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# **Offsite Renewable Energy: A Guide for NSW Local Councils**

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**Business Renewables Centre – Australia**

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PLAN-A

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## About us

The Business Renewables Centre Australia (BRC-A) is an information hub and membership platform that simplifies, streamlines and accelerates corporate purchasing of large-scale wind and solar energy and storage. We are an independent place for energy buyers, developers and service providers to connect. BRC-A is a collaboration between:

- Institute for Sustainable Futures, University of Technology
- World Wildlife Fund Australia
- Climate-KIC Australia

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## This guide

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### Disclaimer

The authors have used all due care and skill to ensure the material is accurate as at the date of this report. ISF, Climate-Kic, WWF Australia and the authors do not accept any responsibility for any loss that may arise by anyone relying upon its contents.



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## Summary

**Many local governments across NSW have committed to Net Zero Emissions targets, in line with NSW Government policy objectives.** For most organisations, net zero emissions cannot be achieved solely through on-site energy efficiency and renewable energy – buying offsite renewable electricity is an essential step to achieve sustainability targets.

The NSW Department of Planning, Industry and Environment (DPIE) has commissioned the Business Renewables Centre - Australia (BRC-A) to develop a guide to support NSW councils considering buying offsite renewable electricity. There are a range of options including GreenPower and different models of renewable energy power purchase agreements available from electricity retailers. This guide is an introductory resource to assist councils understand the available options, the benefits, costs and risks and where to find additional information.

### Drivers

Organisations that buy offsite renewable energy do so for some or all of the following reasons:

- **Environmental sustainability targets** – off-site renewable energy is the quickest way to achieve ambitious emissions reduction targets
- **Improving budget certainty** in Australia's volatile electricity market by fixing a price for some or all of their electricity and green certificate requirements
- The potential for **cost savings** from renewable energy – although this is hard to predict over a longer-term
- **Social outcomes, reputation and community leadership** by supporting new renewable energy and co-benefits such as local jobs, reduced social disadvantage and biodiversity
- **Immediate achievement of net zero targets or large emissions reductions** while planning and implementing other initiatives which take longer (e.g. transport or waste infrastructure, behavioural change)

For most organisations, it is a combination of the sustainability and financial benefits that together make a compelling case for purchasing offsite renewable energy.



## Buying Offsite Renewable Energy

There are three primary options for councils to increase their supply of renewable energy:

**Table 1: Options for Buying Renewable Energy**

| Option  | Description  |
|---|--|
| <b>On-site solar</b>                                    | <ul style="list-style-type: none"> <li>Installation of rooftop or ground-mounted solar onsite</li> <li>Different financing models – up-front payment, loan or rooftop solar power purchase agreement</li> </ul>  |
| <b>GreenPower</b>                                       | <ul style="list-style-type: none"> <li>Buyers pay a premium to a retailer for accredited Greenpower</li> <li>Retailer acquires LGCs and retires them on behalf of their customers from accredited renewable energy projects directly or via secondary market</li> <li>Generally purchased on a short term or continuing basis, without long term contract commitment</li> </ul>  |
| <b>Retail Renewable Energy Power Purchase Agreement</b> | <ul style="list-style-type: none"> <li>Longer-term contracts for electricity and LGCs supply from renewable energy project(s) via a retailer as an intermediary between the project and buyer</li> <li>The PPA is integrated with retail contract which includes pricing and terms for balancing supply for periods where supply and demand do not match (or 'firming')</li> <li>Retail PPAs can support new renewable energy projects, either directly or indirectly where the Retailer is signing contracts with new wind and solar farms to on-sell to customers through PPAs.</li> </ul> |

In Australia, up until around 2016, the primary way for an organisation to purchase renewable energy was via the government accredited GreenPower program. GreenPower accredits electricity retailers to purchase and surrender green energy certificates (Large Generation Certificates) from accredited renewable energy generators, each equivalent to a megawatt-hour of renewable energy generation when the customer purchases GreenPower. There are more than 20,000 businesses across Australia that purchase GreenPower. Most retailers now also offer renewable energy PPAs. Under a renewable energy PPA, the buyer pays for electricity generation and/or Large Generation Certificates (LGCs) from one or more renewable energy projects. A growing number of NSW councils have negotiated PPAs - including the City of Sydney, Eurobodalla, Northern Beaches, Hawkesbury, City of Newcastle, Southern Sydney Regional Organisation of Councils and Tweed Shire Council.

There are predominantly two types of PPAs:

- a Wholesale PPA negotiated directly with a renewable energy project (this is a financial instrument that is separate to the retail electricity agreement)
- a Retail PPA where the electricity retailer owns or holds the contract with the renewable energy project and on-sells electricity and/or green certificates (this is integrated with the retail electricity agreement)

BRC-A is advised by the NSW Office of Local Government that a wholesale PPA is defined as a derivative under the Ministerial Investment Order and is therefore not permitted for NSW councils. This guide therefore only considers different models of retail PPAs.

Each of these three options for increasing renewable energy (on-site solar, GreenPower, retail renewable PPA) come with relative strengths and weaknesses which are summarised in Table 2.

**Table 2: Renewable Energy Options, Strengths and Weaknesses**

| Option               | Strengths  | Weaknesses   |
|----------------------|--|--|
| <b>On-site solar</b> | <ul style="list-style-type: none"> <li>Relatively quick, simple procurement</li> <li>Good financial returns</li> <li>Less subject to performance and operational risks (e.g. grid congestion)</li> </ul>   | <ul style="list-style-type: none"> <li>Up-front capital expenditure for most models</li> <li>Generally, onsite solar can only cover a portion of organisational energy and emissions – commonly a relatively small percentage (&lt;20%)</li> </ul> |
| <b>GreenPower</b>    | <ul style="list-style-type: none"> <li>Simplest option – standard retail procurement with addition of LGCs</li> <li>Flexible/no long-term commitment</li> <li>Fastest way to reduce greenhouse gas emissions and achieve net zero targets</li> </ul> | <ul style="list-style-type: none"> <li>Higher cost for LGCs than a retail PPA</li> <li>Greenpower does not reduce exposure to higher electricity prices</li> <li>Generally lower environmental impact than a retail PPA: GreenPower</li> </ul>     |

- Emissions reductions recognised by a range of rating systems (NABERS, GreenStar etc)

increases demand for LGCs (and therefore the price and revenue for renewable energy projects) - but RE projects need revenue certainty over a longer-term to secure project finance. A retail PPA which directly supports a renewable energy project is more impactful.

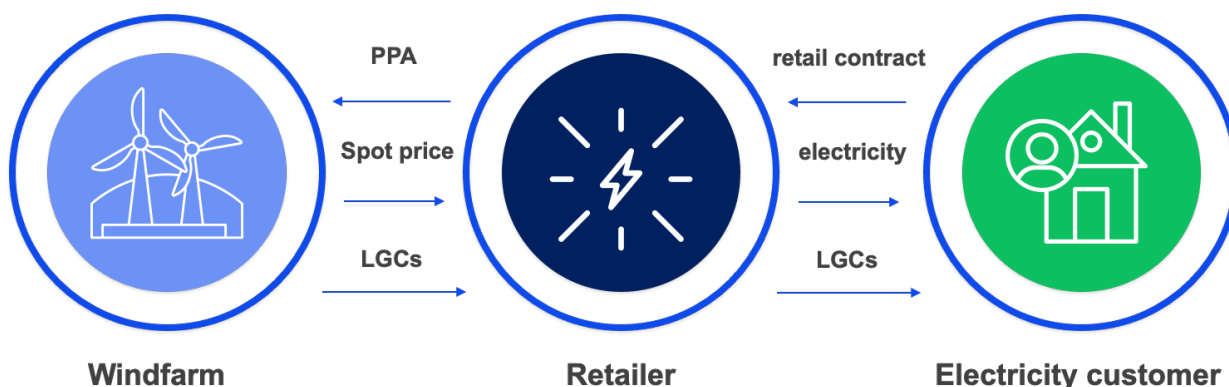
- Without a connection to a project, there is less value from demonstration or leadership impact in advocacy with local community.

|  |  |   |
|--|--|---|
| <b>Retail Power Purchase Agreement</b> | <ul style="list-style-type: none"> <li>• Fast way to reduce greenhouse gas emissions and achieve net zero targets</li> <li>• Fixing a price for some or all of electricity requirements can reduce or eliminate exposure to electricity price increases for term of contract</li> <li>• LGC prices under a PPA are lower than Greenpower.</li> <li>• Increased budget certainty</li> <li>• A Retail PPA with a new renewable energy project is a direct way to increase renewable energy</li> <li>• A Retail PPA with a retailer active in financing or contracting new projects is another way to support new renewable energy</li> <li>• High demonstration and leadership value with local community</li> </ul> | <ul style="list-style-type: none"> <li>• Higher complexity and transaction costs</li> <li>• Upskilling and use of external advisers required</li> <li>• If electricity and/or LGC prices fall over the term of the agreement, expenditure could be higher than it otherwise be under standard retail contracts or GreenPower</li> </ul> |
|--|--|---|

### Retail PPAs

Renewable energy PPAs are a significantly different type of procurement from traditional retail electricity contracting - and for many organisations, negotiating a PPA is a journey. Typically, a PPA takes 6 – 12 months (but can be longer) and involves a steep learning curve for council staff. The basic elements in a retail PPA are illustrated below:

#### Retail-linked PPA



Under a retail PPA, the buyer agrees a price for electricity and/or LGCs from the generator(s) which is incorporated into the retail contract. The retailer provides the ‘balancing supply’ (or ‘firming’) when there is mis-match between the supply from the generator and the consumption of the buyer.

Whilst there is a variety of models, there are three primary types of retail PPAs as outlined in Table 3.

