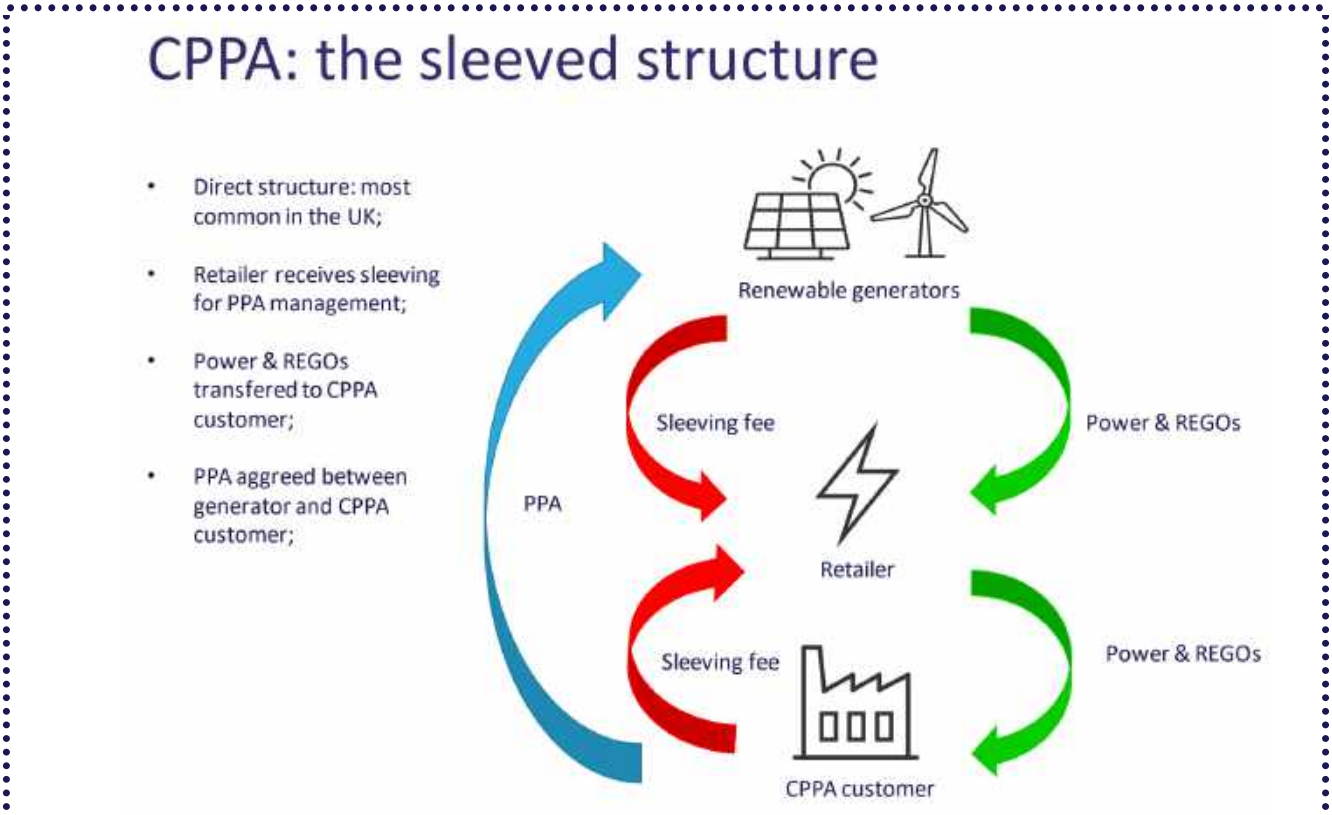

Figure 3: CPPA: the sleeved structure

Greenwashing corporate PPAs? We need to do better!

We need to do better, and clients are demanding more transparency. As retailers move towards a system that is supported by renewables, managing intermittency will become key: a more honest approach towards origination is needed. That means traditional back offices must be updated or replaced.

