



A guide to Corporate Power Purchase Agreements

Reduce your electricity consumption emissions while benefitting from cost stability



drax

Renewables
Supply

Contents

What's a CPPA?	2
The current CPPA landscape.....	3
The benefits of CPPAs	4
REGOs	6
Balancing.....	6
CPPA profiles.....	7
Types of CPPA.....	8
Private Wire	9
Physical	10
'Back-to-back'.....	11
'Back-to-back' with 'portable' sleeving	12
Tripartite.....	13
Virtual	14
CPPA challenges	15
What to consider when choosing a CPPA	16
The future of CPPAs	17
Glossary of CPPA terms.....	18

What's a CPPA?

A Corporate Power Purchase Agreement (CPPA) is a contract that connects the power your organisation consumes to a specific renewable generator. It can relate to an existing or new renewable generation asset.

CPPAs help consumers meaningfully reduce the emissions associated with electricity consumption. They also allow consumers to lock in stable prices for their electricity over an agreed term. This helps mitigate the threat of rising wholesale prices and enables more effective budgeting.

The price certainty consumers benefit from also helps generators secure long-term revenue and contributes to them getting project financing.



Glossary of terms

Refer to our CPPA glossary of terms on page 18 for explanations and definitions.



The current CPPA landscape

CPPAs have grown in popularity over recent years for two reasons.

The first is that they help consumers fulfil publicly stated environmental, social and governance (ESG) commitments. Consumers are increasingly recognising the value that CPPAs provide in enabling them to trace the source of the renewable electricity they purchase.

The second is that power prices went through a period of intense volatility during the COVID pandemic and at the start of Russia's invasion of Ukraine. CPPAs gave consumers a way to protect themselves from wildly fluctuating prices.

Helping generators

This higher demand tallies with the increased levels of interest from generators seeking long-term revenue certainty. Such financial assurances provide support for developing new renewable generation projects – and can be particularly important if government subsidies reduce.

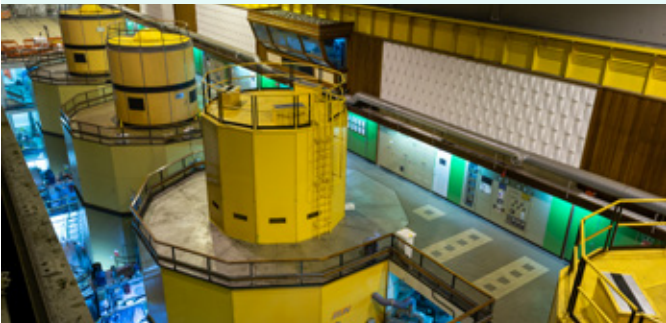
Decarbonising the Grid

The UK Government's Energy Bill of July 2022 maintained the commitment to decarbonising the electricity grid. CPPAs can play a significant role in achieving this.

CPPAs have encouraged further renewable generation investment. But they've also provided the means for private investors to offtake the additional renewable energy the Grid receives. This investment helps decarbonise the Grid itself – giving National Grid the chance to raise the percentage of renewables it uses to balance supply and demand.

CPPAs also stand to be an important means of fulfilling The Energy Security Strategy, published by the UK Government in April 2022. This expressed a desire for "an acceleration in energy independence".

To date, CPPAs have appealed to larger consumers of electricity with the resource to manage the complexities involved. They typically choose to agree CPPAs with generators (or suppliers) to satisfy all – or a proportion of – their energy demand.



The benefits of CPPAs

CPPAs offer consumers financial, environmental, reputational and risk-reduction benefits, including:

Price stability

As CPPAs are usually agreed as long-term contracts of 5-20 years, they help you manage power price risk over an extended period. CPPAs reduce your exposure to volatile market prices, enabling you to have a better idea of what you'll be spending on energy. This leaves you clearer on what you can budget elsewhere.

Following recent periods of high inflation, generators are increasingly linking CPPA terms to price indices to cover themselves. In these instances, the prices consumers pay within a CPPA will fluctuate somewhat, in line with inflation. However, the CPPA will still offer comparative stability when the alternative involves paying unpredictable prices in the volatile wholesale market.

