POWER PURCHASE AGREEMENTS

An overview

September 2020

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1. INTRODUCTION

This report provides a short overview of power purchase agreements (PPAs), the types of PPAs, parties, key terms and risks, factors for success, options for the NICS and its associated bodies, and a few recent public sector examples.

This report is intended to outline factors to consider before procuring and negotiating a PPA rather than being a detailed “how to” guide. Whilst the report references the all-Ireland single energy market, it also draws upon international sources of information. A web search of the subject will return many results, a few useful web pages are listed in the “Sources” section.

2. GLOSSARY

The renewable energy sector and power purchase agreements use a lot of sector-specific terminology. This glossary helps explain some of the most common terms.

Term	Meaning
A Corporate	Buyer
Balancing market	A market in SEM where at the end of a day, an electricity supplier can buy or sell electricity if their day-ahead forecast was wrong.
Day-ahead market (DAM)	A market in SEM where electricity suppliers need to forecast today how much electricity their customers will need to consume tomorrow.
Developer	Power producer
Electricity supplier	A utility electricity supplier (licensed by NIAUR)
Generator	Power producer
GO or GOO	Guarantee of origin certificate: certifies the power is from a renewable source
Independent power producer (IPP)	Power producer
Intraday market	A market in SEM where during the course of a day, an electricity supplier can buy or sell electricity if their day-ahead forecast is wrong.
PPA	Power purchase agreement
O&M plan	A plan produced by the power provider setting out how the plant will be operated and maintained.
Offtake	Consume or buy electricity
Offtaker	Buyer
REGOs	Renewable energy guarantee of origin certificate
SEM	Single Energy Market or Single Electricity Market. An all-Ireland electricity market.

3. WHAT IS A POWER PURCHASE AGREEMENT?

A Power Purchase Agreement (PPA) is a long-term contract for electricity between a buyer and a power producer.

In the past, electricity suppliers were the main buyers of PPAs. This has changed over the last five years as corporate bodies have started to buy renewable electricity directly via PPAs. The USA has the most developed market and organisations such as Apple, Google, Microsoft and other large energy users have sought price certainty and renewable energy. Renewable PPAs have now also been agreed in the UK and Ireland, but in lower numbers than the USA. In this report, the term PPA means a PPA for renewable electricity.

4. WHY USE A PPA?

Without a PPA, a developer would be less likely to obtain funding to develop the renewable generation installation. A PPA gives the developer (and more importantly, their financial investors) income certainty, which is much more attractive than a volatile market price. Any one developer may have several projects each with different buyers, which reduces the risk of buyer insolvency or dispute.

For a buyer, a PPA gives price certainty over the long term. Secondly PPAs allow organisations to demonstrate their CSR credentials in that they can reduce their carbon emissions, contributing to their carbon Net Zero targets, which may enhance their reputation and brand. However, it is worth noting that price certainty is not the same as a lower price than traditional utility electricity suppliers. For this reason, buyers may use PPAs for only part of their electricity demand.

The forecast wholesale price will play a part in determining how much of their demand a buyer will purchase via a PPA. As we have seen recently, the wholesale price of electricity has fallen substantially and is forecast by some[1] to remain low for the remainder of 2020. However, as PPAs are long term contracts, forecasts of medium to long term prices are more relevant than short term changes when considering PPAs.

For the NICS and associated bodies, any commitment to PPAs needs to consider the UK Government's commitment to net zero carbon emissions by 2050, price certainty and value for money.

[1] IEA Global Energy Review April 2020

5. WHAT TYPES OF PPA ARE THERE?

There are 3 types of PPA: private wire/direct; sleeved; and corporate/virtual/synthetic.

5.1 Direct or Private Wire PPA

Figure 1: Private Wire PPA

In a private wire PPA, the buyer's site is close enough to the renewable generation site that a physical wire can connect the two. The actual electricity generated is used by the buyer, who pays the developer directly. This is the only kind of PPA where the actual electricity generated via the PPA is consumed by the buyer, who will most likely receive the renewable energy guarantee of origin certificates (REGOs) as well as the power. A private wire PPA means that the electricity does not get transported over the national grid so there are no regulated charges. As regulated charges make up just over half the retail cost of electricity, private wire PPAs generally provide cheap power. There are examples of roof mounted solar facilities being funded via a private wire PPA [2,3], which makes this kind of PPA potentially suitable for many NICS/NI public sector sites.

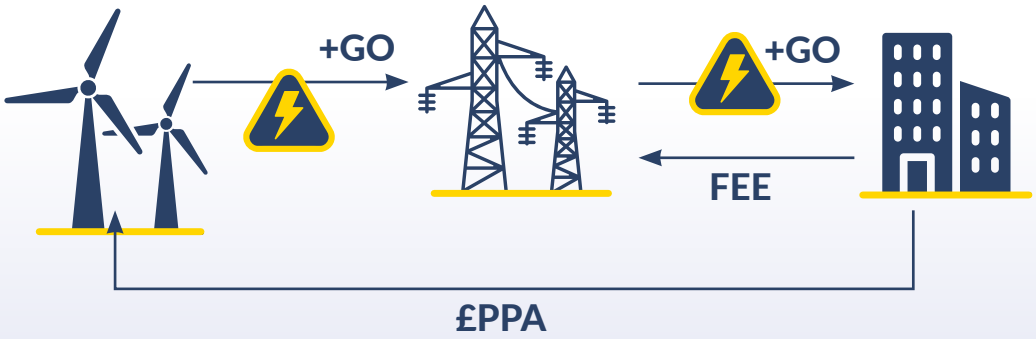
The buyer will still need a grid connection to top-up the amount of electricity and to provide a back-up when the renewable generation is unavailable (e.g. no wind, no sun, maintenance, breakdown).

