



# Accelerating the UK CPPA market



by **Schneider** Electric

**An important step  
towards Net Zero**

## Accelerating the UK Corporate Power Purchase Agreement Market – an important step towards Net Zero.

**A holistic approach is needed to accelerate cost-effective decarbonisation, moving away from the disconnected and siloed approach taken by governments to date.**

There are **three** key barriers in the UK's Corporate Power Purchase Agreement (CPPA) market:

- 1 Investor Confidence** – The UK Contracts for Difference (CfD) mechanism provides certainty for investors but with CPPAs the organisation's credit rating is key – which is a barrier to smaller enterprises.


- 2 Industry Complexity** – In the UK market complexity can increase costs and prevent smaller projects being realised through CPPAs.


- 3 Grid Connection** – there are currently over 400GW of new renewable projects waiting to connect to the grid.



**Some simple changes to the UK market could have a big impact on our decarbonisation journey:**

- 1 Reform the CfD mechanism.**
- 2 Simplify sleeving and local supply arrangements.**
- 3 Tackle grid connection issues.**

## Summary

- The UK needs to build 16GW of renewable capacity a year to achieve Net Zero Targets.
- Corporate PPAs leverage the market and business capability at a low cost to taxpayers.
- Reform of the CfD mechanism would better support CPPAs, unlocking more renewable projects without a large burden of cost to government or taxpayers.
- The CfD reform would be simple and easy to deliver and would give a level playing field for projects both with and without CPPAs to boost the deployment of onshore wind and solar renewable energy projects.
- Changes to the energy market would allow small projects to link to small customers, requiring no further support or subsidy, and larger projects to easily transfer power to corporate supply agreements.
- Grid connection issues need to be tackled urgently to allow projects to be built and connected.



## Introduction

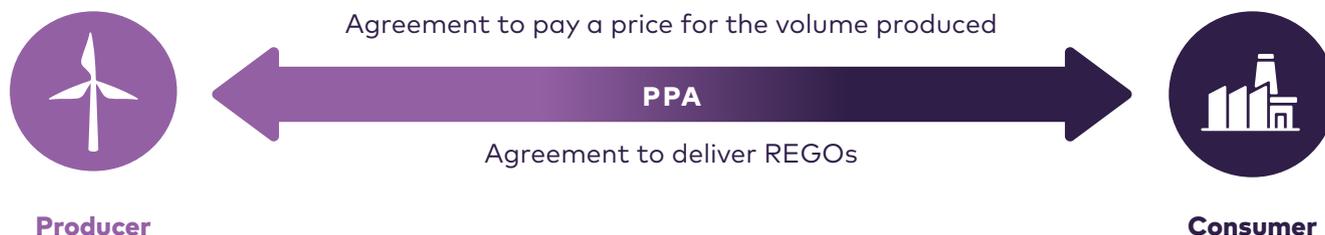
**The Corporate Power Purchase Agreement (CPPA) market is a key part of decarbonising the UK's electricity supplies in a timely and sustainable way.**

At this time there is a disconnect between the siloed way Governments have been looking at accelerating the decarbonisation of the electricity grid and a more holistic approach, which is needed to deliver cost effective decarbonisation.

Corporate PPAs can play a large part in delivering new renewable generation in a way that does not

cost governments or taxpayers as much as the current subsidy schemes – yet in Department of Energy Security and Net Zero (DESNZ's) REMA consultation the CPPA market is largely left alone. We estimate that the CPPA market could cover approximately 60% of the predicted shortfall in renewable energy needed to meet net zero targets.

As outlined in previous reports<sup>1</sup>, we showed adding more renewable electricity generation on the UK Grid system is needed to meet Net Zero targets by decarbonising electricity supplies.



## The Drivers

**The UK had set an ambitious target to reduce UK carbon emissions by 68% by 2030 compared to 1990 levels.**

The incoming Labour government want to accelerate our progress to 100% renewable by 2030. However research published by engineering company AtkinsRéalis has forecast negative consequences if the UK's annual energy build rate does not increase. They have calculated the UK

needs build at least 15.5GW per year to reach net zero power by 2050, yet in 2022 only 4.5GW connected was to the national electricity grid<sup>2</sup>.

In 2023 we had new wind records including on 20 April the UK achieved the highest ever solar generation record at 10.971GW<sup>3</sup> and on 18 September the UK grid achieved the lowest ever carbon intensity of 27 gCO<sub>2</sub>/kWh<sup>4</sup>, yet 50% of the generation mix is still not zero carbon.

<sup>1</sup> <https://www.zeigo.com/2024/03/25/how-do-we-incentivizing-new-renewables-in-the-uk/>

<sup>2</sup> [New study warns of low UK energy build rate ramifications \(current-news.co.uk\)](https://www.current-news.co.uk/news/new-study-warns-of-low-uk-energy-build-rate-ramifications/)

<sup>3</sup> <https://www.nationalgrideso.com/news/britains-electricity-explained-2023-review#:~:text=In%20addition%20to%20new%20wind,and%201%25%20from%20coal%20stations>

<sup>4</sup> <https://www.nationalgrideso.com/news/britains-electricity-explained-2023-review#:~:text=In%20addition%20to%20new%20wind,and%201%25%20from%20coal%20stations>

The Digest of UK Energy Statistics<sup>5</sup> for 2022 shows that UK energy production was 214 TWh. For 2023 the UK consumed around 317TWh of electricity<sup>6</sup>. Working on the basis that the 292TWh is a broad indicator of production, and that 50% is zero carbon now, if we assume a further 50% needs to be decarbonised by 2030 it means we need to deliver another 146TWh of zero carbon energy generation. This ignores imports of electricity which, irrespective of source, are not currently treated as renewable.

146TWh is the equivalent of 146,000 MW of solar or 48,000 MW of wind generation, so in the next 5 years we need to build 29GW of solar or 9GW of wind a year, (assuming we still import - we would need to build more if we want to reduce reliance on "brown" energy via the interconnector – or accept EU GoOs on imports). There are project lead and construction times to consider, and increased energy use from EV and electrification of processes – so we need to accelerate.

In their report<sup>7</sup> DNV state that despite a strong start several years ago, the UK's progress on the energy transition appears to be stalling.

## Supply vs Demand and the case for CPPAs

**The UK demand for renewable power is high as companies make environmental commitments and have clear sustainability strategies.**

Corporates need to ensure they maintain shareholder value and decarbonise to keep pace with their competitors. Smaller businesses are positioning themselves sustainably for customers. Companies are looking to source renewables (due to public/consumer demand) whilst trying to balance the current costs of energy, the high prices of UK REGOs, future security and risk management.