**Table 3: Retail PPA models**

| Retail PPA Type  | Pro's  | Con's   | Example   |
|--|--|---|---|
| <p><b>LGC-only:</b> a standard retail contract is combined with a contract for LGCs linked to specific solar or wind farm(s)</p>   | <p>The simplest model. Lower-cost LGCs relative to GreenPower, with cheaper prices available for longer terms.</p>   | <p>Less scope for risk mitigation and savings as it does not fix a price for electricity from the renewable energy project(s).</p>  | <p>After previously signing renewable energy power purchase agreements with solar and wind farms for 70 per cent of their electricity supply, <b>Coles</b> supermarkets signed PPAs for LGCs only with retailers for the remainder of the emissions reductions needed to achieve its 2025 net zero target.</p>  |
| <p><b>Fixed price (or 'fully firming') PPA:</b> the retailer offers a fixed price for the PPA with renewable energy project(s) and balancing supply.</p>   | <p>High price certainty</p>  | <p>There is additional cost for a fully-firmed PPA relative to a partially firming PPA as the retailer is managing risk (e.g. variable wholesale prices) on behalf of council.</p>  | <p><b>Northern Beaches</b> staff were authorised by Councillors to negotiate a PPA on the basis it could be demonstrated to cost no more than the current retail arrangement.</p> <ul style="list-style-type: none"> <li>- Settled on a 7-year retail PPA, with a 5-year fixed price and a 2-year extension with the price for balancing supply linked to a set formula to reflect market price changes.</li> <li>- Whilst this created scope for increases in the final two-years, the 7-year term enabled a much better LGC price.</li> <li>- Modelling by an external consultant and review by their financial department were able to effectively make the case to executives and councils they would be \$300,000 p.a. ahead under a worst-case scenario.</li> </ul> <p>See Appendix B for further information.</p>                |
| <p><b>Partially firming PPA:</b> PPA with one or more renewable energy projects. Balancing supply to complement the PPA is subject either to fixed-pricing for some periods of balancing supply and wholesale price pass-through for other periods (e.g. off-peak) or variable wholesale prices but with a monthly cap on expenditure.</p> | <p>There is less exposure to electricity price increases than option 1 due to fixed price electricity supply.</p> <p>Savings can be achieved relative to option 2 as the retailer is providing less firming. If the council is using demand management and storage, surplus generation can be sold into the wholesale market in high-price events.</p> <p>Higher environmental benefit if the council is matching consumption with generation.</p> | <p>There is greater price variability than option 2.</p> <p>To get full value, this option requires more proactive on-site energy management and time commitment. It generally suits councils engaging with on-site energy use more than councils who prefer a 'set-and-forget' option.</p> | <p><b>City of Sydney</b> signed a PPA where around 80 per cent of electricity is supplied under a fixed agreement with a solar and wind farm for 10-years.</p> <ul style="list-style-type: none"> <li>- Fixing a price for 80 per cent of their requirements for 10-years enables them to receive a more stable, competitive price than re-tendering every three-years for a retail agreement.</li> <li>- The exposure to wholesale price increases is limited by a monthly expenditure cap.</li> </ul> <p>However, the exposure to the variable price also creates incentives and rewards for reducing consumption and selling surplus generation for additional revenue when the spot price is very high (e.g. hot days when demand is high). Demand management supports the grid as we move through the clean energy transition.</p> |

NSW councils have entered into PPAs across the spectrum of models – there is no right or wrong answer. Different councils have settled on different models depending on their objectives, their council's policies and how they believe the risks of electricity procurement are best managed.

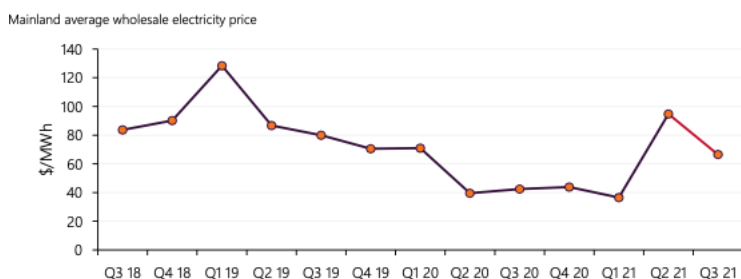
### Electricity Procurement and Risk: Retail Contracts and PPAs

Whilst offsite renewable energy procurement often starts as a sustainability initiative to reduce greenhouse gas emissions, the decision on the option to pursue must also meet financial and risk criteria. Indeed, in the final stages of decision-making, the discussion is often largely about financial and risk dimensions.

Australia is going through an accelerating clean energy transition which creates uncertainty and volatility in electricity prices. There are upward and downward pressures on electricity prices. Major upward pressures on electricity prices can include international gas prices and the shutdown of coal power stations.

Under the Australian Energy Market Operator's Integrated System Plan – the 'roadmap' for the National Electricity Market - as much as 14GW of the 23GW coal power station capacity could close by 2030. Under all scenarios in the ISP, there is at least 90 per cent renewable energy by 2035. The timing of the coal plant withdrawal is unknown and there is the risk of price spikes, especially if multiple plants close in a short timeperiod. Major downward price pressures include the falling cost and increased supply of renewable energy and storage. Over the past two-years, electricity prices have moderated to an average of around \$40/megawatt-hour – but underlining the on-going uncertainty the price spiked in Q2 2021 to an average of \$95/MWh (and \$111/MWh in July 2021).

**Figure 1: Average Wholesale Electricity Price, National Electricity Market**



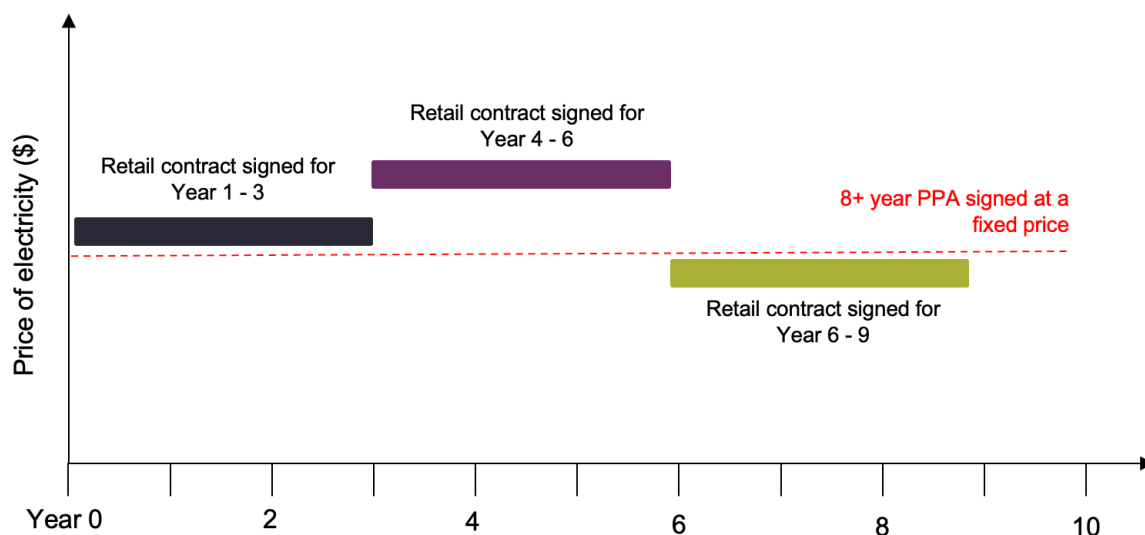
Consequently, there are 'upside' and 'downside' price risks - and electricity procurement models have different mixes of exposure to these risks.

In the context of a volatile market that is being transformed, contracting through a retailer in the normal fashion is not risk-free or low-risk. Contracting retail supply every 2-3 years means that 100 per cent of a council's grid electricity consumption is exposed to the risk of price increases every time the council goes to market. Depending on when a council is going to market they could find themselves facing steep price increases (e.g. after the closure of the Hazelwood power station in 2017 – a number of councils who have negotiated PPAs stated they found themselves facing 200-300% price increases and this was one of the triggers for looking at PPAs). If prices fall and are lower at the time a council goes to market, they will benefit relative to a PPA which has fixed a price.

A PPA provides greater budget certainty and reduces exposure to electricity price increases – as demonstrated over the page by an illustrative example of a future with price increases and decreases.



**Figure 2: Retail Contracting and PPAs – an Illustrative Example**



The risk profiles of the two PPA models are therefore different to retail contracting:

- A fully-firmed, fixed-price PPA has the opposite risk exposure. By fixing a price through a PPA, a council gets greater budget certainty and removes exposure to price increases, but if electricity prices fall they may pay more than they would otherwise through a standard retail contract.
- A PPA with partial firming sits between these two options as there is some consumption set through market pricing in addition to the PPA. Consequently, there is some but less exposure to upside price risk than a standard retail contract, some but less exposure to downside price risk than a fully firmed PPA.

### Key Learnings for the PPA Journey

Some of the key learnings from our experiences and the reflections of councils who have negotiated PPAs include:

**Table 4: Key learnings from councils that have negotiated PPAs**

| Key learning  | Recommendation  |
|---|---|
| <b>Negotiating a renewable energy PPA requires internal capacity building, education and engagement with executives and Councillors</b> | Engage early and engage often is the message from councils who have been through the journey. To get executive and council approval, you will need broad-based internal support across teams (procurement, sustainability, finance, legal). Most buyers needed at least 1 or 2 council resolutions for authority and regular councillor briefings.<br><br>Develop an engagement plan, invest the time in 'socialising the concept', identify 'deal champions' in key positions, form a working group – and worry about under-communicating, not over-communicating.   |
| <b>External consultants are a key partner on the PPA journey</b>  | All councils who have been through the journey stress the importance of a good consultant as a partner. Consultants will bring specialist knowledge, help translate energy concepts, model financial scenarios, evaluate offers and provide comfort to executives and councillors that staff work has been reviewed by an expert.   |
| <b>Tender evaluation criteria are important to achieving objectives</b>   | Tender criteria should give a clear signal to the market about your priorities without being overly prescriptive so you can see the full suite of offers and models. As new models and offers are continually emerging, mandatory criteria can exclude some tenders that may normally meet Council objectives. Tender criteria can also encourage bidders to develop proposals with other social benefits such as community energy and biodiversity initiatives. Tender criteria around additionality and project progress should be carefully developed to avoid higher scores for tenders that less meet the tender objectives. |

| Key learning   | Recommendation   |
|--|--|
| <p><b>There is no one-size-fits-all – different models work for different councils</b></p>                           | <p>There are a range of PPA models available. A fixed-price model that resembles a retail contract will work for some councils. Other councils are better equipped for proactive energy management with a variable pricing model. It is important to establish objectives and risk tolerances upfront with internal stakeholders to ensure tender documentation and deal negotiation is aligned with organisational drivers and a smooth passage to final approval.</p>  |
| <p><b>Some of the major challenges are the term length and uncertainty about future costs</b></p>                    | <p>Whereas retail contracts are 3 years, retail PPAs are typically 5 – 10 years. Making a long-term commitment is often the source of much debate. What happens if the BAU cost is lower in the latter years of the PPA? How do we know how the market will change?</p> <p>The answer of course is that you don't – but longer-term contracts offer better pricing, better environmental impact and avoid the risk of shocks when recontracting for retail contracts. No PPA means full exposure to the market every few years when recontracting through a retailer whereas a retail PPA fixes a price for some or all of your requirements across this period. Expect this issue to feature prominently in your journey.</p> |
| <p><b>Buyer groups can be a great tool – so long as there is strong alignment on objectives within the group</b></p> | <p>Buyer groups are an excellent opportunity to share resources and transaction costs, such as consultant fees for options assessment, business case and tender management. If a Council has an objective to support the finance of a new project, then the aggregation of a group of buyers brings greater scale and can support this objective. However, buyer groups can be challenging to manage and there is a risk that not all members are happy with the final deal (e.g. one council we spoke to left a buyers group because they had higher environmental ambitions), so it is essential to ensure there is strong alignment within the group.</p>   |

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## 1. Introduction

**The purchase of offsite renewable energy by local councils can be a powerful tool to support investment in renewable energy and accelerate the decarbonisation of the grid. We estimate that the annual electricity demand of all NSW councils combined is approximately 1,300 GWh per annum, which could support around 600 MW of solar or 400 MW of wind power, or \$1 billion of investment.**

Many local governments across NSW have committed to Net Zero Emissions by 2050 (or earlier), in line with NSW Government policy objectives. A suite of tools are available to reduce greenhouse gas emissions including energy efficiency, on-site renewable energy and off-site renewable energy. For most organisations, net zero emissions cannot be achieved solely through on-site solutions – buying offsite renewable electricity will be an important component of net zero strategies.

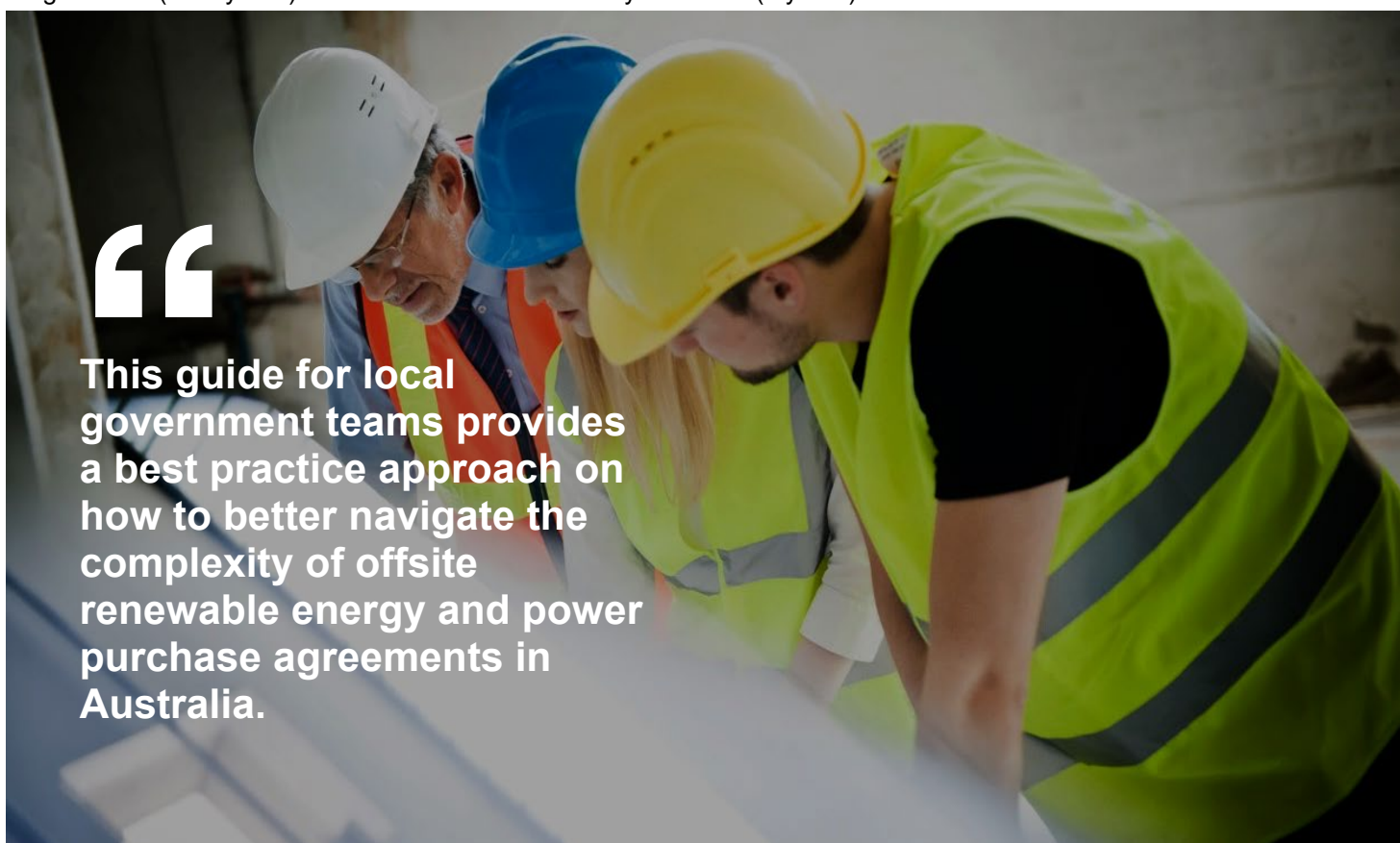
Councils that buy offsite renewable energy do so for some or all of the following reasons:

- **Sustainability targets** – off-site renewable energy supply is the quickest and often the only way to achieve ambitious targets
- **Improving budget certainty** in Australia's volatile electricity market by fixing a price for some or all of their electricity requirements
- The potential for **cost savings** from renewable energy – although this is hard to predict over a longer-term
- Demonstrating leadership and supporting advocacy with their communities to reduce emissions by 'walking the walk' and co-benefits such as local jobs and biodiversity
- **Immediate achievement of net zero targets or large emissions reductions** while planning and implementing other initiatives which take longer (e.g. transport or waste infrastructure, behavioural change)

The traditional option for purchasing offsite renewable energy was GreenPower from accredited projects via a retailer. However, in recent years renewable energy Power Purchase agreements (PPA) have emerged as an increasingly common option and most retailers now offer them. Under a renewable energy PPA, the buyer pays for electricity generation and/or green certificates (Large Generation Certificates or LGC) directly from a renewable energy project (or projects). A retailer provides balancing supply (or 'firming') for times where the buyer's consumption and the project generation do not match. Typically, a PPA is a longer-term agreement (5-10 years) than standard retail electricity contracts (3 years).



**This guide for local government teams provides a best practice approach on how to better navigate the complexity of offsite renewable energy and power purchase agreements in Australia.**



In the past five years, there have been at least 100 PPAs signed across Australia in a wide range of sectors including finance, manufacturing, infrastructure, universities and councils – and they are making a big difference. Together, they have underpinned more than \$5 billion of investment in wind and solar farms in the past four years alone.

However, there is often uncertainty amongst councils in NSW about the best option for offsite renewable energy and especially how PPAs work. Sometimes, there is confusion as to what councils can and cannot do. Under the Ministerial Investment Order, NSW councils are not permitted to enter into derivatives which encompasses ‘wholesale’ PPAs (financial contracts signed with a project without a retailer). More broadly, it is a more complex procurement exercise than standard retail contracts and there is a need for information on offsite renewable energy and PPAs for councils to make informed choices.

Consequently, the NSW Department of Planning, Industry and Environment has commissioned the Business Renewables Centre – Australia (an independent advisory service) to produce a guide on PPAs.

**The objectives of this guide are to provide:**

- an accessible resource on the key options, the pros and cons and best practice offsite renewable energy procurement;
- information on what councils can and cannot do in relation to PPAs under the Ministerial Investment Order based on advice from the Office of Local Government;
- an overview of retailer market offers for PPAs.



## 2. Net Zero Targets, Energy Management and Offsite Renewable Energy

### Key Points:

- Offsite renewable energy and PPAs are a method of achieving large emissions reductions quickly
- LGC retirement is the primary method to reduce Scope 2 emissions
- Fuel switching, avoidance and offsets are primary options for Scope 1 emissions reduction

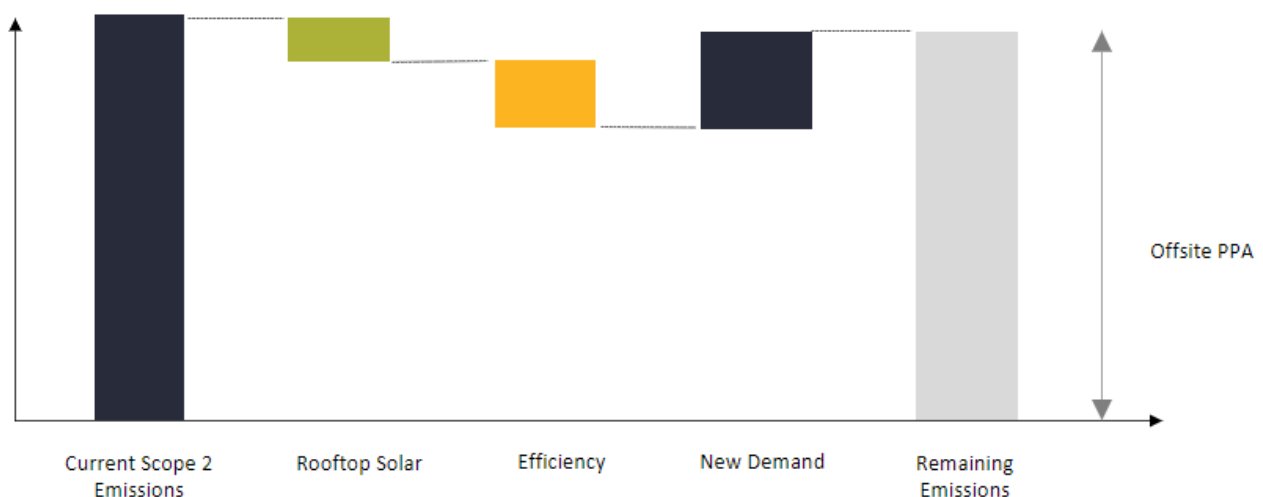
Emissions reductions and Net Zero targets have been publicly announced by many NSW councils, and some are reaching the point where these targets have been met.