[2] https://theenergyst.com/next-energy-and-zestec-complete-rooftop-pv-via-ppa-at-karcher/

[3] https://theenergyst.com/seeit-tesco-solar-kingspan/

5.2 Sleeved PPA

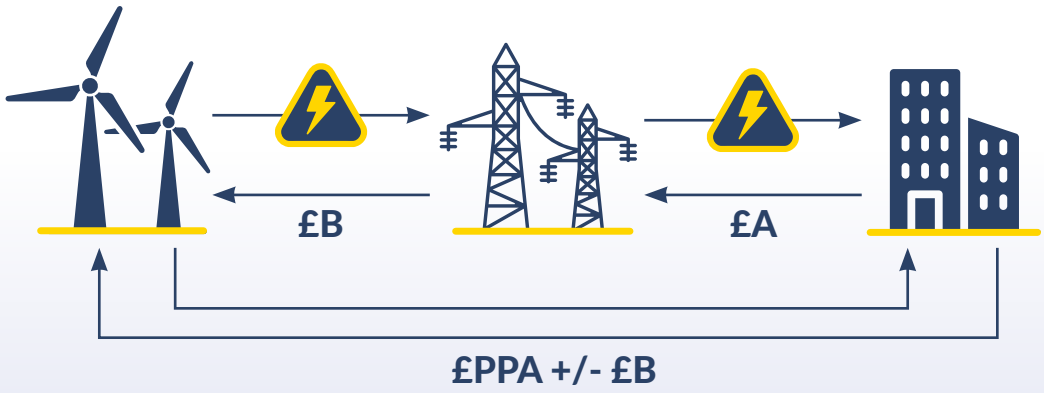
Figure 2: Sleeved PPA



In a sleeved PPA, the buyer is too far away from the renewable generation site for a private wire to work. Instead, the buyer and developer agree a price. To "move" the electricity from the generation site to the buyer, the buyer appoints an electricity supplier to facilitate the physical delivery of the electricity and pays the electricity supplier a sleeving fee. The buyer pays the developer for the electricity despatched by the generation site. Again, the buyer will usually buy the REGO certificates. A sleeved PPA needs the buyer to agree "back-to-back" terms with the developer and electricity supplier. Because the electricity is transmitted over the grid, the buyer pays regulatory charges (which make up circa half the cost of electricity).

5.3 Synthetic PPA aka Corporate PPA aka Virtual PPA

Figure 3: Virtual PPA



In a virtual PPA, there is only a financial relationship between the buyer and the developer. The developer sells the electricity to the grid at the wholesale market price (£B in the diagram). The buyer buys its electricity from its electricity supplier as normal at its contract price (£A in the diagram), which includes the regulated charges.

To ensure that the buyer receives electricity at the PPA price, aka strike price, there is a reconciliation process depending on how the agreed PPA price compares to the market price. As shown in figure 4, below, the market price may be more or less than the PPA strike price and is likely to fluctuate.

Figure 4: Virtual PPA price reconciliation

If the market price is higher than the PPA strike price, the developer refunds the buyer and vice versa. This financial mechanism is at the heart of a virtual PPA and leads to some of the risks specific to this type of PPA.

A virtual PPA is a financial hedging instrument. International Financial Reporting Standards (IFRS) may require buyers to treat a virtual PPA as a lease and record a PPA as a liability and an asset on the balance sheet. Such accounting treatment is novel for the public sector and, based on NI Water's experience, will need approval from HM Treasury and NICS.

A virtual PPA may be suitable for NICS and associated bodies, although arguably it is higher risk than a sleeved PPA.

6. THE COUNTER PARTIES

In any PPA, there are two signatories to the PPA, the buyer and the developer. However, the developer's financial investor(s) is a third party to consider for virtual PPAs and a buyer's electricity supplier is a fourth party.

Each party has different aims, summarised in figure 5 below. Aligning these aims is only possible through negotiation so, from a public sector procurement perspective, either the competitive dialogue procedure or competitive procedure with negotiation must be used.

Figure 5 assumes that there is only one buyer with one set of aims. However, there could be multiple buyers and this is possible for the NICS and associated bodies.

Having multiple buyers can be attractive to all four parties:

- For developers, project size will increase;
- For electricity suppliers, aggregated demand across multiple buyers may smooth out peaks and troughs creating a more predictable profile and less balancing risk;
- For investors, credit risk is spread across multiple buyers: some will be less risky than others;
- For buyers, there will be enhanced negotiation power, assuming agreement on aims can be maintained.