Technology	% of Generation Mix
Wind	29%
Solar	5%
Hydro	2%
Nuclear	14%
<b>Zero Carbon Total</b>	<b>50%</b>
Biomass	5%
Gas	32%
Coal	1%
Imports	11%
Storage	1%
<b>Total</b>	<b>100%</b>

Source: National Grid ESO - <https://www.nationalgrideso.com/news/britains-electricity-explained-2023-review>



<sup>5</sup> <https://www.gov.uk/government/statistics/energy-chapter-1-digest-of-united-kingdom-energy-statistics-dukes>

<sup>6</sup> <https://www.gov.uk/government/statistics/electricity-section-5-energy-trends>

<sup>7</sup> DNV report: UK will miss net zero by 2050 target (current-news.co.uk)

Sadly, renewable energy supply seems unable to keep up with this demand and there are several influencing factors. Delays in getting grid connections are stymying projects at an early stage. With no subsidy (apart from UK CfD scheme) available, renewable developers need to contract directly with suppliers and corporates to have income certainty to leverage investment.

When looking to suppliers in the UK, there seems to be limited appetite for long term PPAs to drive new build projects. This is probably because suppliers are uncertain about future power prices and their own portfolios and demands so find it challenging to commit to the fixed PPA prices needed by developers for the longer term.

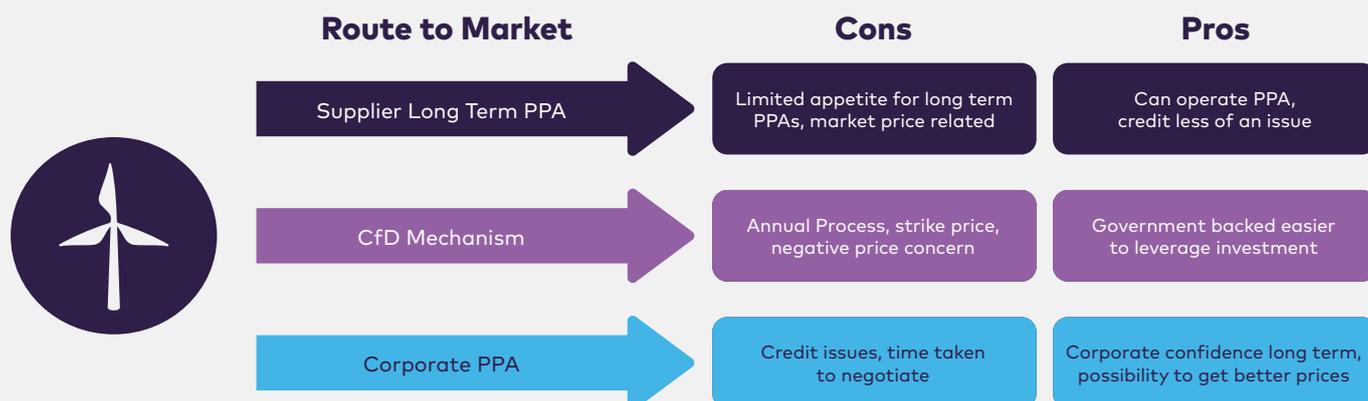
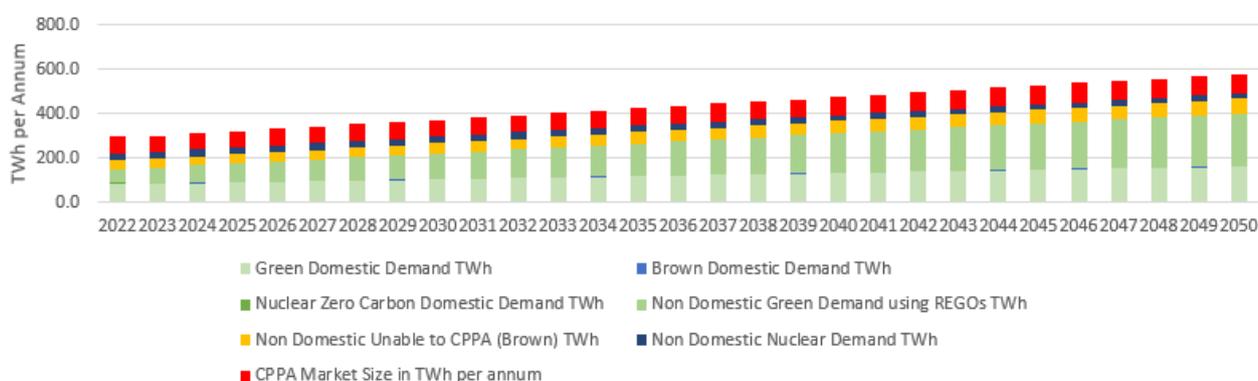
Our own research has found that only one or two UK suppliers could deliver some element of fixed price over a 10 year horizon – with the remainder delivering short term fixed prices and longer term floating prices. Such floating prices do not have the certainty needed for an investor.

Corporates are better placed to be able to make that commitment, as they know their needs longer term. However, corporates need to have an investment grade credit rating if the renewable developer is going to be able to leverage investment.

There are also limited large investment grade companies. If we are to unlock the potential of Corporate PPAs then we need to move to the next tiers of smaller companies. These do not have investment grade credit and may need to collaborate to match the output of a renewable project.

The graph below assumes c 9TWh per annum new deployment (4.5GW mixed wind and solar) of renewables year on year. It takes assumptions from National Grid on demand growth and extrapolates current positions for domestic and non-domestic split.

### Estimated Electricity Market Split



The graph above shows that by 2030, the UK's generation mix will only still be around 57% green. To achieve 100% zero-carbon generation, we would need to build 16GW of new generation (roughly 32TWh of new production) on average every year. Around 30TWh of imports also need to be decarbonised, although this would probably only need an extra 1.5GW capacity each year.

The graph shows a "gap" in the availability of renewables for commercial organisations of on average c. 160TWh per year. Approx 80TWh per annum of this could be unlocked in a CPPA Market. The gap may be acceptable in the short term but unless renewable deployment is speeded up then demand for renewable electricity will massively outstrip supply. This means a zero-carbon grid cannot be a reality.