Emissions reduction

CPPAs deal exclusively with renewable energy. Using guaranteed renewable source electricity – supplied with relevant Renewable Guarantee of Origin (REGO) certification – reduces your reportable Scope 2 emissions.

Diversification of supply

You can agree multiple CPPAs across different technology types to spread the source of renewable electricity supply. Doing so offers:

- **The spread of risk between technology types and price/risk profiles**
CPPAs associated with solar technology, for example, may be more affordable or desirable but have greater associated intermittency. For these situations, it's preferable not to be overly reliant on one generation technology.
- **The potential for a 'flatter' baseload profile**
One technology type's generation profile can help plug gaps in another's. Agreeing complementary CPPAs can reduce the impact of intermittency and reduce shaping costs.
- **More PR opportunities**
Having more than one named technology source – or more than one specific generator – means more opportunity for focused ESG stories.



Hedging

You can contract to buy some or all the electricity your organisation needs from a renewable generator through a CPPA.

It's common for large consumers to arrange CPPAs that cover a defined proportion of their energy use. In this way, they're able to benefit from a degree of stability and hedge a proportion of their energy investment against volatile wholesale prices.

Renewable certification

Agree a CPPA and you'll also receive certification – REGOs – assigned to each MWh of renewable electricity it covers. REGOs – the UK's renewable energy certificates – show your commitment to sustainability. This may be a key consideration for lenders when evaluating an applicant's suitability for investment.

Corporate social responsibility advantages

Being able to state exactly where the power you've purchased comes from offers your organisation reputational benefits. As well as meaningfully reducing the emissions associated with its electricity consumption, your organisation can choose renewables technologies that align with its location, sector or business strategy. This can offer opportunities for further good news stories.

Deeper renewables investment

By entering a CPPA, you're securing funding for generators to develop subsidy-free renewable generation assets. Known as 'additionality', this investment in the renewables infrastructure also carries wider societal benefits such as job creation and investment in local economies.





REGOs

REGOs – the UK’s renewable energy certificates, come as part of a CPPA relevant to the renewable energy you buy. These certificates both demonstrate your ESG credentials and support your carbon reduction goals. REGOs can even help you grow your business, since participation in tenders (particularly public sector ones) may rely on your ability to prove the source of your energy supply.

REGOs provide proof that you purchased renewable power and define its source. This is integral in enabling you to report lower – or zero – indirect emissions from purchased energy under Scope 2.



Balancing

It’s not always possible for generation volumes to match demand levels. This can be simply because the amount the sun shines and the wind blows is unpredictable, and this can result in a shortfall or a surplus of available supply. ‘Balancing’ is the act of sourcing the balance of the agreed power requirement. Usually, the consumer’s energy supplier manages balancing on the consumer’s behalf, and charges for the service.

Balancing costs consist of three elements: shaping, volume variance and imbalance.

Shaping is the need to align the energy generation within your CPPA with your actual consumption. A supplier will charge you for managing this.

Volume variance reflects by how much you’ve over- or under-consumed. It therefore affects how much the supplier has to do to buy or sell this volume at a price that’s different to the CPPA price.

Finally, **imbalance** relates to the deviation between forecast consumption at the ‘day ahead’ stage and final outturn. Typically, the higher the imbalance, the more balancing services will cost.

How balancing fees differ by CPPA type

Not all CPPAs are subject to balancing fees. Generation technology (and even the generator itself) can affect whether balancing fees apply – and, if they do, how much they’ll be.

The ‘profile’ of a CPPA also has a significant effect on balancing fees.