Two models exist for dealing with this: each buying organisation agrees a separate PPA with the developer or the buying organisations establish a buyer vehicle.

Figure 5: Parties' Aims

Buyer's aims

- A fair price, which may mean a price linked to the market
- A credit worthy developer
- A % of total demand

Developer's aims

- A fixed price
- Buyer's demand large enough to fund project
- Volume commitment
- Ability to sell project once developed

Investor's aims

- A predicable income stream
- PPA term matches debt term
- A credit worthy buyer
- PPA value proportionate to buyer's financial scale

Electricity supplier's aims

- Cover costs
- Know how much electricity PPA will provide financial scale
- Mimimise balancing risk

7. MULTIPLE BUYERS, MULTIPLE PPAS

This can be used where there is one developer whose project can supply electricity to meet several buyers' demand. The developer agrees a separate PPA with each buyer, which means each buyer can have different objectives and risk profiles.

7.1 Multiple Buyers, Buyer Vehicle

Aligning the multiple buyers' aims will be the first challenge. If this can be done and maintained during negotiations, this model reduces the developer's negotiation effort and speeds up time to reaching an agreement.

7.2 Multiple Developers

For a group with demand as large as the NICS and its associated bodies, it is likely that one developer will not be enough to meet the target demand. In this case, the procurement process will have to allow for the NICS to negotiate with multiple developers in parallel and result in multiple PPAs. Introducing a multiple buyer model at the same time as having multiple developers would exponentially increase complexity of negotiation.

8. KEY TERMS

There are several key terms agreed in any PPA each of which is also a key risk to be negotiated between the parties. A developer's perception of its risks will directly affect their offered price so a buyer has to balance how much risk it wants to push onto the developer with what price it is prepared to pay.

8.1. Duration

The usable life of the most common renewable technologies is up to 25 years. Many developers and investors will want a PPA's term to cover the installation's life. A long term allows the finance costs to be spread, reducing the price offered. Investors will want a PPA's term to mirror the debt term. A shorter term means that the developer will need to find another buyer and possibly another investor part way through the installation's life, thus introducing risk.

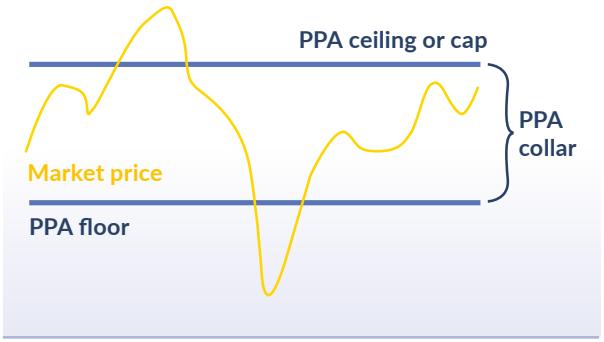
However, buyers perceive 25-year contracts as higher risk, especially if their organisation's response to Covid-19 could reduce future electricity demand, so may prefer shorter contracts of 10 to 15 years, with a trend in GB for a 10 year term on greenfield sites and shorter for "brown field" sites[4]. The reliability of wholesale market forecasts degrades over longer terms so buyers will find it harder to assess value for money for longer term contracts.

In its procurement documents, a buyer may want to be flexible on the term to increase interest from the market. However, such flexibility will make evaluation of offers more complex for a public sector buyer.

[4] IPFA webinar "All you need to know about corporate PPAs" 1/10/2020

Figure 6: Fixed Price

Figure 7: Cap and collar



8.2. Pricing model

There is a "goldilocks" zone for pricing. A low price is unacceptable to funders and may increase the risk that the project is not built. A high price makes it less affordable for the buyer and increases their credit risk.

There are two main pricing models: fixed and cap/collar. These models can apply to any type of PPA, although the discussion in this section assumes a virtual PPA. There is an amount of administration which is required with either model to track the market price.

The price may be fixed or rise over time in a pre-determined way e.g. linked to inflation. Developers and investors are likely to prefer a fixed price model as this gives them price certainty. This model also gives a buyer price certainty, but may raise value for money concerns: what if the market price is mainly below the PPA strike price? As explained in figure 4, the buyer will always pay the PPA strike price, but there will be a reconciliation to reach this.

With a cap and collar model, the PPA price can flex within an agreed band. Within the band, the buyer pays the market price (plus regulatory charges).

It is only if the market price exceeds or falls below this band that there is reconciliation. This model means a buyer will not pay more than the ceiling and the developer will not be paid less than the floor. Where the ceiling and floor are fixed will depend on negotiations between the parties. A cap and collar model will be more difficult to evaluate in compliance with the principles of the public procurement regulations than a fixed price model.

When negotiating the pricing model, buyers will want to protect against negative prices in the base market, which have happened (i.e. where the market pays buyers to use electricity as there is excess supply).