Alongside all of this is the fact that the UK is a very attractive prospect in the CPPA market<sup>8</sup> and there is a good supply of projects in the UK. Indeed there are 410GW of renewable generation projects queuing to get onto the grid (267GW scheduled after 2030). Thus all the green energy we need is tied up waiting to be financed, built and connected to grid. Today there are more projects than buyers, meaning that the recent sellers' market (driven by high energy prices) has swung in favour of buyers – with tenders seeing good levels of responses.

### 16GWh of new Renewable Capacity is needed each year until 2030.

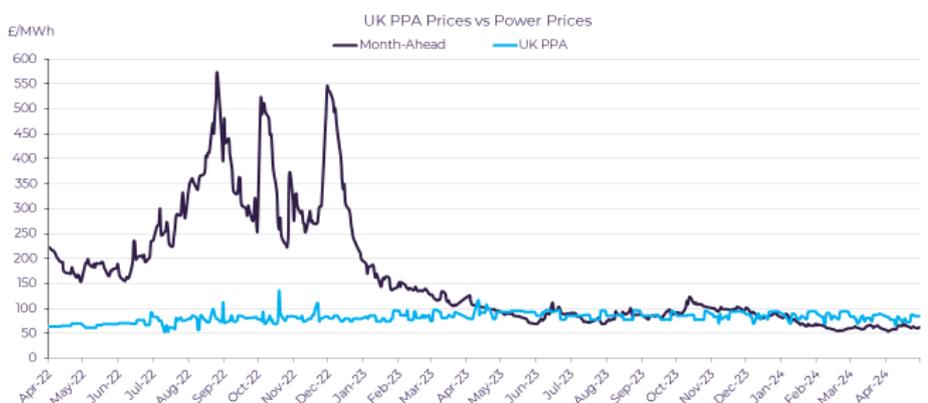


There are a mix of projects of differing sizes available with a range of prices. The problem with smaller projects can be that the costs and complexities around sleeving can make them unviable for small organisations. Grouping together can be an attractive prospect for smaller organisations (multi-buyer PPAs) but these have their own issues and challenges.

Power prices are stabilising again, which means that the costs of balancing a PPA should start to come down from the high levels caused by expensive and volatile energy prices.

**“ The complexities of the current UK market structure disadvantage smaller organisations when seeking to benefit from a PPA for renewable energy. ”**

### UK CPPA vs. Power Prices



5 / © 2024 ZEIGO BY SCHNEIDER ELECTRIC

<sup>8</sup> [https://www.ey.com/en\\_gl/insights/energy-resources/four-factors-to-guide-investment-in-battery-storage#chapter-breaker-913170b4dc](https://www.ey.com/en_gl/insights/energy-resources/four-factors-to-guide-investment-in-battery-storage#chapter-breaker-913170b4dc)

CPPAs are still a good hedge against future energy price volatility. The geopolitical situation globally has been volatile in recent years and there has been (and some would say remains) significant chances for further instability – with a knock on to gas and electricity prices.

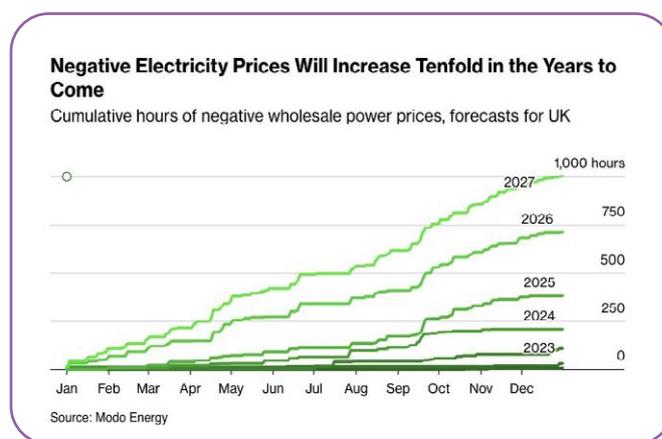
Mitsubishi Electric’s survey “Energy on an Industrial Scale”<sup>9</sup> showed that in January of this year, 91% of the interviewed senior decision-makers working in UK manufacturing were concerned about energy price security. The same research also found that 85% of those asked felt that net zero was important to their business but only 35% were currently implementing it. High prices have not only impacted profitability but have delayed net zero actions and investment (people and equipment).

Corporate PPAs are a way of gaining an element of price certainty that organisations desire in their electricity purchasing portfolio, as well as taking an important step towards net zero.

UK demand for renewable energy is high which is squeezing UK REGO supplies and keeping prices high in the medium term.

Importantly, as there is a shift to more renewables, there is an expectation that the number of times that we see negative prices will start to significantly increase. In the CfD, generators are exposed to these negative prices in a way they are not under a physical CPPA – making the CPPA an attractive option to deal with this risk.

CPPAs remain an excellent way of decarbonising electricity supplies and taking steps towards Net Zero.



## What are the Underlying Issues slowing the CPPA market?

**There are three main areas that are blunting what could otherwise be a crucial tool in our path to net zero.**

### Investor Confidence

It is true that the UK CfD mechanism provides certainty for investors but this comes at a price, both in terms of limited amount of projects that can succeed and a cost to the consumer. This mechanism also suits larger projects – meaning smaller projects which are still viable have no real access to subsidy.

Suppliers are often unable to take the risk of a long term new build CPPA for their business customers, which leaves the main potential alternative route to be the Corporate PPA.

CPPAs can offer a wider scope of application to a greater range of generation sizes. The CPPA can often have a better treatment of negative pricing for developers. However, for a CPPA the

organisation’s credit rating is key – which is a barrier to participation for smaller enterprises. And if we are going to reach Net Zero it is these smaller enterprises we need to reach.

### CFD Mechanism



**Investor confidence**



**Cost to consumer**



**Exposure to negative prices**

<sup>9</sup> [https://eu-assets.contentstack.com/v3/assets/blt5412ff9af9aef77f/blt3855df90c9802410/663c8bcd0678a82b358cec4b/ME\\_Energy\\_White\\_Paper\\_090524.pdf](https://eu-assets.contentstack.com/v3/assets/blt5412ff9af9aef77f/blt3855df90c9802410/663c8bcd0678a82b358cec4b/ME_Energy_White_Paper_090524.pdf)

### Grid Connection

- ✓ 400GWh want to connect
- ✗ Long wait times
- ✗ Zombie projects?