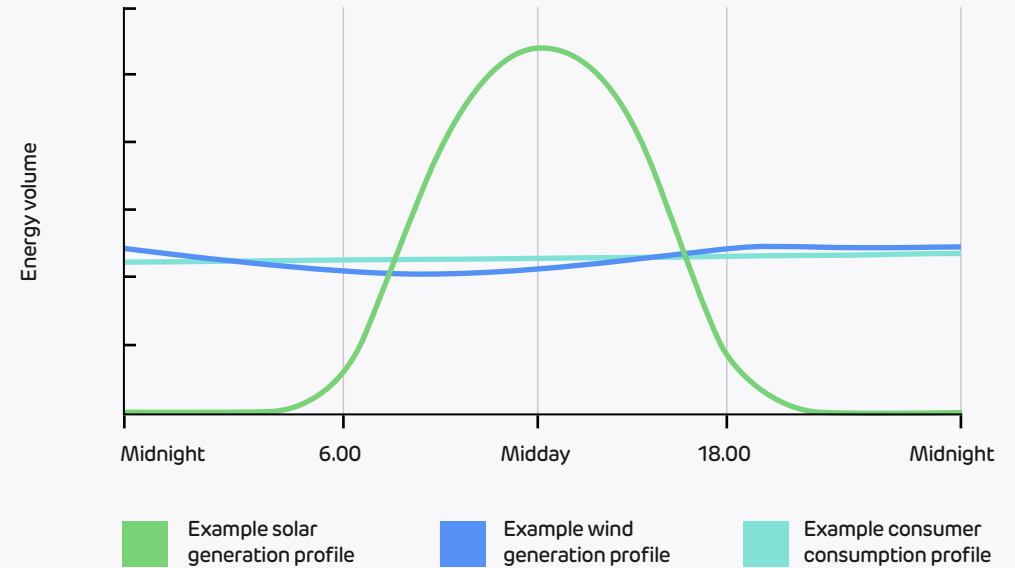
CPPA profiles

As most forms of renewable power are intermittent, they don't produce the perfect 'profile' of energy for the consumer to use whenever it wants.

As the diagram opposite shows, there are times of day where the consumer needs additional generation to plug the gaps that exist due to intermittency.

'Pay-as-produced' CPPA profiles don't feature balancing costs. The consumer may choose to fix associated shaping and volume variance costs for up to three years - or absorb them at market prices. However they choose to pay for energy to fill the generation gaps intermittency causes, they do so outside the CPPA agreement.

'Baseload' CPPA profiles require the generator to balance the energy they generate into a block, ready for the consumer to consume as and when it needs. Because the costs of balancing often sit with the generator, they usually make overall prices higher.



✓ Types of CPPA

You'll need to decide early in the process which renewable generation technology you want to support, as well as which type of CPPA to adopt. Read on to understand the following available structures:

Private wire

Physical

'Back-to-back'

'Back-to-back' with 'portable' sleeving

Tripartite

Virtual



Private Wire

The generator supplies the consumer directly with the power it uses.

This arrangement works well when the consumer and the generator are close enough together (within approximately 3km) to connect them directly. The generated power never feeds into the Grid, so there's no need for a licensed supplier to be involved in the arrangement.

Considerations

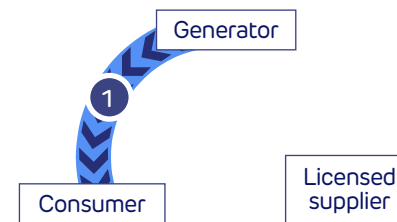
Scale	Private Wire CPPAs best suit small-scale offtake as energy generation plants (wind or solar, for example) require significant space.
Cost	<p>These contracts are likely to be cheaper than physical or virtual CPPAs, as they avoid non-commodity costs that Grid import electricity bills include.</p> <p>The consumer and generator can agree fixed, variable, index-linked or discounted wholesale prices, and REGOs can be part of the CPPA or separate.</p> <p>As the consumer might not use all of the generator's electricity, it's a good idea for the consumer to have the means to sell excess to the Grid. This helps generate revenue and, in effect, reduces the cost of the CPPA.</p>
Duration	Contract duration is typically longer than with physical or virtual CPPAs.

Contract structure

The consumer signs a Private Wire CPPA with the generator.

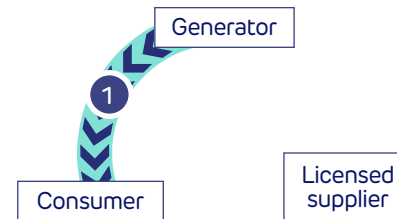
The generator directly supplies power to the consumer.

