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Corporate PPAs

Corporate power purchase agreements (**CPPAs**) seem simple and desirable. Desirable to the customer (a mid-to-large commercial enterprise) that wants to be able to point to a specific renewable source of power that 'belongs' to it and say *that* wind farm or *that* solar farm supplies it.

This part of the arrangement might be simple. Forever Blue Limited (**FB**) produces renewable power and Vast Enterprises Limited (**VEL**) wants to buy it. They contract for a price and the FB output goes to VEL under a CPPA.

Simplicity stops there. FB might be able to sell to VEL – if they are adjacent or on the same site. The moment they are on different sites and FB needs to use the distribution network to transport power to VEL, another party enters the arrangement: the supplier. Transport of electricity across a distribution network requires a supply licence, with all that entails.

That particular difficulty can readily be overcome. Both FB and VEL enter into a sleeving agreement with Supplier Limited (**SL**).

So now there are two separate agreements: there is the CPPA between FB and VEL and there is a sleeving agreement between FB, VEL and SL.

There are different ways of approaching a sleeving agreement, but what is intended is that FB sells its output to SL which then owns the power and sells it on to VEL at the price in the CPPA plus a nominal sleeving fee.

Suppliers are keen not to handle the money VEL pays FB (it must count as income, attract VAT and increase the rate of corporation tax) and so all a sleeving agreement will often do is require VEL to pay FB, if it even does that. Since SL is, in regulatory theory, the owner of the output being sold, it ought

to buy from FB and sell to VEL. It gets as close as it can to doing it without a price being paid. It keeps the supply and payment off its books.

Despite the murkiness of the arrangement, that isn't the main source of the complexity that CPPAs involve.

VEL also needs an ordinary supply contract. That contract will be for a year, or longer. The contract stipulates the price to be paid for a specified amount of power, subject to a cap and floor. My experience of cap and floor is 20%: the end-user can take up to an extra 20% or can drop consumption by 20%. It could be lower, but I have yet to come across it.

Why is there a cap and floor at all; why can't SL just be more flexible? When SL signs up VEL, it buys its supply ahead and puts VEL into a portfolio of similar customers over which it can spread its risk, but that risk is capped.

If VEL on a given Monday uses 35% more power than its contracted XMWh, on that Monday SL has to buy some amount of extra power, maybe the full 15%, that it hadn't contracted to buy. Despite any risk management and offsetting SL can do over a whole portfolio of customers, since it didn't know that VEL would use that extra power, it will have to pay to buy it and so will charge VEL the wholesale price as a pass-through – that price could be high.

This may not sound simple, but it is comparatively simple until a sleeving agreement for intermittent power and a standard supply agreement come together. And here lies the fundamental complexity – one might think the impossibility – of VEL's need to keep its costs low, risk free, utterly predictable and to 'own' or be able to point to 'our' renewable generator that supplies us.

VEL wants to buy all FB's output. At the same time, VEL is contracted to buy electricity from SL ***and*** to stay within the cap and floor. How does it manage?

FB's output is solar. A whole solar farm in the summer could produce for much of the time as much as, or maybe more than, VEL can consume. All well and good for the solar farm, but what about SL? SL, whose profit on a good day is

2%, has to dispose of most or all of the electricity VEL is contracted to buy from it and now doesn't need. If SL makes a loss on that sale of power, VEL pays. How much? It depends on the market price on the day which, in summer, will be low, so the loss could be not insignificant.

Now factor in the times of day when VEL wants to use power. It is possible that its demands are mainly later in the day. If so, it will be paying for solar power it can't use and is also, perhaps, breaching the floor of its supply contract (taking less than the 20% floor). As a result, it may be buying (solar) power it can't use while paying more to SL, because SL is having to sell at a loss the power VEL doesn't use.

A contract with a windfarm isn't so extreme, just because wind intermittency isn't quite so intermittent, although predictability has its own risk. Nonetheless, there is a cap and floor to be considered and the variability in price to be paid.

If there were 'a' price to be paid rather than the price available at any given time, VEL might be able to determine the cost of the risk. It *could* do that, but only after some hefty modelling and many, possibly wrong, assumptions (who foresaw the Ukraine war?). What that modelling is unlikely to be able to do is provide comfort about the cost of the risk over ten years – the average term for a CPPA.

So what should a company like VEL do if it both wants to point to a renewable source and say 'that's ours' and to keep both its risks and its costs pretty even?

What if SL bought FB's power and sold it on to VEL, not via a sleeving agreement but as part of its ordinary supply contract? There is still a clash between intermittency and firm supply and SL will still find itself needing to buy or sell to meet VEL's demand, which means VEL's bills are still variable, even if the degree of variability is lower. In this case, SL might not offer VEL an 'ordinary supply contract', but buy and sell it power purchased on a shorter-term basis. Price certainty, the most fundamental of VEL's wants, is now gone.

Some say the 'system' is at fault, that if there were multiple suppliers to a site, the clash between a sleeving and a supply agreement could be overcome.

That misses the point. SL agreed to supply XMWh to VEL and to take a 20% risk that VEL will consume more or less. It will hedge for that 20%. If VEL has two – or multiple – suppliers, each of them will do exactly the same: they each want to sell to VEL X amount and they each agree to take a portfolio risk (20%,10%, whatever). None of them is likely to agree to take no variation risk.

The source of the problem is obvious – intermittent output supplied to an end-user as a (theoretical) physical product runs up against a firm physical supply contract, whatever level the cap and floor. The two contracts only work in tandem without hitch if the amount of intermittent power under the CPPA is sufficiently small as a proportion of VEL's overall usage to ensure the cap and floor is never breached (or is breached only infrequently) or if the overall contract is so valuable to SL that it is worthwhile for it to assume additional risk.

As an alternative to a 'physical delivery' CPPA, there is a 'swap' version (a virtual or synthetic CPPA). Under one of these arrangements, VEL buys FB's output and sells it into the market at whatever the prevailing price rather than purporting to consume it. VEL can still say 'that's our site'. What it can't say is that it's using power from that site.

But VEL can't really say that it's using FB's output even with a physical delivery CPPA. FB's electrons aren't channelled to VEL's sites; the electricity it uses is whatever is closest to it on the system. VEL *does* say it uses FB's output, but it's a marketing fiction and nothing more.