### Grid Connection

Cornwall Insight found<sup>10</sup> that many green energy projects in Great Britain fail to clear planning, with 63% of possible projects being abandoned, refused planning permission, or withdrawing / expiring their application between 2018 and 2023. Cornwall Insight opine that speculative grid connection and planning requests are holding up projects that are ready to go – and National Grid and Ofgem have been working to address this. Releasing planning blocks does not help if we cannot connect projects.

None the less, there are currently over 400GW of new renewable projects waiting to connect to the grid.

### Market Complexity

Over time the UK market has increased in complexity as each modification layers on new changes. In addition, more costs have been added via third party charging (as opposed to the energy itself).

Complexity can increase costs and this can prevent smaller projects being realised through CPPAs, despite them being viable. This can occur because costs are high or because there is a lack of interest in some key areas – eg suppliers – because the perceived effort is high but the contract volume is small.

Adding costs to third party charges, whilst transparent, means that there is less financial incentive to take on a CPPA as there is no mechanism to avoid these costs. In many cases this is the right approach (after all the system still needs to be balanced) but it means that when looking at the hard financial case for a CPPA, it's just a bit harder for smaller projects.

### Market Complexity

- ✓ Multiple solutions
- ✗ Increases costs
- ✗ Reduces financial incentive to do CPPA

## What could be the solutions?

### Investor Confidence

Under the Review of Electricity Market Arrangements (REMA) the government was looking at how to incentivise more renewable generation. However, it seems to have regarded the Contracts for Difference (CfD) mechanism as the only relevant solution and it only focusses on renewable developers.

Setting up Great British Energy to invest in renewables, risks taking a siloed approach again and failing to leverage what the market, and businesses, can do with the right support. Instead, the approach appears to be that the government essentially is the investor or provider of a fixed price. All of this ignores what organisations (investors, developers and offtakers) can do.

This is a missed opportunity.

<sup>10</sup> Two-thirds of green energy projects in Great Britain fail to clear planning stage | Energy industry | The Guardian

Some developers do favour the CfD and in their white paper Ørsted suggest<sup>11</sup> a reform of the CfD instrument, extending it and including ways the CfD mechanism can encourage generators to deliver flexibly to support the key need of flexibility whilst maintaining investor confidence that is key in this area.

There are other ways of looking at the problem too. In November 2022, the French Government announced that it has instructed Bpifrance to set up a guarantee fund called Garantie Électricité Renouvelable (the "GER") to encourage the conclusion of Corporate Power Purchase Agreements ("CPPA") with industrial consumers. It is inspired by the Norwegian guarantee for PPAs created in 2011<sup>12</sup>.

**“**  
**What if there was a scheme to underwrite some of the risks faced by investors in funding a renewable project that was aligned to one or more “non-investment grade” companies? Could the risks and costs be managed and mitigated by government in such a way to minimise the impact on public funds whilst creating investment confidence? If so, this could unlock a wave of new renewable deployment and accelerate our progress to a zero carbon grid.**  
**”**

**This is very possible, and moreover the time is now...**

## Reforming the CfD Mechanism

We believe the solution is to reform the CfD mechanism. The basics existing today can remain, so a renewable developer can use the CfD to fund a new project as they do now. However, if the reform was extended to include and facilitate CPPA backed arrangements this would make a significant difference.

### The reforms would be set out as follows:

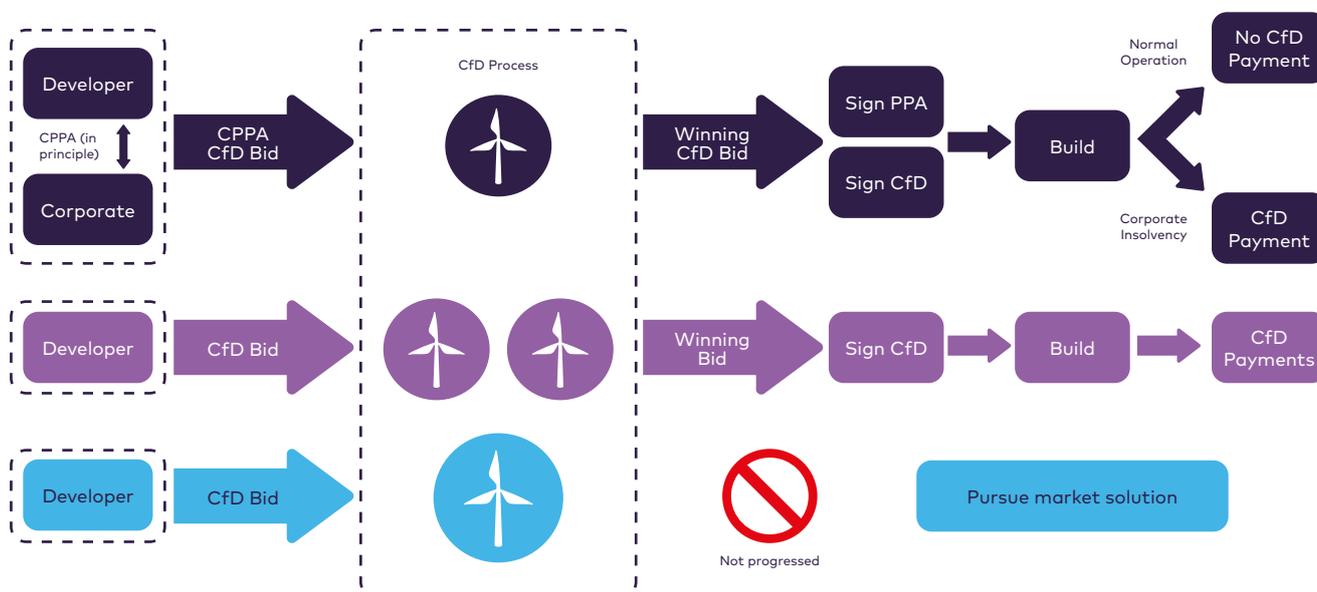
- The CfD legislation would be amended to allow Renewable Project Developers and one or more Corporates (i.e. business entities) to bid in tandem using a renewable project that was to be built by the Developer with the output to be taken under a PPA with the Corporate.
  - The bid would request a specific support price in £/MWh - analogous to way the prices are bid in now by developers looking for full CfD funding.
  - These would be called CfD CPPA bids.
- The bid would be for CfD Support (and hence payments) ONLY in specific circumstances where the one or more of the Corporates associated with the CPPA became insolvent and unable to take and pay for the power. Following a successful bid, in this case, for the volume relating to the insolvent Corporate, the CfD scheme would step in and pay the generator (or the generator would pay the scheme) the difference between Market Reference Price and the successful CfD price, until a replacement Corporate was found. If there is no insolvency issue then nothing is paid and the CPPA operates normally with no CfD support.
- Failure to sign/agree a CPPA is not a scenario under which payments would be made – so some risk remains on the developer until the PPA is signed.