Generally, councils target Scope 1 and Scope 2 emissions reductions. Scope 1 emissions are emissions caused directly by councils, such as burning petrol in car usage, burning gas onsite for heating or refrigerants from chilling plant. Scope 2 emissions relate to the use of electricity in council facilities.

Many NSW councils have been very proactive in managing their energy consumption. This includes investing in efficiency of buildings, plant and operations, including assets such as aquatic centres and other community infrastructure. Most councils have installed rooftop solar and are investigating or installing LED street lights, and some are investigating or piloting battery storage and electric vehicles.

Generally, investments in on-site energy efficiency, solar and storage can achieve significant savings and emissions reductions, but there are usually limits (e.g. on-site solar can often supply less than 20 per cent of consumption due to space constraints) – as represented below in an illustrative ‘waterfall chart’.

**Figure 3: Emissions Reduction – Illustrative Waterfall Chart**



A key attraction of offsite renewable energy and PPAs is that with a single procurement process and contract, councils can achieve significant emissions savings.

### Reduce Scope 2 emissions with renewable energy purchasing

It is important with public announcements of renewable energy procurement, emissions targets and plans to ensure that such plans, targets and actions are credible and can be verified. This means following good practice and allowing transparency.

It is best practice for Councils to reduce their operational emissions directly. For example, if a portion of a council's emissions are from electricity, it is better to switch to renewable energy rather than offset these emissions through other means.

For Scope 2 emissions from electricity usage, emissions reductions through renewable energy purchasing is managed using Large-Scale Generation Certificates (LGCs) in Australia. To be able to claim Scope 2 emissions reductions, LGCs must be purchased and “retired” or “surrendered” with the Clean Energy Regulator to ensure the emissions reduction cannot be claimed by others (i.e. they cannot be on-sold). In

practice, this generally means a retailer retiring the LGCs on the electricity customers behalf. Councils may seek a higher level of auditing and set up an account in the Clean Energy Regulator portal and have LGCs transferred to them on a regular basis from the supplier (say, monthly) and retire them annually when they are doing their Greenhouse Gas accounts. This gives the council clear evidence of the supply and retirement of LGCs. Alternatively, Councils should ask retailers for proof LGCs have been surrendered.

### **The Cost of LGC retirement and Scope 2 Emissions reductions**

Surrendering LGCs comes at a cost. LGCs can be bought and sold in the open market at spot prices, or under long retail contracts. Up to date spot prices and future prices (which are subject to change) can be found on the Mercari website (<http://lgc.mercari.com.au/>).

Even if LGCs are provided under contract, surrendering them is an opportunity cost of forgone revenue. For a council using 10,000 MWh per annum of electricity, for example, with LGCs costing \$35 each, this is a value of \$350,000 per annum. For many large corporates, universities and councils with commitments to a certain percentage of renewables already or in the future, surrendering LGCs is required to satisfy these commitments.

To manage this cost and also the future price risk, it is important to be proactive. Long-term LGC purchasing under fixed price contracts prevents exposure to future price rises and improves budget certainty. Generally, purchasing LGCs under contract for the future can see lower costs of \$10-\$20 per LGC over 6-8 years, rather than the current (2021) spot price of approximately \$35-\$40.

Another way to reduce this cost is to enter into a PPA today, but delay the surrender of LGCs - for example to meet a 100 per cent renewable energy target by 2025 or 2030. This means LGC pricing is generally lower for those years, and LGC retirement and renewable energy claims become more affordable. Some buyers also consider they can use the revenue in the meantime for alternative on-site emissions reductions projects.

### **Scope 1 Emissions**

It is best practice to reduce emissions at the source. Generally, it is not recommended to use LGCs to offset emissions from gas and petrol burning, and other Scope 1 emissions. Scope 1 emissions can be reduced by avoiding or reducing consumption then implementing energy efficiency measures - or where that is not possible electrification to enable them to be covered by offsite renewable electricity. Electrification is an emerging way of using renewable electricity to replace gas for hot water, cooking and heating by using heat pumps and other technologies. Electric vehicles are another form of electrification, and some NSW councils such as Sutherland Shire and Blacktown City are piloting electric garbage trucks.

If the emissions reduction is required sooner than such actions are possible, or complete elimination of those emissions is not practical or possible, then offsets via "Nature Based Solutions" or otherwise can be used.

In summary, PPAs are a large component of emissions reductions for councils and Net Zero targets and plans. But they are not the full picture, and good practice and credible actions require a broad range of activities.

### 3. Offsite Renewable Energy: An Introduction

As renewable energy PPAs have grown over the past five years, the market has rapidly evolved with new offerings and products. Up until around 2016, the primary way for an organisation to purchase renewable energy was via the government accredited GreenPower program. GreenPower accredits electricity retailers to buy and surrender Large Generation Certificates (LGCs) when the customer purchases GreenPower. There are more than 20,000 businesses across Australia that purchase GreenPower.

However, in the US, from around 2010 a number of large corporates like Google and Facebook kicked off a new model of renewable energy procurement – power purchase agreements negotiated directly with solar and wind farms. The early PPAs in the US and then Australia from around 2016 were signed by large electricity users directly with solar and wind farms, but now most electricity retailers are actively offering a range of PPA models targeted at different users – from power-hungry manufacturing down to individual schools, vineyards and small regional councils.

Whilst there are many variations in the type of PPAs, there are two predominant types:

- a Wholesale PPA negotiated directly with a renewable energy project (this is a financial instrument that is separate to the retail electricity agreement)
- a Retail PPA where the electricity retailer owns or holds the contract with the renewable energy project and on-sells electricity and/or green certificates (this is integrated with the retail electricity agreement)

As Wholesale PPAs are not permitted under the Ministerial Investment Order these are not covered here (for interested readers, see Appendix A).

#### Renewable Energy Options: On-site Renewable Energy, Greenpower and PPAs

There are a range of ways for NSW councils to source renewable energy. Councils can install on-site renewable energy (especially rooftop solar), buy GreenPower through a retailer or purchase electricity and/or LGCs via a power purchase agreement. Each of these options come with relative strengths and weaknesses that councils should consider, which are summarised in Table 4.

**Table 5: Renewable Energy Options, Strengths and Weaknesses**

| Option               | Strengths  | Weaknesses   |
|----------------------|--|--|
| <b>On-site solar</b> | <ul style="list-style-type: none"> <li>• Relatively quick, simple procurement</li> <li>• Good financial returns</li> <li>• Less subject to performance and operational risks (e.g. grid congestion)</li> </ul>   | <ul style="list-style-type: none"> <li>• Up-front capital expenditure for most models</li> <li>• Integration with onsite infrastructure is needed</li> <li>• More delivery and operational risk to Council</li> <li>• Generally, onsite solar can only cover a portion of organisational energy and emissions – commonly a relatively small percentage (&lt;20%)</li> </ul>  |
| <b>GreenPower</b>    | <ul style="list-style-type: none"> <li>• Simplest option – standard retail procurement with addition of LGCs</li> <li>• Flexible/no long-term commitment</li> <li>• Fastest way to reduce greenhouse gas emissions and achieve net zero targets</li> <li>• Emissions reductions recognised by a range of rating systems (NABERs, GreenStar etc)</li> </ul> | <ul style="list-style-type: none"> <li>• Higher cost for LGCs than a retail PPA</li> <li>• Greenpower does not reduce exposure to higher electricity prices</li> <li>• Generally lower environmental impact than a retail PPA: GreenPower increases demand for LGCs (and therefore the price and revenue for renewable energy projects) - but RE projects need revenue certainty over a longer-term to secure project finance. A retail PPA which directly supports a renewable energy project is more impactful.</li> </ul> |

- Without a connection to a project, there is less value from demonstration or leadership impact in advocacy with local community.

|   |  |   |
|---|--|---|
| <p><b>Retail Power Purchase Agreement</b></p> | <ul style="list-style-type: none"> <li>• Fast way to reduce greenhouse gas emissions and achieve net zero targets</li> <li>• Fixing a price for some or all of electricity requirements can reduce or eliminate exposure to electricity price increases for term of contract</li> <li>• LGC prices are lower than Greenpower.</li> <li>• Increased budget certainty</li> <li>• A PPA with a renewable energy project is the most direct way to increase renewable energy</li> <li>• High demonstration and leadership value with local community</li> <li>• Lower project development, delivery and operational risk to Council</li> </ul> | <ul style="list-style-type: none"> <li>• Higher complexity and transaction costs</li> <li>• Upskilling and use of external advisers required</li> <li>• If electricity and/or LGC prices fall over the term of the agreement, expenditure could be higher than it otherwise be under standard retail contracts or GreenPower</li> </ul> |
|---|--|---|

On-site solar is a mature technology which can be relatively easy to install and low-risk and comes with good financial returns. Councils should maximise the use of on-site capacity to install solar to reduce emissions, but generally there are space limitations which mean only a minority of energy usage can be supplied.