Fierce competition has driven commodity margins to an all-time low; analysing data and offering sustainable advice is what the future holds for utilities and their clients. And if we dare to look even further, we feel retailers will eventually need tools to facilitate customised propositions in a system where ongoing transactions are taking place in a fully distributed market (fig.4).

Evolution of the retailer

Basically we see five phases in the evolution of the retailer:

Phase 1. Fixed pricing – commodity era (until 2010)

Phase 2. New sustainable models – CPPAs backed up by REGOs (2010-2020)

Phase 3. Matching generation to consumption – Half hourly matching models (from 2020)

Phase 4. Service orientated propositions – Adding more renewable assets to CPPA proposition (2020-2025)

Phase 5. Managing real-time transactions – MPAN-2-MPAN transactional approach (from 2025)

Figure 4: The evolution of the retailer

Looking at the evolution illustrated in figure 4 most utilities are slowly finding ways to move from phase 2 to phase 3. They have to, as their corporate clients are starting to demand a more accurate granularity to these insights. Unfortunately, most retailers are not yet set up to provide these insights. In time, retailers will switch towards a more service orientated customer approach to create value.

As we move towards a sustainable future, the timing of consumption is becoming more valuable than the actual volumes we consume. The main challenge is one of timing: using power when it is readily available, instead of ramping up carbon volumes to answer demand.

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 retailers prove corporate consumption is matched with a renewable source when the light is switched on? How will utilities use data to align consumption and renewable generation, if we remain dependent on annual, volume based REGO statistics? How do retailers make a data driven switch to remain in business?

One thing's for sure: greenwashing and trading certificates as financial commodities is not paving the way towards an optimised future system. To remain competitive in the power arena, market players will require a new, transparent, and more advanced administrative system to meet customer demands. A data warehouse that can prove – at an individual metering point level – how power usage is being aligned to the production of renewable assets, on a real-time basis (fig. 5).