A recent trend[5] in GB corporate PPAs is for stepped pricing where an initially low price is gradually increased in steps, either in nominal or real terms

[5] IPFA webinar "All you need to know about corporate PPAs" 1/10/2020

Figure 8: Single day office demand, solar supply

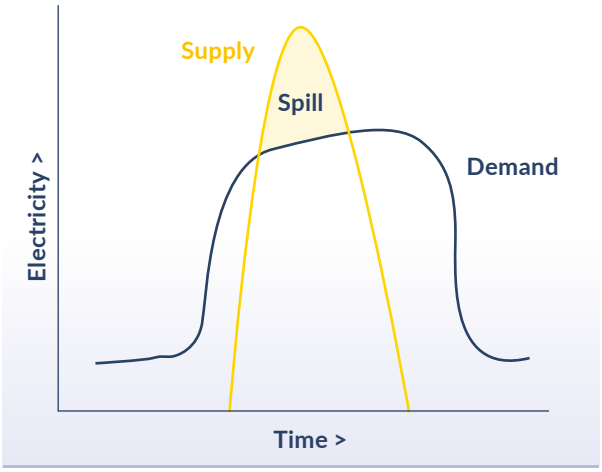
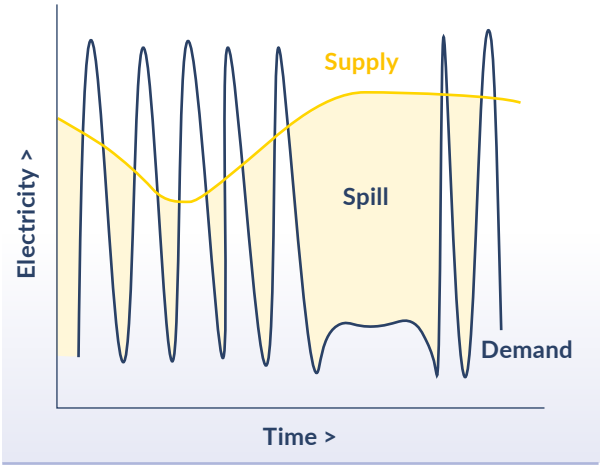


Figure 9: Multi day office demand, wind supply



8.3 Load generation, committed volume and shape risk

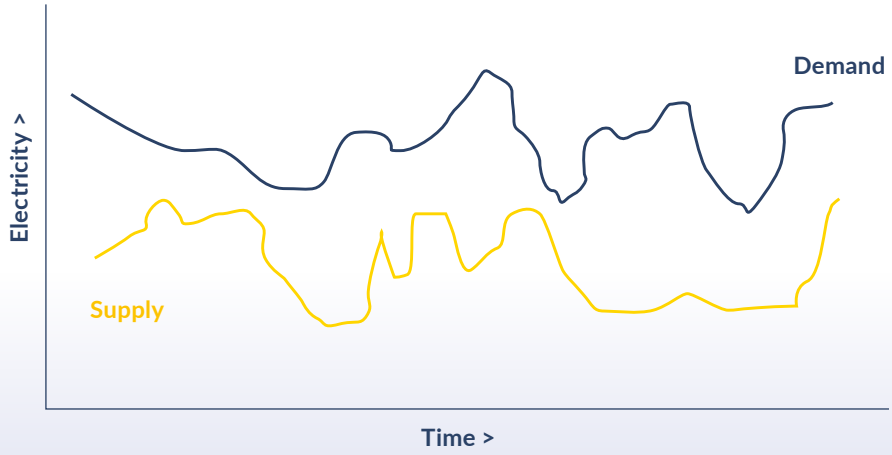
All four parties are interested in the volume of renewable electricity to be produced, albeit with different aims and perspectives. Every renewable generation installation will have a forecast for the amount of electricity it will produce, although how much it actually produces depends on the inputs to the technology e.g. anaerobic digestion (where actual and forecast will be similar) vs wind and solar (where actual depends on weather).

A buyer's demand profile will determine how much electricity they can consume. A factory running the same process 24x7 will have a stable load profile compared to a wastewater treatment works, which is still 24x7, but demand fluctuates depending on weather and other factors. An office-based buyer will have a predictable profile, but there will be large swings from day to night.

A developer will want to a buyer to commit to buying all or the vast majority of the potential output and pay a penalty if the buyer does not meet its commitment. How much of a risk this is for the buyer depends on what proportion the generation is of their demand and whether the generation load and demand load are the same shape. Similarly, a buyer may want the developer to commit to a minimum output, which can pose risks to the seller.

In Figure 8, there is a reasonable match between demand and supply over the time period (a day). The developer knows the buyer will not be able to take the maximum electricity output and in this case the developer will need to sell (or "spill") the area marked in light yellow to the wholesale market. In a private wire PPA, the seller will have to rely on the buyer to facilitate this, which in turn will depend on whether the buyer has the right to export to the grid. For private wire PPAs, the buyer could negotiate a fee for facilitating the spill or could even buy all the electricity at the PPA price and then sell it to the grid at the wholesale price. In sleeved and virtual PPAs, the developer will have its own connection to the grid.

Figure 10: Variable demand and supply



In Figure 9 on the previous page, the period of time is extended to span a weekend and the amount of spill even on work-days increases owing to the generation type.