GreenPower is the simplest offsite renewable energy option. It is well-established, relatively easy and simply purchases LGCs from accredited renewable energy projects from a retailer. It is recommended for councils seeking the easiest pathway to buy offsite renewable energy.

However, there are important limitations which have led organisations to pursue PPAs:

- **Cost premium:** buying and surrendering LGCs on their own through GreenPower) is a cost with no direct financial return. LGCs are cheaper through a PPA, with significant discounts available for term lengths beyond 5 years. A PPA could deliver a financial benefit by negotiating a cheaper rate for LGCs and/or electricity, tapping into the falling costs of wind and solar, and increases budget certainty.
- **Weaker market signal** and lower environmental impact: wind and solar farms are long term assets requiring 10-15 year loans to compete with existing (coal and gas) generation. Whilst buying LGCs adds to demand and price, a short-term high LGC price does not give the long term revenue confidence to banks to finance new projects. A PPA provides that revenue certainty and enables new investment
- **Limited Demonstration Value:** If LGCs are purchased on the open market, the council does not have a link to a particular wind and solar farm to demonstrate the impact of their purchase. A Retail PPA with LGCs contracted from a nominated project can provide this direct link between Council and Renewable Energy Investment or Generator. Being able to demonstrate leadership helps councils in their advocacy for businesses and residents to buy renewable energy.

A PPA comes with LGC savings, greater budget certainty and higher environmental and demonstration impact, but there is higher complexity and transaction costs. A retail PPA will require the council to engage external advice to understand and evaluate offers, it will be a longer process and a retail PPA comes with their own specific risks that need to be actively considered and managed. The next section unpacks retail PPAs and how they work before outlining the different risks that apply between a standard retail contract and different retail PPA models.

## Renewable Energy Power Purchase Agreements: Regulatory Considerations

Under the NSW Ministerial Investment Order (2011), councils are not permitted to enter into derivatives. The Office of Local Government advises that a Wholesale PPA - which is a contract-for-difference usually treated as a derivative for accounting purposes – is defined as a derivative for the purposes of the Investment Order.

As long as councils comply with procurement and tender regulations and tender through a retailer, a retail PPA is permissible and not in contravention of the Ministerial Investment Order. The Office of Local Government also advises that the establishment of a Special Purpose Vehicle may require ministerial approval under s.358 of the Local Government Act.



If a council is participating in a buyers' group, it may also be required to apply to the Australian Competition and Consumer Commission for an exemption from anti-competitive regulations.

Some councils who have implemented a PPA recommend appointing a probity adviser to oversee the process in addition to external legal advice.

### Retail PPAs: the basics

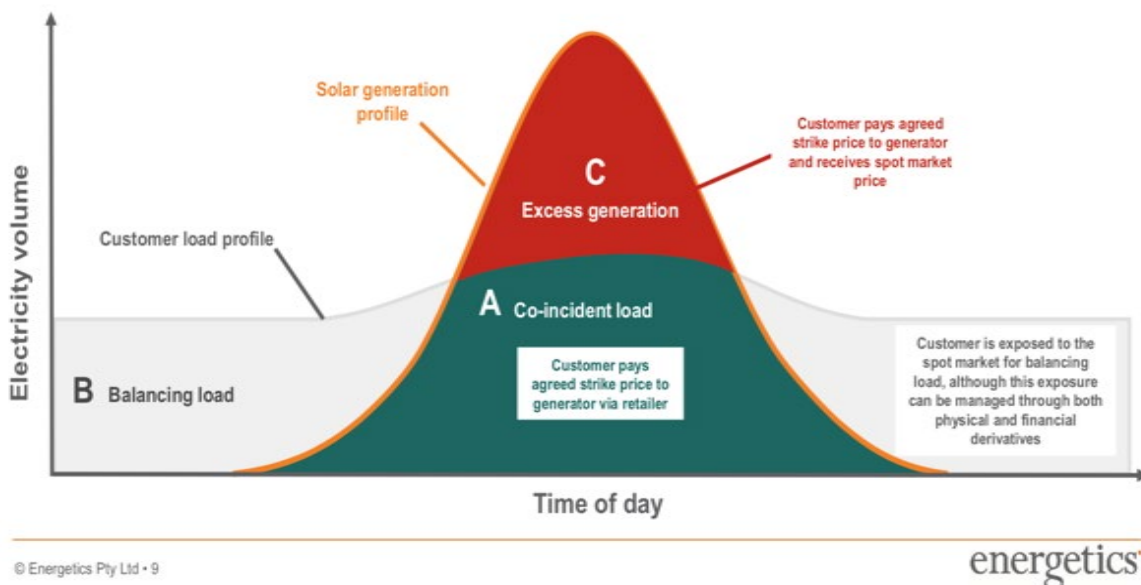
Under a Retail PPA, the customer buys electricity and/or large-scale generation certificates (LGCs) from a specified renewable project (or projects) via a retailer in exchange for a fixed price for the agreed output. The retailer is therefore responsible for negotiations and contract management with the project developer. The PPA is integrated with the retail supply agreement of the buyer.

In a Retail PPA, there are three types of transactions:

1. **the renewable energy PPA:** the buyer receives renewable energy under the terms of the PPA from the solar or wind farm at times when it matches their site load(s) based on the agreed price (section A in the figure). The customer is given a monthly credit/debit depending on whether the electricity spot price is over or under the fixed price for the power generated by the renewable project.
2. **Retail Electricity Supply:** pricing is negotiated for the times when the solar and/or wind farm produces in excess of your consumption (section C in the figure) or is insufficient to supply your consumption (section B in the figure).
3. **LGC pricing:** a third price will be negotiated for the LGCs.

The monthly credit/debit for the PPA is added to the standard retail invoice with payment for environmental, network and market charges.

**Figure 4: Retail PPA Pricing – Illustrative Example**



### Key features:

- **Size:** the minimum demand threshold for a retail PPA varies between retailers (see retail offers section). Some have offers for as low as 100MWh but in general the minimum threshold is 5 – 10 GWh p.a.
- **Environmental benefit:** the environmental benefit of a PPA is greatest where it supports a new renewable energy project and retailers can negotiate on behalf of a customer. A new project adds to the stock of renewable energy generation displacing electricity from coal and gas generation.

Many retail PPAs are signed with operating renewable energy projects that are already generating which raises questions about ‘additionality’ and environmental impact. If the retailer is signing PPAs with new projects and then on-selling to customers, the purchase is adding to demand for new renewable energy as the retailer will return to the market once existing capacity is sold.

If buyers sign a 3-year PPA with an operating project and retire the LGCs, they add to the demand and price for LGCs - but support for new renewable energy is more indirect.

- **Legal status:** if a council conducts its procurement process in accordance with the Local Government Act and procures electricity through a retailer, a retail PPA will be compliant with legal requirements. Cases exist across the spectrum of retail PPA models for NSW councils.

## Retail PPAs: a deeper look

There are three broad options for retail PPAs which vary regarding complexity, value and risk.

### Option 1: Standard Retail Contract with LGCs (sometimes called an ‘LGC-only PPA’ or ‘Asset-Linked PPA’)

**How it works:** a standard retail contract is combined with LGCs linked to a specific solar or wind farm. Electricity procurement is no different from a standard retail contract but the LGCs are procured from specific generator(s).

| Pro’s   | Con’s  | Risks   |
|---|--|---|
| <p>The simplest model as it involves the least change. If LGCs are retired, emissions reductions can be claimed.</p> <p>Lower-cost LGCs relative to GreenPower, with cheaper prices available for longer terms.</p> | <p>Less scope for risk mitigation and savings as it does not fix a price for electricity from the renewable energy project(s).</p> <p>It adds to demand for LGCs but generally lower environmental benefit as it does not directly support a new renewable energy project.</p> | <p>Full exposure to electricity market when recontracting retail electricity in 1-3 years – price will depend on state of market.</p> <p>LGC prices could fall in the longer-term and in latter years may be lower than the contracted price.</p> |

### Option 2: Fixed-Price Retail PPA with ‘full firming’

**How it works:** PPA with one or more renewable energy projects for their generation plus a fixed-price for balancing supply.

| Pro’s   | Con’s   | Risks  |
|---|---|--|
| <p>PPA model with the highest level of price certainty.</p> <p>Less exposure to price increases than the standard retail contract where all electricity is subject to market rates at the time of re-tendering.</p> | <p>Fixed-pricing is a service from a retailer which comes with a cost as they are managing the risk of variable wholesale prices on behalf of the customer.</p> | <p>Growing number of retailer offers include a fixed-price for a longer term – up to 10-years. Otherwise balancing supply is recontracted in 2-3 years and subject to the state of the electricity market.</p> <p>Electricity prices may fall in the longer-term which would mean the council pays more than they would otherwise under a retail contract.</p> |

### Option 3: Retail PPA with ‘Partial Firming’

**How it works:** PPA with one or more renewable energy projects. Balancing supply to complement the PPA is subject either to fixed-pricing for some periods of balancing supply and wholesale price pass-through for

other periods (e.g. off-peak) or variable wholesale prices but with a monthly cap on expenditure to limit exposure to price increases.

| Pro's   | Cons   | Risks  |
|---|--|--|
| <p>There is less exposure to electricity price increases than option 1 - via the fixed price supply from the generator(s), fixed price from the retailer for balancing supply and monthly cap for remainder which is set by the wholesale price.</p> <p>Savings can be achieved relative to option 2 as the retailer is providing less firming.</p> <p>This is especially if complemented by onsite generation, storage, energy efficiency or demand management to reduce consumption in high-price periods. Surplus generation sold into the wholesale market by the retailer on behalf of the council can earn significant revenue.</p> | <p>These arrangements may be more complex to negotiate with retailers.</p> <p>To get full value, this option requires more proactive on-site energy management and time commitment. It generally suits councils engaging with on-site energy use more than councils who prefer a more 'set-and-forget' option.</p> | <p>There is exposure to wholesale price increases up to the monthly cap for consumption not covered by the PPA or agreement with the retailer.</p> <p>If electricity prices fall, the council may pay more than they would otherwise – albeit less than a fixed price PPA as the residual consumption will benefit from price falls.</p> |