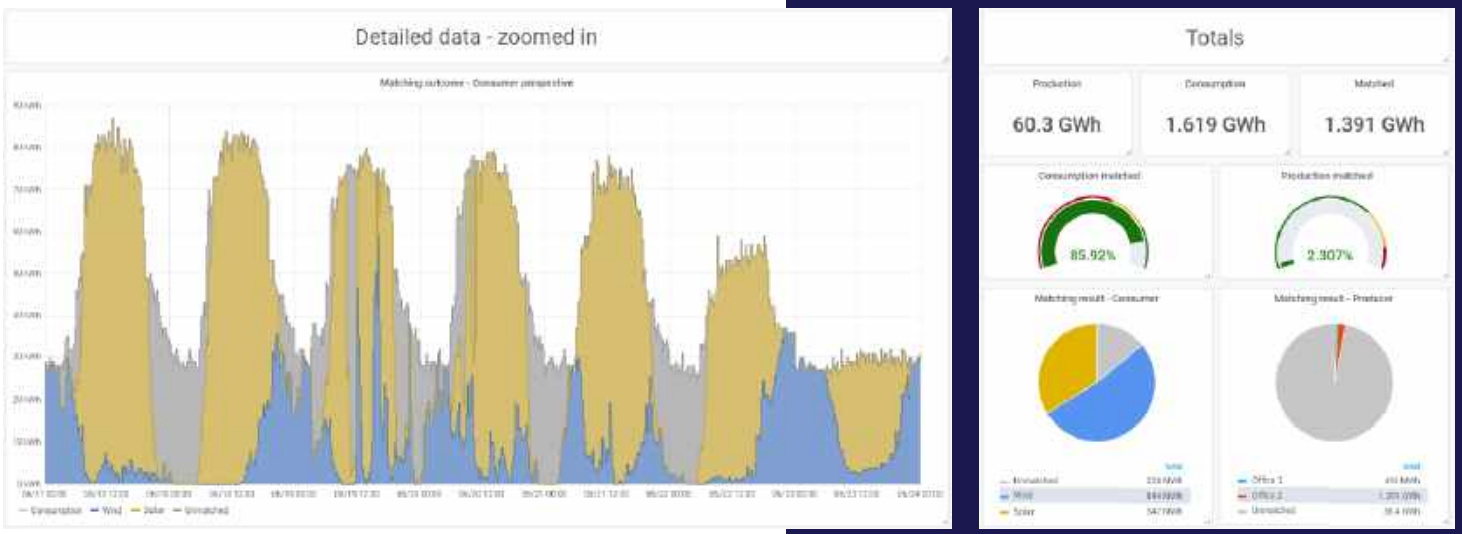

Figure 5: Matching example from ENTRNCE platform

Half hourly matching

At ENTRNCE, we call this ‘Half hourly matching CPPAs’. In a market that is expected to present an 8TWh business opportunity for RE100 companies within the next five years, retailers face stiff competition in gaining a piece of that pie. A large chunk of the onshore and wind pipeline (fig. 6) will be contracted through CPPAs.

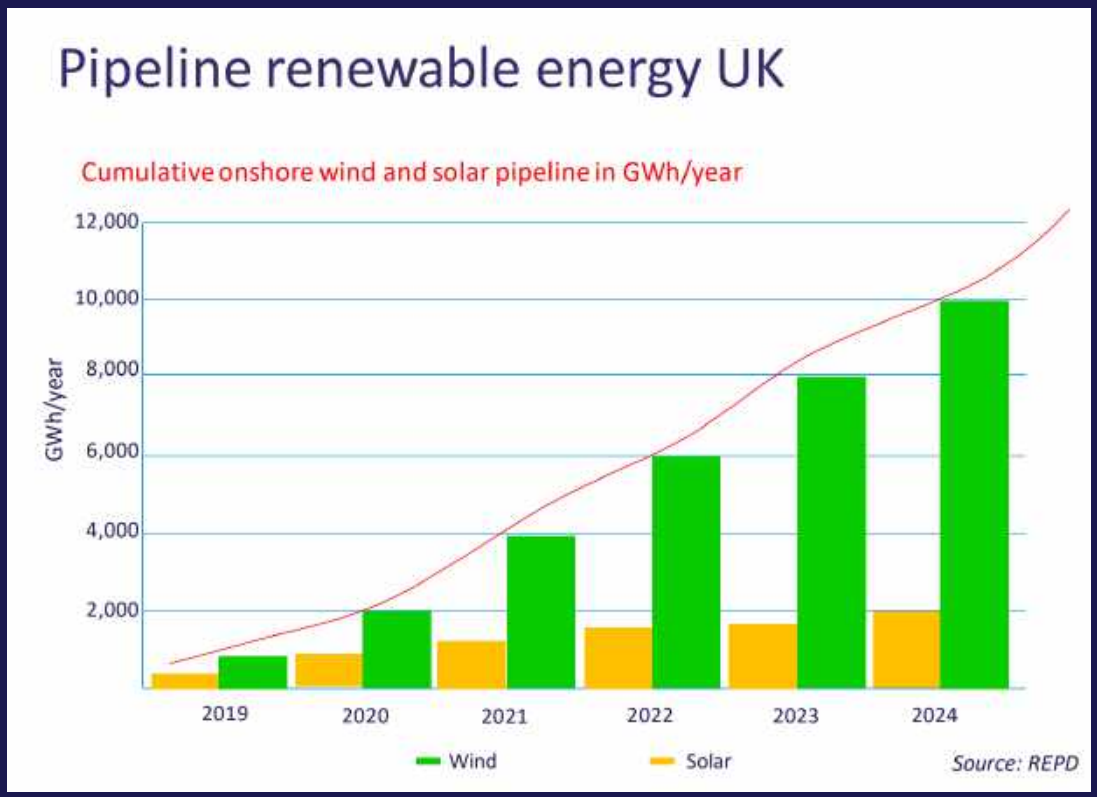

Figure 6: Pipeline renewable energy UK

Let's meet!

Would you like to know more about how our algorithms work towards a more balanced and honest energy system? Or, more importantly: are you looking for a competitive edge by offering your high-volume clients more transparency and insights into power origination? Can we possibly help you towards a phase 3 utility? By all means, drop us a line.

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