The developer will know its forecast generation output and the buyer needs to understand its own demand profile compared to the forecast output so that it does not commit to buying ("offtaking") too much electricity nor set its target minimum output so high that it introduces risk to the seller, thus increasing the price.

When agreeing the contracted volumes, both parties need to build scenarios of what may affect future demand. For example, if more of a buyer's workforce work from home following the Covid-19 pandemic, will a buyer shut some of its office, reducing its electricity demand? How would this affect contractual commitments? Might a buyer have to renegotiate terms from a weak position?

In Figures 8 and 9, the buyer has demand which the developer cannot meet. The buyer will have to top-up by buying from a utility electricity supplier. If the developer's output varies substantially from day-to-day, it is difficult for the electricity supplier to forecast how much electricity the buyer will need. In the all-Ireland Single Energy Market, this exposes the electricity supplier to balancing risk and this risk will be passed on to the buyer. This risk increases if the buyer's load profile is not predictable as shown in Figure 10 above.

Without investment in technology to store the excess energy (e.g. battery storage) or create alternative fuels, the gap between supply and demand can only be met by an electricity supplier. An electricity supplier needs to forecast how much electricity to buy in SEM's day ahead market, which will be difficult in this example, so the electricity supplier may have to buy or sell electricity in the intra-day or balancing markets. Prices on these two markets are likely to be more volatile than the day-ahead market, sometimes being much lower than day-ahead, sometimes being much higher. The buyer needs to select an electricity supplier who has the scale to absorb this risk by both aggregating the buyer's demand with other customers and the financial resources to withstand potential losses.

As battery storage (or other forms of storing power) become more viable and less expensive, buyers will be able to reduce the variance between demand and supply, thus reducing the risk associated with variable load and shape load.

8.4 Guarantees of Origin

Guarantee of Origin (GO, GOO, REGO) certificates verify that the electricity generated by the developer is renewable. A buyer needs to decide if they want to have the REGOs transferred to them as part of the PPA. REGOs can be traded so a buyer can sell them to generate a small revenue. However, the main benefit to a buyer in receiving REGOs is in being able to claim the electricity is renewable and claim the associated carbon reduction and enhanced reputation.

8.5 Market Base

Virtual PPAs in particular involve a developer and a buyer selling and buying electricity from the market. Ideally, they are buying and selling from the same market, or base. In N. Ireland and Ireland, there is a choice of the day-ahead, intraday and balancing markets. The most likely base would be the day-ahead market. However, as explained in section 8.3, if the buyer's electricity supplier balances the variance between demand and supply in the intraday or balancing markets, the buyer faces some "basis" risk as the two bases may move in different directions. Sometimes this will work in the buyer's favour, sometimes it will not. Other than minimising the variance between demand and supply, there is little that the buyer can do to offset this risk given the structure of the SEM.

Note that the developer sells to the day-ahead wholesale market, but the buyer will be buying from the retail market. The difference between the two is regulatory charges. How regulatory charges change over time is a risk borne solely by the buyer.

8.6 Currency

A PPA subject to two different currencies introduces foreign exchange risk. For example, if a developer's project was based in Ireland and the buyer was based in Northern Ireland in which case the buyer should seek to contract in its own currency, pushing the risk to the developer.

8.7 Parent company guarantees

As explained in section 6, a developer, an investor and a buyer are all interested in the credit-worthiness and longevity of each other. In many cases, each will insist on parent company guarantees or other security (e.g. bonds) from the other. The NICS will be a very attractive buyer as it will not become insolvent or default. However, developers are often quite small and the contracting party may be a special purpose vehicle set up specifically for the particular development. This makes such developers a risky counter-party and parent company guarantees may offer little protection, but investors are likely to resist buyers wanting to completely mitigate this risk via bonds.

Credit worthiness changes over time so the contracting parties may look to negotiate some form of future credit support, but such a clause would be onerous for the affected party and will be resisted by funders during negotiation.

8.8 Change of Control and Assignment Rights

Developers are often specialists in finding and developing renewable generation sites, seeking to sell on the site once it is operational. To a public sector buyer, this is problematic because of the public procurement regulations. One potential solution is to introduce a clause requiring the buyer's permission prior to any sale subject to the incoming operator passing the original selection criteria. However, developers and their investors are wary of any restriction on their ability to sell a project.

Similarly, the developer and its investors will want to control a buyer's right to novate or assign the contract to another party without the developer's approval. The probability of a NICS body or buyer vehicle (see section 5.2) transforming into another organisation or assigning part or all of its operation to another organisation is likely to be low, but cannot be wholly discounted given the duration of a PPA so an NICS buyer will want to retain this right unencumbered.

8.9 Commercial Operations Date

A buyer is likely to have built its business case based on a target commercial operations date COD (the date when electricity starts to flow from the renewable project). Too early a COD will exclude some developers from participating in a procurement process, of which the buyer must be mindful when drafting procurement documents.