Power



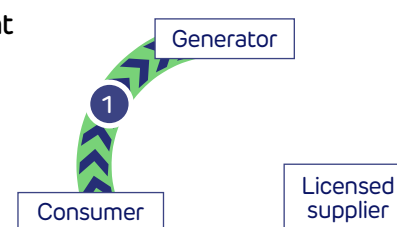
- 1 Power flows from generator directly (through a private wire) to consumer.

REGOs



- 1 Generator transfers variable 'as produced' REGOs to consumer, either within or outside CPPA contract.

Payment



- 1 Consumer pays generator for exported power and REGOs under CPPA's terms.

Physical

A supplier tracks (or 'sleeves') generated power through the Grid on the consumer's behalf. This can involve the supplier creating a 'back-to-back' contract with the consumer, a contract with both the consumer and the generator, or working with an existing energy supplier to service the consumer.

Physical CPPAs are suitable when the consumer and generator aren't close enough together to connect via a private wire.

Considerations

Scale	Physical CPPAs work best for large-scale offtake.
Cost	<p>Under these contracts, consumers tend to pay more for energy than under private wire agreements, as they have to pay non-commodity costs associated with Grid energy transfer.</p> <p>The consumer will also need to pay either:</p> <ol style="list-style-type: none"> 1. Balancing, shaping and sleeving administration fees under a pay-as-produced CPPA profile, or 2. Higher CPPA prices to the generator under a baseload CPPA profile
Duration	Contract duration is typically shorter than with private wire agreements – most commonly between 10 and 15 years.



'Back-to-back'

This arrangement's for when the licensed supplier is the consumer's existing energy supplier and is providing balancing and shaping services.

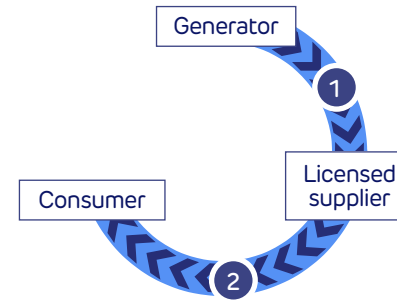
Contract structure

The consumer signs a physical CPPA with the generator.

A licensed supplier signs a 'back-to-back' CPPA with the consumer.

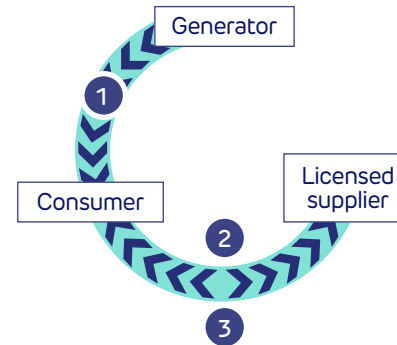
The licensed supplier converts variable power from the generator and delivers it as baseload blocks to the consumer.

Power



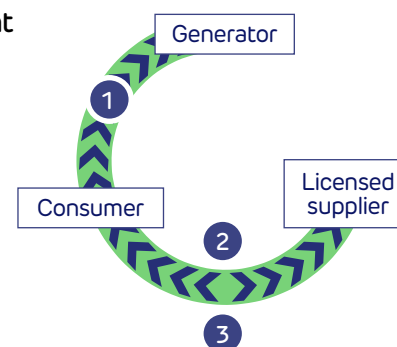
- 1 Power flows from generator into Grid, sleeved by licensed supplier.
- 2 Licensed supplier continues sleeving the power through Grid to consumer, providing shaping and balancing services.

REGOs



- 1 Generator transfers variable 'as produced' REGOs to consumer.
- 2 Consumer transfers variable 'as produced' REGOs to licensed supplier.
- 3 Licensed supplier returns a fixed volume of REGOs relevant to the baseload block it delivers.

Payment



- 1 Consumer pays generator for exported power and REGOs under CPPA's terms.
- 2 Licensed supplier purchases the power and REGOs from consumer at same price as in the generator CPPA.
- 3 Licensed supplier sells the power back to consumer at same price, plus shaping and balancing charges.