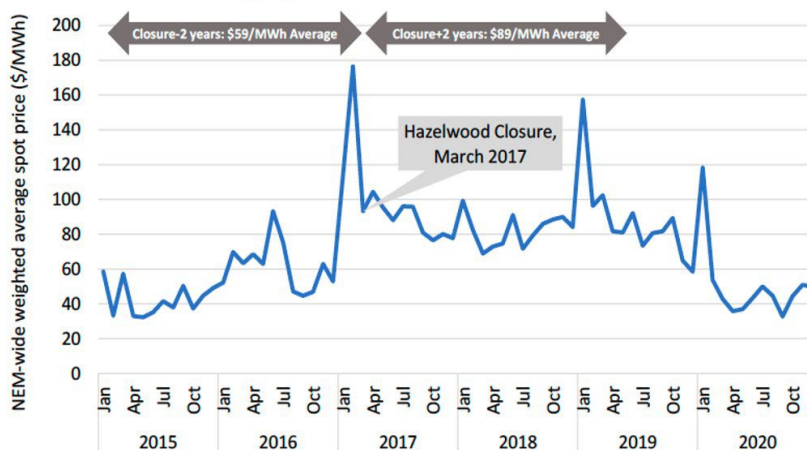
### Electricity Procurement and Risk: Retail Contracts and PPAs

Whilst offsite renewable energy procurement often starts as a sustainability initiative to reduce greenhouse gas emissions, the decision on the option to pursue must also meet financial and risk criteria. Indeed, in the final stages of decision-making, the discussion is often largely about financial and risk dimensions.

Australia is going through an accelerating clean energy transition which creates uncertainty and volatility in electricity prices. There are upward and downward pressures on electricity prices. Major upward pressures on electricity prices can include international gas prices and the shutdown of coal power stations. Figure 1 illustrates the volatility and the price spike which occurred when the Hazelwood coal power station closed in 2017.

**Figure 5: Average Wholesale Electricity Prices, National Electricity Market 2015 - 20**

**Figure 33: NEM-wide Weighted Average Price, By Month, Including Hazelwood Closure Highlight in March 2017**

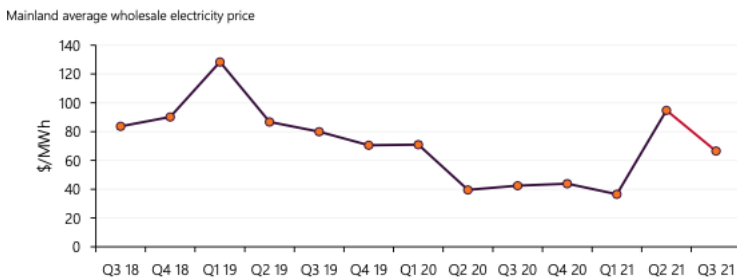


Source: IEEFA analysis. Based on AEMO generation and price data.

Note: figure has been reproduced from IEEFA (2020)

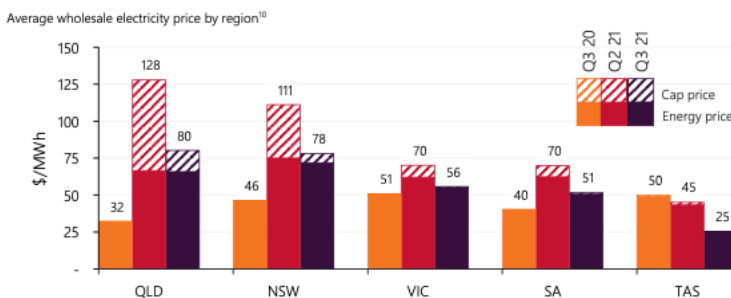
Under the Australian Energy Market Operator’s Integrated System Plan – the ‘roadmap’ for the National Electricity Market - as much as 14GW of the 23GW coal power station capacity could close by 2030. Under all scenarios in the ISP, there is at least 90 per cent renewable energy by 2035. The timing of the coal plant withdrawal is unknown and there is the risk of price spikes, especially if multiple plants close in a short timeperiod. Major downward price pressures include the falling cost and increased supply of renewable energy and storage. Over the past two-years, electricity prices have moderated to an average of around \$40/megawatt-hour – but underlining the on-going uncertainty the price spiked in Q2 2021 to an average of \$95/MWh (and \$111/MWh in July 2021).

**Figure 6: Average Wholesale Electricity Price, National Electricity Market**



Each state within the National Electricity Market has its own wholesale electricity price – NSW prices were amongst the highest.

**Figure 7: Average Wholesale Electricity Price, National Electricity Market by State**



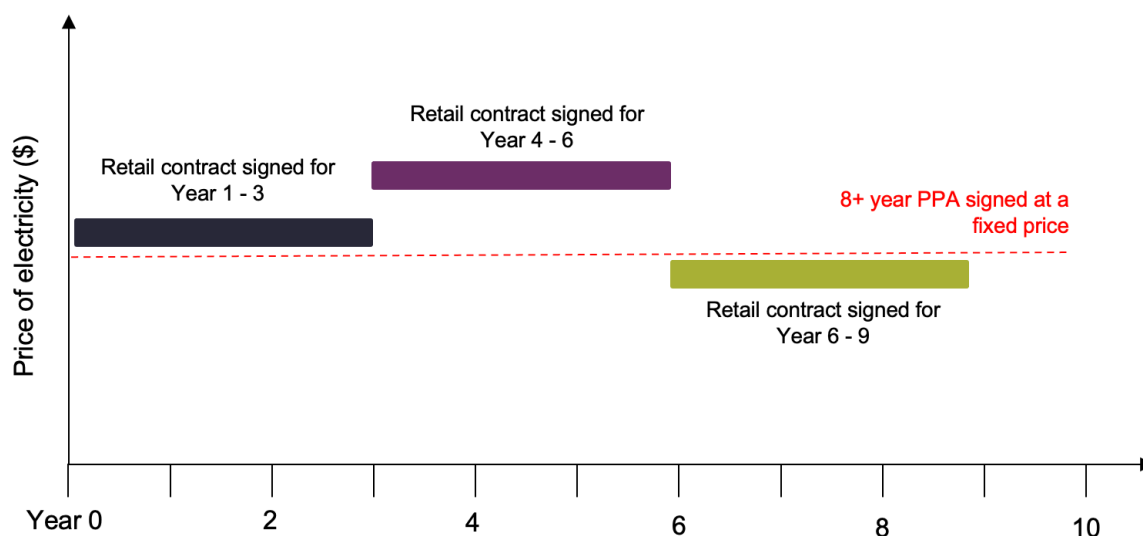
Note: electricity prices are set every 5-minutes in the wholesale market. The striped area in the figure illustrates the contribution of high-price events above \$300/megawatt-hour (the benchmark for electricity cap or hedge products) to the average price.

Consequently, there are ‘upside’ and ‘downside’ price risks - and electricity procurement models have different mixes of exposure to these risks.

In the context of a volatile market that is being transformed, contracting through a retailer is not risk-free or low-risk. Contracting retail supply every 2-3 years means that 100 per cent of a council’s grid electricity consumption is exposed to the risk of price increases every time the council goes to market. Depending on when a council is going to market they could find themselves facing steep price increases (e.g. after the closure of the Hazelwood power station in 2017 – a number of councils who have negotiated PPAs stated they found themselves facing 200-300% price increases and this was one of the triggers for looking at PPAs). If prices fall and are lower at the time a council goes to market, they will benefit relative to a PPA which has fixed a price.

A PPA provides greater budget certainty and reduces exposure to electricity price increases – as demonstrated over the page by an illustrative example of a future with price increases and decreases.

**Figure 8: Retail Contracting and PPAs – an Illustrative Example**



The risk profiles of the two PPA models are therefore different to retail contracting:

- A fully-firmed, fixed-price PPA has the opposite risk exposure. By fixing a price through a PPA, a council gets greater budget certainty and removes exposure to price increases, but if electricity prices fall they may pay more than they would otherwise through a standard retail contract.
- A PPA with partial firming sits between these two options as there is some consumption set through market pricing in addition to the PPA. Consequently, there is some but less exposure to upside price risk than a standard retail contract, some but less exposure to downside price risk than a fully firmed PPA. A PPA with partial firming also has ‘volume risk’ (i.e. variability in delivered output from the generators), although there are options to manage this risk (e.g. minimum performance guarantees).

Table 6 explains the different mix of price risks and mitigation options.

**Table 6: Upside and Downside Price Risks under different procurement strategies**

| Option                                | Upside Price Risk Exposure   | Downside Price Risk Exposure   | Mitigation   |
|---------------------------------------|--|--|--|
| Standard Retail Supply Contract       | <ul style="list-style-type: none"> <li>• Without a longer-term retail PPA, a council will have to go to market to procure electricity at least 3-5 times during the clean energy transition.</li> <li>• 100 per cent of electricity consumption is exposed to market trends at the time of these tenders and therefore the risk of electricity price increases.</li> </ul>           | <ul style="list-style-type: none"> <li>• Councils with standard retail supply contracts will benefit from electricity price falls. Implicitly, councils on standard retail contracts are acting on the assumption that prices will be lower when they are procuring electricity.</li> </ul>                                      | <ul style="list-style-type: none"> <li>• Reducing grid electricity consumption through onsite PV and energy efficiency</li> <li>• Longer-term LGC purchases can reduce exposure to future green certificate prices</li> <li>• PPAs remove some or all exposure to upside price risks</li> </ul>  |
| Fully Firmed Retail PPA - Fixed Price | <ul style="list-style-type: none"> <li>• A fully firmed retail PPA reduces or eliminates exposure to price increases by fixing a price for the term of the contract for electricity procured from the renewable energy project(s) and balancing supply.</li> <li>• Firming has costs and therefore all things equal the price will be higher than a partially firmed PPA.</li> </ul> | <ul style="list-style-type: none"> <li>• A fully firmed retail PPA is exposed to downside price risk. If electricity prices are lower than the contracted price, the council will pay more than they would otherwise under a standard retail contract</li> <li>• Even under this scenario, the fixed price retail PPA</li> </ul> | <ul style="list-style-type: none"> <li>• Reducing grid electricity consumption through onsite PV and energy efficiency</li> <li>• Shorter term lengths (e.g. 5-years) with an option to renew reduces exposure to longer-term price reductions as the market share of renewable energy grows. There is a trade-off with a lower price for longer-terms.</li> </ul> |