Whatever the target COD, a buyer will want to incentivise the developer to hit that date and it is in the developer's interest to do so as that is when they start to receive payments. This will be especially true for shorter term PPAs, a 2 year development period in a 10 year PPA contract is a fifth of the total duration. A buyer may seek to negotiate liquidated damages to incentivise a developer, with a report[6] suggesting $25,000 per megawatt hour (MWh) was normal in the US market. However, liquidated damages are likely to increase the price paid.

8.10 Long Stop Date

A renewable energy project is complex with many potential development risks that may result in a developer not achieving the COD. It is usual to introduce a backstop, known as a longstop date. If a developer does not achieve the longstop date, a buyer may trigger pre-agreed liquidated damages or consider the developer to be in contractual breach allowing the buyer to terminate the PPA. A buyer may also seek to recover its costs (see section 7.6) if the PPA is terminated. Naturally, a developer and its investors will resist liquidated damages or introduce terms that negate liquidated damages or a claim of contractual breach if a buyer contributes to delays.

8.11 Conditions Precedent

Renewable development projects require both the buyer and developer to work together to achieve COD. The parties will be keen to introduce terms which incentivise each other to hit their milestones thus remaining on schedule and this is often done via "conditions precedent". These are terms which, if not achieved, absolve the offending party from certain terms or even terminate the PPA. Developers are competent in the activities they need to undertake to achieve the milestones, buyers are likely to be less competent as developing renewable projects is not their core business and therefore more at risk of defaulting on the conditions precedent.

[6] https://leveltenenergy.com/blog/ppa-risk-management/ppa-project-execution-risks/

9. OTHER RISKS AND CONSIDERATIONS

9.1 Accounting Treatment

Depending on certain factors, IFRS 16 may treat PPAs as a lease because IFRS considers that a buyer may be paying for the right to use the asset rather than paying for its output. If it is determined that the PPA is a lease, both the asset and liability need to be declared on the balance sheet. The following criteria would indicate a buyer is paying for electricity rather than leasing an asset[7]:

- PPA price can be determined for the term of the PPA: if the PPA price is fixed or fixed with a predetermined annual increase (e.g. 2% increase). A PPA price linked to CPI is not predetermined and would indicate the PPA was a lease.
- PPA price equals the market price at time of delivering the electricity: a cap and collar arrangement would not meet this criterion;
- The buyer does not take all or substantially all of the electricity generated. Even if the amount of electricity depends on weather, if the buyer offtakes all or substantially all of the electricity when generated, then the PPA is deemed to be a lease.
- The treatment of REGOs.

Buyers whose PPA is deemed a lease may be more inclined to source only a portion of their electricity demand via PPAs to reduce the impact on their accounts.

9.2 HM Treasury Approval

Establishing a virtual PPA is likely to need approval from HM Treasury and a public sector buyer's sponsoring Department owing to the accounting treatment and hedging risks. NI Water's experience was that such approval would not be granted up front, but only at final business case stage once the negotiations were complete, meaning that NI Water and bidders needed to invest time and money into a process with no certainty that final approval would be granted.

9.3 Planning Permission

Obtaining planning permission is a key milestone in a renewable development project and one that is far from certain of success. A buyer is likely to want to engage with developers who have already secured consented planning permission.

[7] Financial Reporting in the Power and Utilities Industry: International Financial Reporting Standards by PwC

9.4 Value for Money

PPAs offer buyers price certainty and carbon reduction opportunities, but not necessarily a lower price than currently paid for electricity. Buyers will still aim to achieve value for money (VFM) over the long term and their assessment of what comprises VFM will partly be based on market forecasts, which cannot be guaranteed. Public sector buyers will be conscious that not achieving VFM will leave them open to public criticism, as with the UK Government's strike price for wholesale electricity with EDF of £92.50 per MWh at the Hinkley Point C nuclear plant.[8]

To reduce the risk of not achieving VFM, buyers may wish to only move a portion of their demand to PPAs. If the market price is consistently above the PPA strike price, a buyer has the comfort of having a proportion of its demand insulated from rising market prices, whilst if the market price is consistently below the PPA strike price, the buyer has the comfort that the other portion of its demand is benefitting from falling market prices.

Large buyers will have relatively low electricity prices already and if a buyer factors in its time and costs in negotiating a PPA, VFM could be further reduced.

9.5 Public Procurement Regulations

During negotiation, a public sector buyer faces risk of agreeing a substantial modification to the original advertised contract terms. A substantial modification would be considered a breach of the current public procurement regulations. If a public sector buyer continued to award a contract, there would be a risk of another party bringing legal proceedings.

To mitigate this risk, a public sector buyer would be advised to conduct extensive pre-tender market engagement, appoint advisors experienced in negotiating PPAs and be clear on its aims and the commercial parameters it can accept. Going to market with a "heads of terms" PPA contract rather than a detailed PPA contract also helps to mitigate the risk of substantial modification.

Another aspect of current public procurement risk is equal treatment across borders. This means that a public sector buyer needs to allow equivalents to any UK specific requirements (e.g. REGOs).

9.6 PPA Experience

Developers are very experienced in negotiating PPAs whereas a typical buyer is quite inexperienced. The lack of a standard form contract exacerbates this risk. A buyer can mitigate this risk by appointing experienced legal and technical advisors, allowing a budget of perhaps £50,000-£100,000.