'Back-to-back' with 'portable' sleeving

Otherwise identical to a 'back-to-back' CPPA (see previous page), this arrangement also enables the consumer to retain supplier flexibility.

CPPA durations can be lengthy, so if the consumer decides to change supplier during the agreement term, this framework helps them to do so with minimal disruption. A back-to-back with 'portable' sleeving CPPA allows the consumer to retain the original licensed supplier as a balancing and shaping partner.

Contract structure following change of supplier

The consumer signs a physical CPPA with the generator.

The licensed supplier signs a 'back-to-back' CPPA with the consumer.

The licensed supplier converts variable power from the generator and delivers it as baseload blocks to the consumer's new energy supplier.

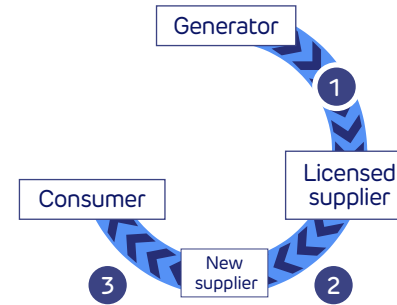
The consumer's new energy supplier then delivers it to the consumer.

Note: this arrangement requires the consumer's new energy supplier and the licensed supplier to sign a Grid Trade Master Agreement (GTMA) in order for them to trade.

Flexibility for the future

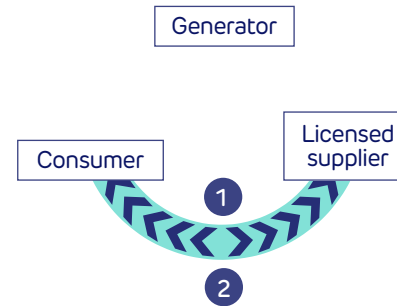
This type of physical CPPA makes changing energy supplier during a CPPA's duration much simpler. The Drax back-to-back with portable sleeving agreement is currently a unique framework in the market. It's likely to suit large off-takers who need supply flexibility.

Power



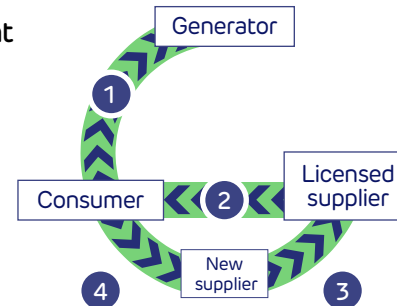
- 1 Power flows from generator to Grid, sleeved by licensed supplier.
- 2 Licensed supplier arranges GTMA with consumer's energy supplier and supplies it with equivalent power in baseload blocks.
- 3 Consumer's energy supplier then supplies consumer with baseload blocks.

REGOs



- 1 Consumer transfers variable 'as produced' REGOs to licensed supplier.
- 2 Licensed supplier returns fixed volume of REGOs to consumer relevant to baseload block of energy.

Payment



- 1 Consumer pays generator for exported power and REGOs under CPPA's terms.
- 2 Licensed supplier purchases the power and REGOs from consumer at the same price as in generator CPPA.
- 3 Consumer's energy supplier buys the power from licensed supplier at same price as in generator CPPA.
- 4 Consumer buys the power from its energy supplier at the same price as in generator CPPA.

Tripartite

This arrangement's for when the consumer can't directly purchase energy from the generator (due, for example, to regulatory reasons). It's also known as a 'utility-led' model.

Contract structure

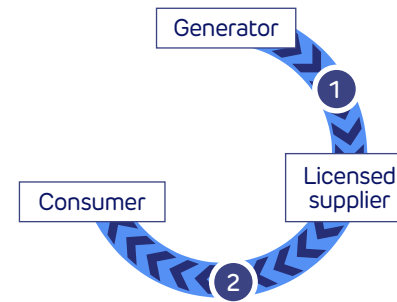
The consumer, generator and licensed supplier all sign a framework CPPA.