|  |  |  |  |
|--|--|--|--|
|  |  | provides greater budgeting certainty.  |  |
| Partially Firmed Retail PPA - Variable Pricing | <ul style="list-style-type: none"> <li>A partially firmed retail PPA reduces exposure to price increases relative to a standard contract but less so than a fixed price retail PPA.</li> <li>Under a partially firmed retail PPA, there is a fixed price for supply from the renewable energy project(s) and any negotiated arrangement with the retailer – therefore reducing but not eliminating exposure to price increases</li> <li>Pricing for surplus generation or additional electricity consumption not covered is set by wholesale electricity prices.</li> <li>Exposure to price increases is typically limited through, for example, a monthly expenditure cap.</li> </ul> | <ul style="list-style-type: none"> <li>A partially firmed retail PPA has less exposure to downside price risk than a fixed price PPA</li> <li>If wholesale electricity prices fall, the reduced prices for the remainder of electricity consumption not covered by the PPA or firming arrangements will also fall. Therefore, the gap between the price of the PPA and the actual electricity price will be lower under these circumstances than a fixed-price PPA.</li> </ul> | <ul style="list-style-type: none"> <li>Reducing grid electricity consumption through onsite PV and energy efficiency</li> <li>Risk management tools include instruments to limit monthly expenditure, minimum generation guarantees to avoid shortfalls in expected generation or LGCs</li> <li>On-site demand management and storage to shift consumption, especially out of high-priced periods. If the council can reduce its electricity consumption during peak periods below the contracted purchase under the PPA, surplus generation is sold into the wholesale electricity market. Councils have limited exposure to price increases but also the opportunity to earn revenue during high-price periods.</li> </ul> |


Another factor that needs to be considered is the rates peg provides councils with some but not full protection against electricity price changes. Under the rates peg, IPART sets a maximum percentage by which councils may increase rates based on the Local Government Cost Index, which includes electricity prices. Electricity costs are determined using the ABS cost index for the past financial year. However, this is an annual average which doesn't necessarily align with the market conditions at the time of tender and therefore the contract price for an individual council. Councils can find themselves on a retail contract with price increases greater than the rate peg. Conversely, if electricity prices fall, this will be reflected in the rates peg but councils with a higher price negotiated under a PPA will not be fully recouped.


Finally, it is important to keep these risks in the context of overall council finances. As of June 2019, electricity costs accounted for just 2.1% of council costs in the Local Government Cost Index. A 25% increase in electricity costs would therefore translate into around half of a percentage point for the average council. Councils should manage electricity price risks prudently for the benefit of their ratepayers and council finances but they are a modest contributor to the costs of Councils.

### Case Studies – Fully-Firmed and Partially-Firmed PPAs

NSW councils have entered into PPAs across the spectrum of models – there is no right or wrong answer. Different councils have settled on different models depending on their objectives, their council's policies and how they believe the risks of electricity procurement are best managed. Two leading examples are provided below to bring these models to life with a case where a council negotiated a fully-firmed/Fixed-Price PPA (Northern Beaches) and a council negotiated a partially firmed PPA with variable pricing (City of Sydney).

**Table 7: NSW Council PPA Case Studies**

|   |  |
|---|--|
| <b>Case Study 1</b>   | <b>Fully-Firmed/Fixed Price PPA: Northern Beaches Council</b>  |
|  | <p>There are several NSW councils that have signed fixed-price PPAs, including <b>Eurobodalla, Hawkesbury and Northern Beaches</b> councils.</p> <p>In its Environment and Climate Change Strategy adopted in 2019, <b>Northern Beaches Council</b> committed to achieving 100 per cent renewable electricity powering all Council buildings by 2030. During renegotiations of the electricity contract in 2020, staff identified an</p> |

|   |   |
|---|---|
|   | <p>opportunity to achieve that target much earlier. Subsequently, staff presented a case to Councillors and Council authorised staff to negotiate a Renewable Energy PPA, with the expectation that the PPA would cost no more than existing retail arrangements.</p> <p>A fixed-price Retail PPA was negotiated during 2020 to achieve the twin aims of sustainability and financial risk management. Northern Beaches settled on a 7-year retail PPA commencing on 1 January 2021 with the following structure:</p> <ul style="list-style-type: none"> <li>• a 5-year fixed electricity price;</li> <li>• a 2-year extension with a price re-set formula;</li> <li>• the 2-year extension included scope for electricity price increases but it included a much better fixed LGC price for the whole 7 year period.</li> </ul> <p>This approach minimised the risk for Council but allowed the negotiation of very competitive rates.</p> <p>Due to long-term market uncertainty, rather than take on the risk of a fixed 10 year contract, Council chose to include an option to extend the contract for an additional 3 years at the expiry of the initial 7-year term.</p> <p>Modelling of the deal was undertaken by an external consultant and the estimated budget impacts reviewed and supported by Council's Finance department. This allowed Council to proceed with the knowledge they expect to make \$1.9M in savings over the 7 year term. Extensive engagement and discussion occurred between different areas of council to build commitment and consultation with Councillors helped build understanding and support for the PPA.</p> <p>The electricity is sourced from a portfolio of projects which will include new projects planned to come on-line in coming years. LGCs are sourced from a wind farm in regional NSW.</p> <p>See Appendix B for a full case study.</p>   |
| <p><b>Case Study 2</b></p>  | <p><b>Partially Firmed/Variable Price PPA (City of Sydney)</b></p>  |
|  | <p>There are several NSW councils that have signed partially firm PPA's, including the City of Sydney and the City of Newcastle.</p> <p>In 2019, the City of Sydney signed a PPA with Flow Power to power all its operations (115 buildings, 75 parks and 23,000 streetlights) with 100 per cent renewable electricity from Sapphire Wind Farm and Bomen Solar Farm. The PPA also includes 10% of the electricity from a community owned solar farm near Nowra. Peak demand is at night from street lighting so the majority of its renewable electricity is sourced from the wind farm.</p> <p>In addition to the emissions reductions, Neil Palagedara (business manager) explains other drivers were:</p> <ul style="list-style-type: none"> <li>• <b>Increased budget certainty:</b> <i>"the agreement has helped us cap our energy costs. When we looked to renew our previous energy contract, we'd have faced something like a 200% increase in costs - this agreement has allowed us to lock in a stable and competitive price"</i>.</li> <li>• <b>Social outcomes from community energy and regional development:</b> <i>"Before, our energy procurement didn't serve a social purpose. Now we're supporting our social responsibility goals by partner(ing) ... with rural generators."</i></li> </ul> <p>For the City of Sydney, the risk profile was acceptable because:</p> <ul style="list-style-type: none"> <li>• the combination of solar and wind in the PPA enables a high match (&gt;80%) with consumption – meaning a fixed price for 80% of the load instead of re-tendering for all their requirements every few years.</li> <li>• The City of Sydney receives the wholesale price for contracted generation in excess of consumption or pays the wholesale price for consumption in excess of contracted generation. However, the risk is limited by an Average Rate Option (ARO) product which caps the monthly expenditure for balancing supply and therefore the exposure to price increases.</li> </ul> <p><i>'The deal was very different to what we expected. There was hours and hours of meetings with the consultant to get comfort. The consultant modelled it and said if I base it on the last 5 years, this is the maximum price you would've paid. For us, we realised we were not categorising the risk correctly ... if it was done by us, I don't think my view would've been changed and it would've been more like a traditional contract structure which wasn't necessarily the best option'</i> (Neil Palagedara, business manager).</p> |

The City of Sydney is examining the scope for demand management and storage to increase the environmental benefits and reduce electricity costs. For example, if the CoS can reduce their consumption in high-price times, some of the contracted generation can be sold into the wholesale electricity market to increase revenue and support the electricity grid when it's under strain.

## LGCs, Environmental Impact and Claims

There are a number of issues that councils should consider when developing their approach to LGCs and how to maximise the environmental benefit of the PPA. Earlier, we explained that there are three options for councils. Either a council retires the LGCs to claim the emissions reduction, it on-sells the LGCs for the revenue but is not formally able to claim the emissions reductions or it delays retiring the LGCs until a later date before the net zero target date (e.g. 2025).

The choices you make influences how renewable energy initiatives can be marketed and communicated publicly. An organisation cannot directly claim it is using renewable energy or reducing its emissions if it does not retire the LGCs. Public claims possible under the different surrendering options are:

1. With LGC surrender: "Organisation X now procures enough renewable energy to meet 100% of its annual demand"
2. Without LGC surrender: "Organisation X has signed a PPA with XXX solar/wind farm. This will generate the equivalent amount of electricity as Organisation X's operational demand."
3. With later LGC surrender: "Organisation X has signed a PPA with XXX solar farm, on a path to meeting





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## 4. Renewable Energy PPA Procurement

Arguably the largest body of work involved in a PPA is the procurement stage. This includes getting internal approval to commence a procurement process, preparing the RFT or RFP, managing the process, evaluation and shortlisting, selection and negotiation.

Indeed, the way the procurement is done can heavily influence the type of PPA that is signed in terms of its additionality, impact, environmental claims and financial benefits. The best intentions during business case and executive engagement phase can be unwound with a poorly planned procurement process.

This section discusses four important elements of the procurement process to ensure PPA objectives are met: staging; timing; term and evaluation criteria.

### Procurement Staging – RFIs, EOIs, RFPs and RFTs

There is a significant difference between PPAs with new wind and solar farms and typical retail contracts. Historically when tendering for retail electricity supply every 2-3 years, prices can only be held for 48 hours. This can make retailer electricity tender processes very intense and fast.