<sup>11</sup> <https://orsted.com/en/insights/white-papers/getting-gb-electricity-market-design-right>

<sup>12</sup> <https://www.twobirds.com/en/insights/2023/france/the-corporate-power-purchase-agreement-ppa-fund-a-driver-for-industrial-consumers>

- The CfD CPPA bid would be assessed by carrying out due diligence on the parties and then assigning a likelihood of insolvency to each Corporate Party. The potential cost to the CfD scheme can then be calculated with respect to the CfD CPPA Bid Price, the likelihood of failure(s), and the duration of support.
  - This would be compared to a normal CfD developer bid, which would incur costs of levelling to 100% of the CfD bid price. As such, CfD CPPA bids would be more attractive as the likely cost that would be passed into socialisation under the CfD Feed in Tariff scheme would be less than a standard bid for full support.
  - Moreover, more credit worthy bids would be assessed at lower potential cost than less credit worthy ones – meaning the system automatically seeks the lowest cost solution.

The proposed solution is outlined diagrammatically below.



## Advantages of reform

The changes would have the following advantages:

1

They would reduce the credit issues that many lenders have in lending money to renewable energy developers who want to use CPPAs. This would allow more renewable generation to be built, speeding up the decarbonisation of UK electricity supplies.

2

It would allow access to CPPAs by smaller companies, a group of whom may join together to align to a single generating project. It would also allow organisations that do not have investment grade credit to access CPPAs. This would increase the demand for CPPAs and the number of new renewable generating assets being built.

3

It would not cost as much to end consumers as a normal fully CfD supported project, as costs would only be socialised if one of the companies in a supported CPPA became insolvent. Thus there is only a finite percentage chance that such cost would be incurred, whereas on a CfD it is fully incurred. In the worst possible case, the CPPA support would cost the same as a CfD project. The potential liabilities can still be monitored and managed within the CfD scheme to ensure that the socialisation costs and exposures are limited.

4

No additional government funding would be needed, and this mechanism would stimulate the greening of UK electricity supplies by encouraging the financing of new projects via CPPAs.

5

No additional taxation is needed, and the scheme could potentially reduce the socialised costs of the CfD FiT scheme going forward.

6

The CfD FiT scheme can run as normal if there are no CfD CPPA bids, and the usual mechanisms for CfD selection and operation can apply unchanged. The proposed reform is different to the current regime where a Developer can seek CfD support for part of a project and get a CPPA with the rest – which does not give certainty on the CPPA element so leads to it being smaller vs the CfD FiT element requested.



## What might REMA do?

**Following the UK election it's unclear if or how Review of Electricity Market Arrangements (REMA) will progress, but if changes are needed it will require voices to shout for them.**

BEIS' requirements for the transformation of the GB energy system by 2030 are pretty much what people would expect and want<sup>13</sup>:

- High investor confidence in low-carbon technologies.
- System flexibility optimised for intermittent renewables and adaptable to emerging technologies.
- On-time delivery with unintended minimal disruption, despite the complexity of the existing energy system.
- All delivered at the lowest possible cost to consumers.

## Market Complexity

**Over the years since New Electricity Trading Arrangements (NETA) and BETTA transformed the markets from the Pooled model, processes have become more complex as new changes and fixes are added.**

Major reform now seems an epic task, but review of specific areas does work, and can be quickly led by the industry where consensus exists.

For smaller enterprises to access renewable energy and to drive local projects, some specific changes aimed at smaller scale renewables are needed to reduce the costs around getting CPPAs in place.

**Working on the basis that major reform will be too time consuming to meet our 2030 goals, there are two main areas that we believe need simplification:**

1

Sleeving of physical energy into an organisation's electricity supply arrangements

2

Simplification for smaller local projects



<sup>13</sup> <https://www.whatisrema.com/meaning/rema-electricity-market-design-choices/>

## Sleeving Simply

**In the UK, our data shows that the majority of Corporate PPAs are "physical", meaning the power and REGO are transferred (albeit contractually) from the generator into the organisation's electricity supply arrangements.**

**"Physical" PPAs, avoid treating the PPA as a financial instrument (with attendant accounting issues) and are seen favourably by the public.**

**To get the renewable electricity from the generator to the purchaser there are two main options:**

**1**

**One stop** - the consuming organisation's supplier acts as offtaker for the PPA and carries out any required balancing, shaping and baseloading then allocates the power to the organisation.