The licensed supplier:

- Signs a physical CPPA with the generator to buy variable power.
- Signs a physical CPPA with the consumer so that it can convert variable power into baseload blocks and sell it on to the consumer.

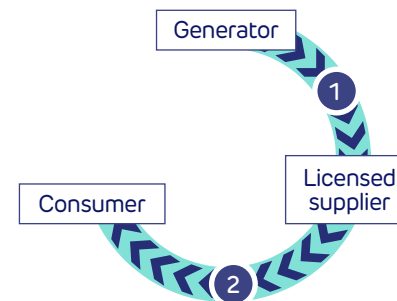
Note: this arrangement requires the generator and the licensed supplier to sign a Grid Trade Master Agreement (GTMA) in order for them to trade.

Power



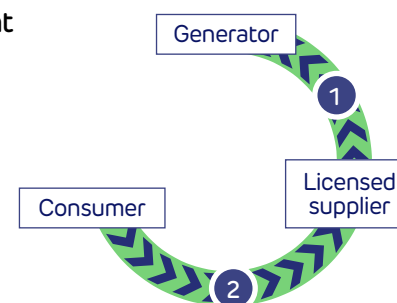
- 1 Licensed supplier signs physical CPPA with generator and offtakes variable power, sleeved through Grid.
- 2 Licensed supplier converts variable power into baseload blocks and sleeves it through Grid to consumer.

REGOs



- 1 Generator transfers variable 'as produced' REGOs to licensed supplier.
- 2 Licensed supplier transfers fixed volume of REGOs relevant to baseload block to consumer.

Payment



- 1 Licensed supplier buys variable, 'as produced' exported power and REGOs from generator at CPPA price.
- 2 Consumer buys the power – as baseload blocks – from licensed supplier at CPPA price plus shaping and balancing fees.

Virtual

While the consumer pays for the generator's renewable energy, it doesn't take ownership of it, so the contract's a financial one.

This arrangement works well when the consumer wants to prove it's bought renewable energy from a named asset – but can't take physical delivery of that energy. This could be due to insufficient infrastructure or regulatory framework.

Considerations

Scale	Virtual CPPAs tend to suit large consumers that need multiple CPPAs to meet their volume requirement. Once parties have agreed the initial virtual CPPA, it's easier to agree additional ones.
Cost	As consumers don't directly buy the energy – but instead pay for associated environmental benefits – market dynamics affect the cost of energy under these arrangements. Consumers choosing virtual CPPAs usually seek specialist hedging advice and/or management.
Duration	Contract duration is typically similar to physical CPPAs – between 10 and 15 years.

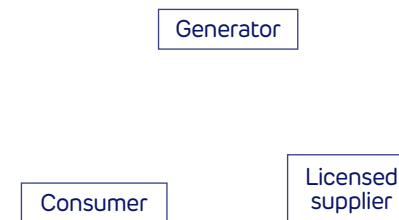
Contract structure

The consumer signs a virtual CPPA with the generator.

The CPPA acts as a contract for difference (CfD) between the two parties.

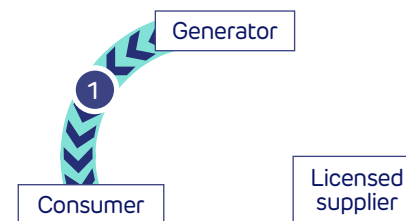
There's no physical delivery of energy – virtual CPPAs are entirely separate from the consumer's energy supply contract.

Power



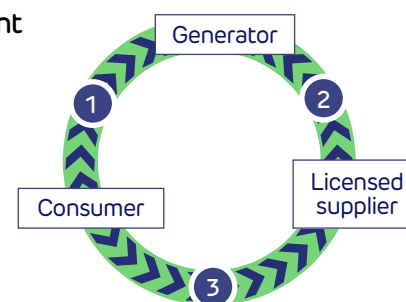
Power doesn't constitute part of CPPA – it flows via standard supply contract.

REGOs



- 1 Generator transfers variable 'as produced' REGOs to consumer.

Payment



- 1 Consumer pays generator CPPA price less market price.
- 2 Licensed supplier pays generator market price.
- 3 Consumer pays licensed supplier market price.