9.7 Regulatory Charges

A PPA's strike price relates to the price of the energy and not to the regulatory charges, which make up around half or slightly more of the cost of grid energy. A buyer will still be exposed to regulatory charges in sleeved and virtual PPAs. If NIAUR changes its model or increases charges, a buyer is solely at risk.

[8] Hinkley Point C strike price agreed October 2013 when GB's day ahead wholesale electricity was £48.22/MWh and £44.81/MWh in October 2014. GB DA wholesale Oct 2013 – Feb 2020 has ranged from £35.46/MWh to £67.69/MWh. https://www.ofgem.gov.uk/data-portal/all-charts/policy-area/electricity-wholesale-markets

9.8 Operational Risks

Once a renewable development project is operational, new risks arise to its continued operation. These can be offset by implementing good industry practice maintenance and a buyer will want to regularly review a developer's operating and maintenance (O&M) plan and activities. An O&M plan is so important that it generally forms part of a buyer's criteria when selecting a PPA provider and will be integrated into the final PPA or have "back-to-back" terms with the final PPA.

With a private wire PPA, as there is a physical electricity connection between the renewable energy plant and the buyer, there is the potential for each party to damage the other's plant.

9.9 Key Performance Indicators

As with any contract, KPIs are important to help both parties manage the contract. KPIs for such a significant contract should be backed up by service credits.

9.10 Contract management

As with any substantial contract, a buyer must be prepared to invest time and effort into managing the PPA contract and the contractor. During the project development phase, a buyer should have very regular project review meetings. Post COD, these can become less frequent, but a buyer should ensure the O&M plan requires the developer to provide very regular reports of the plant's condition and operation.

9.11 Potential Future Subsidies

Whilst there are no renewable subsidies available in Northern Ireland currently, a buyer may want to ensure that any potential future subsidies are shared between the parties.

9.12 Buyer project team

A first-time buyer should not underestimate the amount of time, effort and money needed to establish PPAs. A project team comprising technical, commercial, legal and procurement staff should be allocated to the project and given sufficient time and support to work on the project. The project team needs to include senior staff and have access to executives in the organisation.

9.13 Impact of a PPA on existing electricity supply contracts

When a PPA is agreed it will change how much electricity is provided by a buyer's electricity supplier under the terms of the electricity supply contract and change the electricity supplier's risk profile. From a buyer's perspective, the portion of the load now supplied via a PPA should be moved to the same base as the PPA (most likely SEM day ahead) to avoid basis risk. For a public sector buyer, such potential changes will need to be factored into its electricity supply contract at the outset to avoid a substantial modification to the electricity supply contract.

10. FACTORS FOR SUCCESS

Factors contributing to a successful PPA procurement are:

- Clear goals and commercial parameters which are adhered to during negotiation
- A dedicated team supported by legal advisors, financial advisors and technical PPA advisors
- Commercial and negotiation skills
- Access to organisational decision makers
- Clarity on finance model and associated approvals
- Good pre-market engagement

As there is a lot to learn when structuring, procuring and negotiating PPAs, pathfinder projects may be useful.

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11. POTENTIAL FOR GENERATION ON NICS AND ASSOCIATED BODIES' PROPERTY

There is likely to be good potential for renewable generation on the NICS and associated bodies' property. There are three main options.

11.1 Self-Funded Self-Generation

Investing directly in renewable energy requires upfront capital outlay, but means receiving all the benefits. A detailed analysis of the NICS and associated bodies' property portfolio and electricity profile would be needed to assess the feasibility of this option. However, roof mounted solar energy is certainly an option.

11.2 Private Wire PPA Funded

If there are suitable properties for renewable energy projects owned by the NICS and associated bodies', but a lack of capital, then the projects could be funded by PPAs. Private wire PPAs could be used for roof mounted solar, for example as Tesco and Karchar have done in footnotes 2 and 3.

11.3 Partner with Developers

The NICS and associated bodies could partner with developers to develop renewable energy on publicly owned land. A range of commercial options could be negotiated:

1. NICS leases the land to developers
2. NICS enters into a sleeving PPA to consume the electricity
3. NICS earns a percentage of the spot price negotiated by the developers
4. A combination of the above

Initial market engagement by NI Water showed that developers were interested in exploring how to develop NI Water's land.

For the first option, land deals are exempt from public procurement regulation, although there is case law which may be relevant whereby a development agreement should have been treated as a public works contract (Faraday Development Ltd v West Berkshire Council and another).

For options two and three, the Concession Contracts Regulations would apply as the public sector would be earning revenue and facilitating private sector organisations to earn revenues. The Concession Contracts Regulations are less stringent than the Public Contracts Regulations.

12. UK PUBLIC SECTOR EXAMPLES

12.1 Universities

In 2019, 20 UK universities signed a £50m wind generation PPA with Statkraft for 10 years with the support of The Energy Consortium and Squeaky Clean Energy. James Rushkin, COO, Anglian Ruskin University was quoted in media coverage.

https://www.theguardian.com/business/2019/oct/07/uk-universities-in-landmark-deal-to-buy-energy-direct-from-windfarms

12.2 Scottish Water

Scottish Water is a public sector body and has a long-term agreement with its electricity supplier to sleeve PPAs.