**2**

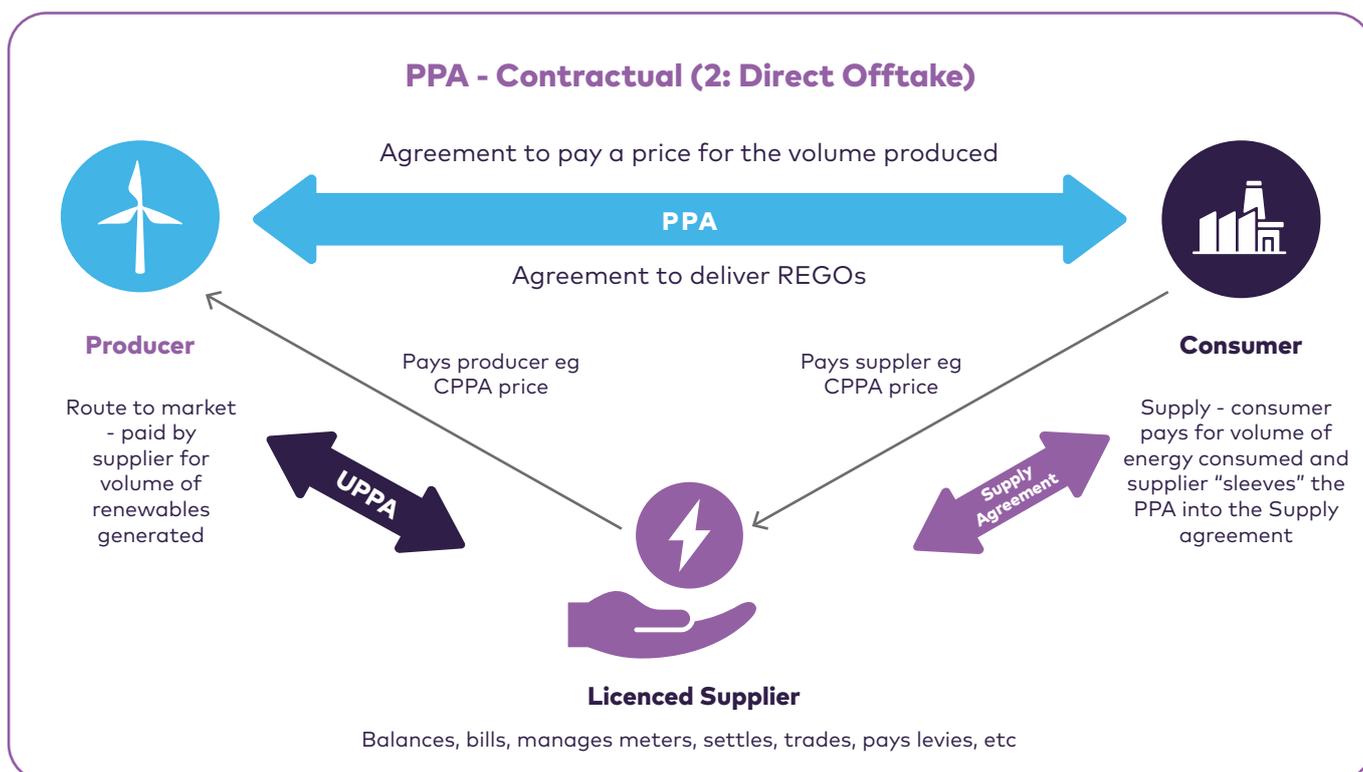
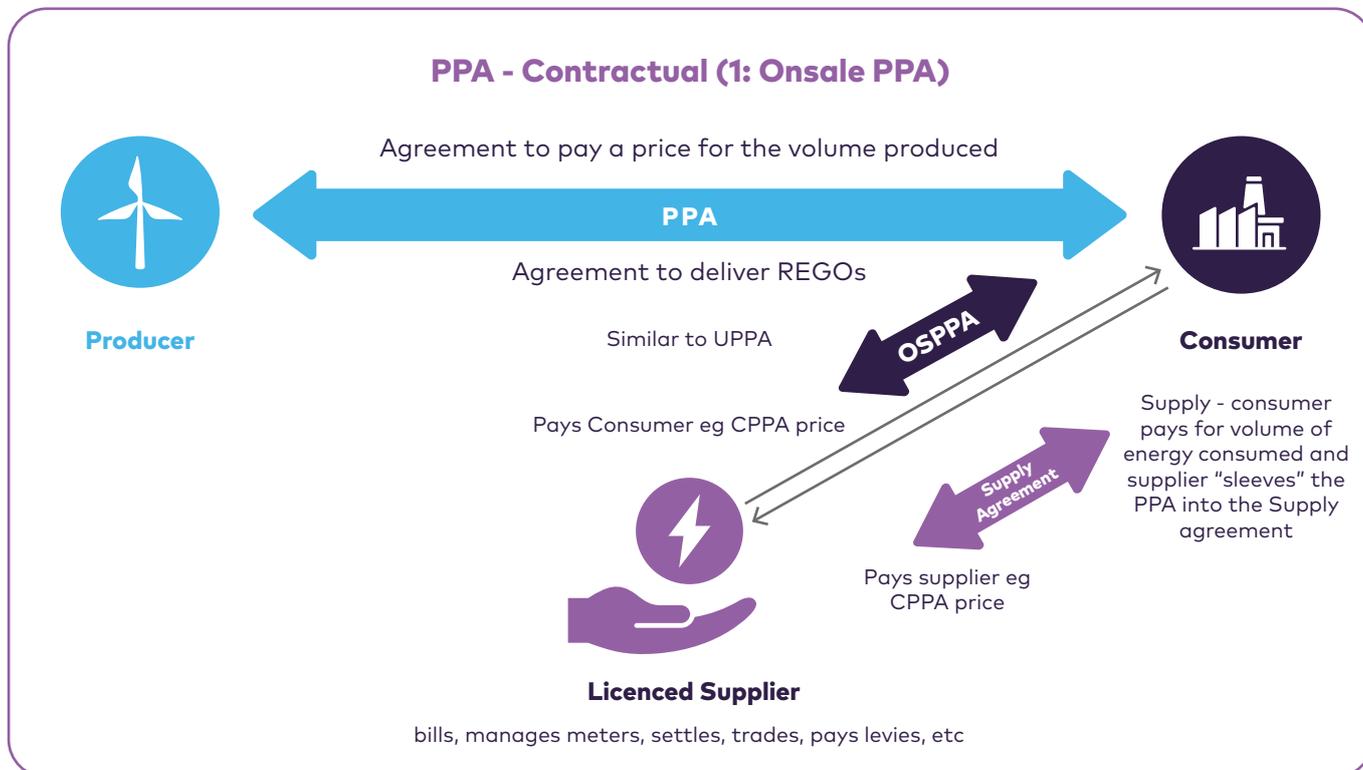
**Third Party** - a third party carries out the supplier role in (1) above then transfers power to the organisation's supplier to allocate into the supply arrangements.

Both options incur costs for balancing and, if required, shaping and conversion to baseload power. In addition, there can be sleeving fees for credit costs, administration and supplier / third