CPPA challenges

While CPPAs can provide benefits to consumers, generators and the Grid, they do pose some challenges in setup.

Pricing

Generators want the highest price possible for the energy they produce. Consumers want to pay the lowest price possible for the energy they receive. Combine this with the difficulties of forecasting wholesale energy prices in the more distant years of a CPPA, and settling on a fair contract price can become challenging.

Consumers may secure a contract price that's lower than a recent wholesale price spike. However, there's the risk that wholesale market prices will then drop significantly – and for a sustained period – during the contract duration. This would leave consumers paying over the odds for their contracted volumes.



Balancing

As renewable sources of electricity like solar and wind are intermittent, generators can't guarantee that they'll be generating all the time. This may affect their ability to supply the renewable energy they've agreed to under a CPPA on an hour-by-hour basis – or over a longer period. The party responsible for the balancing of the energy changes depending on the type of CPPA structure. Delegating this responsibility can be a challenging part of agreeing a CPPA contract.

Under 'pay-as-produced' CPPA arrangements, the consumer (via its energy supplier) takes responsibility for balancing when supply doesn't meet demand. This responsibility involves making a decision (similar to choosing a fixed-rate or variable-rate mortgage) about how it deals with associated costs. It can either:

- 'Fix' these costs at a known rate for a set period of time, or
- Pay these costs at market price, which is likely to fluctuate

Under 'baseload' CPPA arrangements, the generator takes responsibility for balancing. This can make them more expensive as the generator will need to factor the risk into its CPPA price. These types of CPPAs can also be complex to sleeve into import agreements as they often require parties to sign a GTMA.

Sleeving

Sleeving is the ring-fencing of power at contractual prices and terms – despite the market changing every day. It's a complex concept to agree and to manage – but it's critical in all physical CPPA structures.



What to consider when choosing a CPPA

To help you manage the challenges and mitigate the risks, make sure you understand your CPPA goals and the options available. As well as familiarising yourself with the available structure types (from page 8), consider the following factors:



Generation technology

Different generation technology types (and generator sizes) will better suit your needs. Certain technologies may offer lower CPPA prices but be more at the mercy of nature, and therefore more intermittent. They'll accordingly have different balancing costs, which will affect the overall CPPA price.

Generator ESG credentials

Engaging generators that have developed projects with environmental, social and governance in mind will reflect well on your organisation. It'll also provide opportunities for creating community-focused news stories.

Contract length

Shorter contract lengths (of under five years) will suit certain organisations. They may be unsure about their likely future consumption patterns, or less inclined to commit to a CPPA price without visibility of longer-term market forecasts.

Other organisations might prefer the benefits of a longer contract. These include not having to source and renegotiate a new contract in the near future. They may also be happy with the CPPA price and comfortable forecasting their likely consumption patterns over a decade or more.

Partner suppliers

Unless you're able to arrange on-site generation via a private wire, an electricity supplier will form part of your CPPA structure. The right supplier can simplify the contractual registration process for you, manage financial settlement, and support with balancing when consumption and supply don't align.

In-house trading expertise

CPPAs represent long-term, legally binding commitments that may be complex to execute. Knowledgeable and trusted suppliers may be able to provide valuable insights as well as reduce the administrative requirements for you.

Organisation objectives

Certain technology types or generator locations might better tally with your organisation's sector or sustainability objectives. Make sure your long-term commitment to CPPAs aligns with your company's strategic goals and corresponding ESG targets.



The future of CPPAs

A hybrid approach for generators

One growing trend is that of generators adopting a 'hybrid' approach to selling. They may choose to only allocate a portion of their output in CPPAs, retaining the remainder for trading on the wholesale market. Generators typically use this approach in order to hedge their exposure to a fixed CPPA price and provide an opportunity to profit if wholesale prices spike. Although this can help generators balance stability and profit, it limits the capacity available in the market for consumer CPPAs.

Contract lengths reducing

Early CPPAs in the UK were typically struck over extended durations of 15-20 years. Agreements of this length seem less prevalent in today's market. 'Tenors' (contract lengths) of approximately 10 – 15 years are now the most common for both wind and solar PV developments.