12.3 West Sussex County Council

West Sussex CC has established a sleeved PPA with its electricity supplier and LASER Energy.

https://theenergyst.com/public-sector-should-invest-in-solar-now/

12.4 Warrington Borough Council

Warrington Renewables (York) Ltd, a company wholly owned by Warrington Borough Council (WBC) and Statkraft sign PPA for hybrid solar/battery storage. Warrington Renewables are selling electricity to Statkraft.

https://www.statkraft.co.uk/media/news/2020/Statkraft-signs-hybrid-off-take-and-flexibility-optimisation-agreement-for-UKs-largest-solar-and-battery-storage-project/

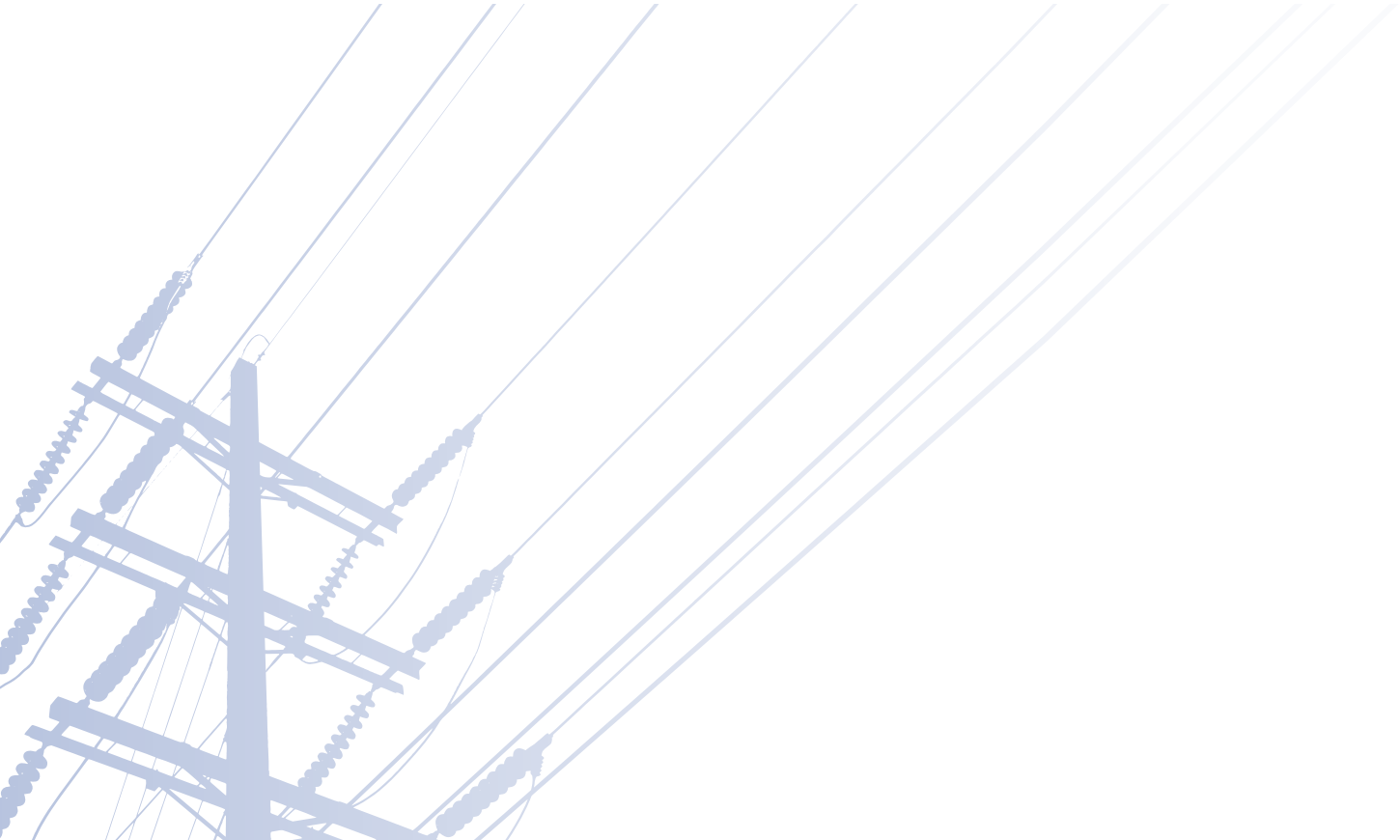
12.5 Private Wire PPAs

NI Water has an established PPA and is seeking to establish others.

Swindon Borough Council has established a PPA.

12.6 Plymouth Community

https://www.statkraft.co.uk/power-purchase-agreements/case-studies/solar-case-studies/plymouth-energy-case-study/



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https://www.ipfa.org/documents/od-webinar-all-you-need-to-know-about-corporate-ppas/

(NB: only available to IPFA members and membership is free for public sector bodies)