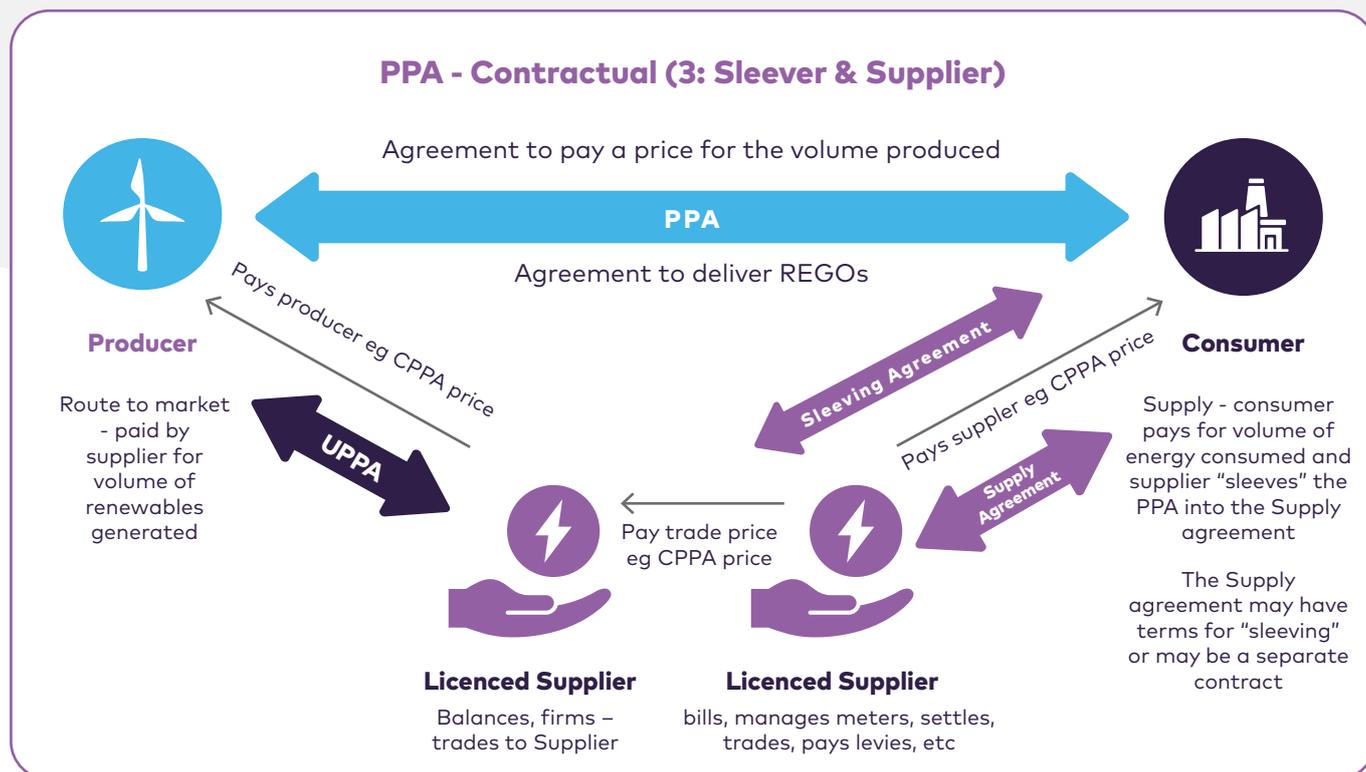
party margin. These costs are not easily seen upfront and can vary from project to project, and over time. Our experience is also that they are not able to be fixed in the long term, leaving the risk with the organisation signing the CPPA.

The **One Stop** model can be more financially efficient but given that an organisation may wish to change supplier every 2 to 5 years, means the initial set up is important and requires regular cost and effort to ensure the portability of the CPPA. In addition, some suppliers limit the volumes of CPPAs they will allow in supply arrangements, meaning organisations may not be able to access competitive energy supply offers. Lastly, we have seen a reluctance in suppliers to consider smaller organisations bringing smaller CPPAs into their supply because, although the work and effort required is the same, the reward is smaller. This means either suppliers decline to allow the CPPA or seek to add fees that are prohibitive to the project.

**The One Stop model has two main structures –  
Onsale PPA and Direct Offtake – these are shown below.**



The **Third Party** model has more steps, more participants more complexity, and hence more costs. It does solve the portability issue because the offtake can be left with one party long term with the power then traded to or allocated to the organisations supplier (assuming a trading relationship exists - which if it does not limits the ability to get competitive energy prices). Suppliers may still impose limits on the volume of CPPA or the size they will engage with under this model. Lastly there are very few players in the UK who will undertake this role (between 1 and 3 depending on size of projects).



## Reform of sleeving

The solutions that could be considered include:

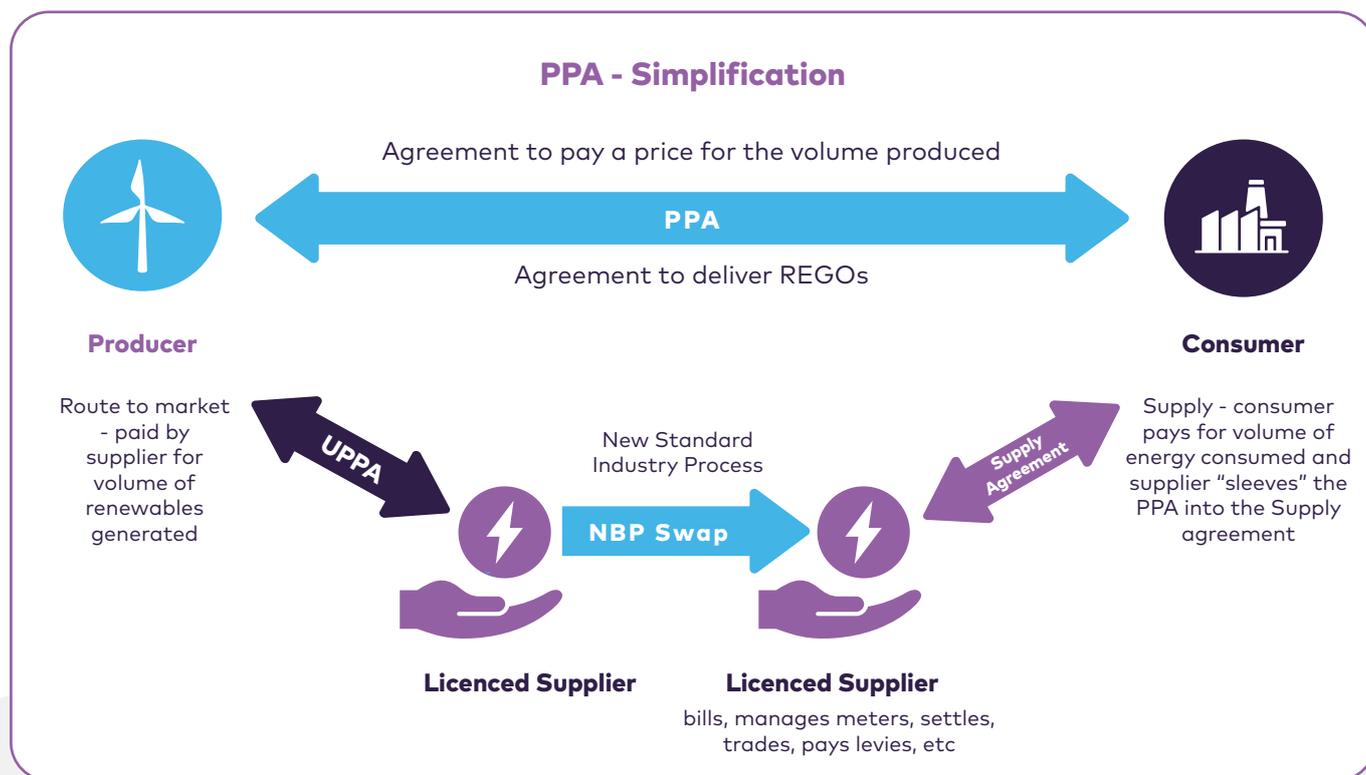
- 1 Standardisation of sleeving
- 2 Licence conditions to facilitate sleeving / CPPAs
- 3 Notional Balancing Point (NBP) swaps