High consumer demand

The business response to the high price energy environment has been to accelerate adoption of CPPAs, yet there's limited project availability. Grid access, in particular, is slowing down the emergence of new renewable projects. This is creating an increased level of competition for those that do appear and supporting high price expectations.

Increased generator interest

At Drax, we've witnessed growing demand from organisations for CPPAs – but we've seen increased levels of interest from generators, too.

CPPAs not only offer a suitable alternative to government subsidy schemes but they also provide long-term stability and, with demand outweighing supply, they represent an attractive source of capital.

Consumers' decarbonisation efforts will continue to gather pace in the face of climate targets. As a consumer, your need to publicly address your progress towards net zero is likely to grow, too.

Generators will continue to need financial security and the capital to expand their portfolio of generation assets, particularly given dwindling governmental support.

CPPAs offer the rare convenience of benefits for you, as the consumer, and benefits for generators, too.





CPPAs – glossary of terms

Back-to-back CPPA – an agreement between a consumer and a supplier that reflects the terms of the underlying CPPA between the consumer and the generator. The back-to-back CPPA outlines a framework for the supplier to:

- Buy back the energy the consumer purchases from the generator
- Convert this variable energy into baseload tranches (see below)
- Sleeve (see below) this energy into the consumer's supply contract

Balancing – sourcing additional power (or reducing demand for power) to compensate for short-range over- or under-consumption estimates and protect the Grid

Baseload – a standard, long-range requirement of energy volume

Baseload profile - a CPPA within which the generator (or a licensed supplier) has balanced the generated energy so the supplied energy aligns with the consumer's demand profile

Cash-out – purchasing metered output at day-ahead prices less imbalance charges to maintain cash neutrality

Consumer – the organisation using/consuming energy

GTMA – Grid Trade Master Agreement: an agreement (like a licence) that enables the trading of electricity with other parties through the Grid

Generator – the (renewable) energy producer

Intermittency – how irregular the generation of energy is (from renewable sources)

Pay-as-produced profile - a CPPA which only covers the supply of intermittent renewable energy (NB. balancing will be necessary outside the CPPA to provide energy to plug generation gaps)

Registration – the process a licensed supplier carries out to set up a generator's export MPAN (which enables the generated renewable power to flow to the Grid) so the generator can take part in a CPPA

Settlement – the declaration of consumption to the National Grid

Shaping – flattening peaks and troughs of energy generation into a consistent baseload (see above) for the consumer to draw from

Sleeving – 'ring-fencing' energy through the Grid so that there's alignment between the amount of power a generator produces and the amount a consumer receives

Supplier – the energy market organisation arranging the contract and helping balance supply with demand

Third-party market participant – the intermediary responsible for converting variable generated power into baseload (see above) blocks

Tranche – a block of baseload (see above) power for a consumer to draw from

Truing up – a financial exercise to make sure the consumer's paying the generator the agreed energy price (despite individual deals happening with third parties at market rates)

Wholesale prices – current market prices for buying electricity at short notice

Who are we?

Drax facilitates CPPA arrangements and has energy solutions for both consumers and generators looking to reap the benefits.

We're supporting the UK's transition to a more sustainable future by making the transactions involved in these arrangements possible. As a licensed electricity supplier within the UK, we provide balancing and shaping services to ensure your organisation has renewable power during periods of intermittency. We sleeve the CPPA volume to your point of consumption to match your energy needs and, in doing so, create an environment for these transactions to take place.

In addition, our range of CPPA energy solutions includes a private matching service. This enables us to team our customers who are looking for a CPPA with a trusted independent generator (or generators) from our carefully chosen portfolio.



Get in touch

If your organisation's looking for a CPPA - or already has one in place but needs a CPPA-related energy service (like sleeving) - we'd love to talk to you.

 **Contact us**

 **01473 707160**

 [/company/drax-energy-solutions](https://www.linkedin.com/company/drax-energy-solutions)

 [energy.drax.com](https://www.energy.drax.com)