When considering these it's hard to see how the standardisation of sleeving could be achieved without a better mechanism to facilitate it (see point 3 above). Similarly, when looking at licence

conditions, this forces Suppliers to act in a way they may not wish to so could be hard to enact and enforce and could lead to increased costs.

The recommendation is to investigate how the transfer of CPPA electricity could be made easier to drive down the costs of the process, leading to a greater uptake and standardisation. This in turn would open up the ability for more organisations to do CPPAs and make them more cost effective and simpler.

In addition we propose investigating a way to allow Notional Balancing Point (NBP) swaps, whereby the offtaker for a renewable asset could provide the power to the supplier of the organisation which signed the CPPA, in a simple and effective way. The mechanism could also allow for imbalance to remain with the offtaker or be passed to the supplier. This is illustrated overleaf.



## Local Supply

**The other element, is how do we make it simpler and cheaper for someone who wants to build a 1.5MW solar or wind project to link up to a local business via a simple CPPA?**

This gives the smaller project the ability to leverage finance plus allows smaller organisations to achieve the aim of buying competitive, local renewable power?

We could consider local supply exemptions for small projects, whereby the existing Supply Exemptions model was tweaked to allow such projects to avoid some supply levies and hence give them a commercial advantage.

Avoiding the levies is likely to feel unfair and distort the market – it also doesn't address the issues that suppliers seem reluctant to facilitate such small deals.

As such, it seems that the best route would be to consider how we make sleeving simpler and more cost effective – and as such our view is that reform of the market arrangements to allow NBP swaps should – if done simply – allow such small projects to be attractive to suppliers, and hence be achievable.

This shift would be particularly timely as the inclusion of small-and-medium enterprises (SMEs) becomes crucial for meeting climate targets; with SMEs responsible for a significant portion of industrial pollution in Europe, and larger corporations focusing on reducing Scope 3 emissions, so a solution to include SMEs in CPPAs and reduce emissions across supply chains is urgently needed.

## Grid Connection

### **There are 410GW of renewable generation queuing to get onto the grid (267GW scheduled after 2030).**

Thus all the green energy we need is tied up waiting to be financed, built and connected to grid.

Previous schemes such as “connect and manage” have led us to a place where the UK consumer faces significant costs from grid constraints and curtailment. Indeed Utility Week reported<sup>14</sup> the UK spent £920 million 2023, a 15% increase on the £800 million spent on curtailment costs in 2022 and more than 80% higher than the £507 million spent two years ago.

Work by Ofgem and National Grid ESO is looking to accelerate the connection process and reform the queue process but more is still needed. The “first ready, first connected” approach will undoubtedly help and may drive down some costs in the PPA market as developers seek to get projects on quickly.

Not only is work needed to connect the renewable generation projects but, to avoid further constraint costs, work is also needed to modernise the grid to allow transport between where renewable electricity is generated and where it is consumed. Projects like the Peterhead to Drax link are prime examples of this<sup>15</sup>.

There is also an argument that both changes in the way the grid is managed by ESO and increased digitisation and integration could enable more efficient use of the existing grid capacity. Better integration of local flexibility on the demand side and emerging vehicle-to-grid capabilities could unlock capacity and reduce constraint costs.

Overall, it is unclear if investment in infrastructure alone can deliver needed capacity in time, although it seems clear that the investment is needed both medium and long term if the grid is to be fit for purpose. Further, the problem is not simple to resolve as the constraints are on physical infrastructure and may need some innovative ways for the UK to connect and schedule renewable generation to meet demand, utilise the network fully and manage the costs.

#### **We believe this would include:**

- Facilitating connection of smaller projects closer to centres of demand.
- Looking at how generation can be scheduled to demand in innovative ways.
- Holistic look at flexibility and demand side response and how it can help connections.



<sup>14</sup> <https://utilityweek.co.uk/uk-spent-just-under-1bn-in-curtailment-costs-last-year/#:~:text=The%20%C2%A3920%20million%20spent,figures%20supplied%20by%20Carbon%20Tracker>

<sup>15</sup> <https://www.bbc.co.uk/news/articles/clynlkjp5m1o>

## Wrapping it all together

**Overall the key is to accelerate some changes to help remove or minimise some of the barriers.**

A holistic approach is also needed to see what physical, regulatory, contractual and market elements can work together as well as how all market players can work more collaboratively. We don't believe that just delivering more volume via the traditional CfD approach will deliver long term value and enable a competitive and green economy.

## About Zeigo Power

**Zeigo power is about accelerating the transition to renewable energy with a digital tendering tool, to provide Corporates and Developers with a route to market for Corporate Power Purchase Agreements (CPPAs).**

To help achieve our 2030 decarbonisation goals we believe we need:

- 1 Simple changes to the CfD mechanism to support CPPAs as outlined in this paper
- 2 Code Modifications to allow a simple "swap" between licenced suppliers of the energy relating to CPPA
- 3 Industry working group to consider innovative ways to connect to and manage the UK network to unlock project connection capacity.

We use technology to simplify and democratise the renewable energy procurement process with a digital platform for sourcing renewable energy. This gives access to a tendering tool connecting you with a network of over 150 renewable energy project developers & asset owners, along with access to analysis and tools to simplify the selection process.

## About the author

**Russell Reading is the Head of Decarbonisation and Energy Markets at Zeigo Power.**

He has worked in the energy industry since 1997, and has been involved in a wide range of areas including electricity and gas supply, Demand Side Response, regulation, compliance, billing, trading and for the last ten years, renewables and PPAs.