Renewable energy retail agreements and Retail PPAs are less commoditised with more differentiation than just price, so take time to evaluate and finalise. It is also still an emerging market, with new offers, products and models coming to market. This means that over specification in a tender may exclude offers that may better meet the procurement objectives.

Organisations often work closely with consultants who are knowledgeable and experienced with current market offers, and can narrow down the types of offers that will be suitable prior to tender. This work can enable a single stage tender process.

Another option is a 2-stage process that involves an EOI and shortlisting, prior to Request for Tender (RFT). This enables less work by respondents, the ability to see all offers available in the market, and opportunity to further refine prior to RFT.

Often, business case approval is needed prior to a procurement process, and this includes approval to enter into the final contract, including contract term (years), cost and budget for the full contract. Therefore, using an EOI to find more market information does not relieve the amount of up-front work that is required.

Some councils' procurement processes such as the Melbourne Renewable Energy Project 1 by City of Melbourne, and Hunter (NSW) group led by Lake Macquarie Council have used an RFI (Request for Information) stage to get market and offer information, without needing full approval for a procurement process.

| Term | Details  |
|------|--|
| EOI  | <ul style="list-style-type: none"><li>• <b>Expression of Interest:</b> An additional stage to gather supplier, product and market information prior to finalisation of RFT or RFP</li><li>• Submission requirements by respondents are less compared with RFT and RFPs</li><li>• Often full business case approval is needed as EOI is determined as “commencement of a procurement process”</li></ul> |
| RFP  | <ul style="list-style-type: none"><li>• <b>Request for Proposal:</b> Generally used where the product or design is less specified, and capital investment is being done by the respondent</li><li>• Specification and evaluation criteria are more outcome and performance based, than design detail</li></ul>   |
| RFT  | <ul style="list-style-type: none"><li>• <b>Request for Tender:</b> Competitive process used to procure a product or specified service</li></ul>  |

| Term | Details  |
|------|--|
| RFI  | <ul style="list-style-type: none"> <li>• <b>Request for Information:</b> An open stage where retailers and others can respond and provide information on their offers</li> <li>• Used to hear about latest products and offers without formal commencement of a procurement process</li> </ul> |

### Timing

Typical retail tenders are commenced 2-4 months prior to expiry of the current retail contract. For example, if a retail contract is 2 or 3 years running until 30 June of a year, the tender is done sometime between February and April in that year, to contract electricity for the next 2-3 years. This timeframe is because retailers use ASX Baseload Futures to manage their price risk when offering fixed retail prices. ASX Baseload futures allows the pre-purchase of electricity at fixed prices, with purchasing open usually 3 years in advance.

However, for renewable Retail PPAs, tenders are recommended to commence 1-3 years prior to expiry of a current retail contract.

There are two main reasons for this. Firstly, as Retail PPAs are less standardised with more differentiation and non-price evaluation criteria, then more time should be allowed for procurement. Secondly, if there is an intention for the Retail PPA to support new solar or wind projects, even more time is needed. Typically, it takes 2-4 years to finance, construct and commission a new large scale solar or wind project and so the project may not start generating until sometime after the PPA is finalised. One way to manage this challenge, if it is proposed to enable a new project is to run the tender well in advance of start of supply, for example 1-2 years prior. Retailers also offer bridging solutions such as electricity and/or LGCs from other operating renewable energy projects in the meantime.






## Building Internal Support

It is common to hear PPA buyers to say the biggest job was getting internal support within their organisation. For example:

*'60 per cent of the time it took to do the PPA was on internal stakeholder management – and that was even with a team that was set up to do cross-business transactions' (buyer, private sector).*

To obtain executive and Council approval, you will need broad-based internal support across teams (procurement, sustainability, finance, legal). Most councils who have completed a PPA reported extensive engagement with executives, councillor briefings and one or two-stage authorisations from council resolutions through the process. Here are some tips and learnings from others on what you should thinking about to build internal support. For more information: see the BRC-A's [Internal Support Guide](#).

| Phase  | Tips   |
|--|--|
| <b>Preparing for a PPA</b><br>      | <ul style="list-style-type: none"> <li>• <b>Align with organisational targets:</b> the first step is often setting targets and actions in a Council's environmental or long-term plans, especially if they include renewable energy targets as well as emissions targets</li> <li>• <b>Develop an Engagement Plan:</b> consider developing an engagement plan as you would for other major stakeholder engagement exercises – map the stakeholders, their interests, how you will engage them and timelines</li> <li>• <b>Establish a deal team:</b> the leader or initiator is often a sustainability manager – but a PPA requires a deal team or working group that includes members across teams such as finance and legal.</li> </ul>  |
| <b>Building Support</b><br>       | <ul style="list-style-type: none"> <li>• <b>Socialise the concept:</b> One of the clearest learnings from buyers is the importance of 'socialising the concept'. Expect to invest significant time socialising the basic concepts with your finance team, executives and councillors:<br/><i>'every week for six months I had to answer the question: what happens when the sun doesn't shine or the wind doesn't blow?'</i> (buyer, private sector).</li> <li>• <b>Finding deal champions:</b> One of the challenges of a PPA is that as one buyer explained 'it doesn't really fit in anyone's job description'. Finding a 'deal champion' – ideally a senior executive – is a key ingredient to success. Feedback from councils during the development of this guide found that often Directors of Engineering or Engineering Managers became the most suitable "Deal Champion" for the PPA process. This was due to the role that Engineering Managers typically take, managing capital projects with similar sized budgets, and familiarity with energy generation and purchasing.</li> <li>• <b>Building support will require a lot of communication</b> for stakeholders to become comfortable with a PPA and how it works, it is important to identify all potential departments and managers that will be needed for engagement.</li> </ul> |
| <b>Communicating your PPA</b><br> | <ul style="list-style-type: none"> <li>• <b>The Vision:</b> framing the purpose of the PPA when you talk to internal stakeholders is important. While cost is always going to be an important part of the discussion, an excessive focus on cost savings in the framing of the PPA should be avoided (see 'common challenges' section). In general, framing a PPA as a way of combining sustainability and financial risk management is most effective and accurate.</li> <li>• <b>Translate the PPA into the language of your sector:</b> A range of buyers have emphasised it is crucial to find a way to translate the PPA into metrics, concepts and language that is more familiar to your sector than energy.<br/><i>'We found we needed to translate energy speak into bananas and baked beans retail speak'</i> (buyer, private sector)</li> <li>• <b>Keep Communicating – and expect the focus of discussion to change:</b><br/>Communicate consistently and frequently throughout the process. Do not worry about over communicating - worry about under communicating. Even if sustainability is the key driver for the PPA at the beginning, the focus often shifts across the lifetime to finance and risk.</li> </ul>  |

|  |   |
|--|---|
|  | As the deal gets closer, expect the conversation to be less about sustainability and more about the risks associated with the PPA and how they are being addressed. |
|--|---|

## External Consultants

All councils or clusters (JO's, ROC's) that are interested in a renewable energy PPA will need to engage an external consultant. Renewable Energy PPAs are quite different to standard retail electricity procurement and specialist advice will be needed.

Consultants can play a range of roles in PPAs:

- they bring specialist knowledge in areas councils usually don't hold internally, such as electricity markets and pricing;
- they can provide expert advice through the process, translating specialist terminology, reviewing technical data and legal clauses and identifying and mitigating risks;
- they can develop the capacity of internal staff in related areas (e.g. finance and accounting);
- they can support internal decision-makers, especially executives, by giving comfort that staff decisions have been reviewed by experts.

The role of an energy consultant can vary from just an energy market pricing projection to end-to-end advice across the procurement process.

Some retail PPAs with fixed price offers are not dissimilar to standard contracts but, at a minimum, legal review of the agreement and due-diligence will be required on the retailer and counter-parties.

Some **tips from other buyers**:

- Sound out the market before going through a selection process for a consultant
- Pick a consultant who will work the way you want to work: as one buyer put it, do you want an 'expert' who gives you an answer or an 'educator' that is good at building capacity of you and colleagues?
- Assess their communication skills as well as technical skills: as one buyer explained, *'what was different between them (consultants) was their communication skills – their technical skills were pretty similar ... as more people came into the process you had people who weren't as knowledgeable and you needed a consultant who could communicate with them without losing them in the technical complexity'*.
- Include other organisational divisions in the choice of consultant to increase their buy-in to the process
- Expect there to be an on-going role for consultants. Once you have signed a PPA, the consultant can add value by checking it is operating as agreed. After a period of bedding down, you might be able to move to a standard energy consultant instead of a PPA specialist.

For more information on the use of consultants, costs, templates and a list of advisers, see the [BRC-A's External Consultants Guide](#).

## Buyer Groups

Buyer groups can be an excellent opportunity to share resources and transaction costs. Councils can share knowledge and experience in the energy field and with internal stakeholder management.

### Buyer Group Benefits

Various transaction costs such as consultant fees for options assessment, business case development, tender management, negotiation and legal advice tend to be small in PPAs compared to the scale of the contract. However, up front consulting costs can be a barrier for many councils, especially smaller regional councils. Buyer groups can help share this pain and provide a level of confidence if other councils are also participating.


Buyer Groups also bring increased scale. If a Council has objectives of achieving more than a renewable retail agreement, such as supporting the finance of a new project, then the aggregation of a group of buyers brings greater scale and can support this objective. It is true that electricity costs can come down through

scale, but it is also true that the electricity retail market is mature, and the price differential is not as much as many believe.

## Challenges

Buyer Groups can be challenging to form and manage and can require substantial time and resources. There is a risk that the group is not happy with the final deal. In researching this guide, we spoke with one council who participated in a group for 18 months which didn't proceed because other members pulled out. We spoke to another council that withdrew from a group because they had a higher level of environmental ambition.

With this in mind, it is crucial that groups are formed carefully. The number of participants in a group should be a manageable level – often a group of 6 is easier to manage, than say, 16. It is also important that all members are strongly aligned with similar objectives.

| Case Study  | Melbourne Renewable Energy Project – MREP 1 (2017)  |
|---|---|
|  | <p><b>Overview</b></p> <p>The City of Melbourne brought 14 buyers together including local governments, cultural institutions, universities and corporations together to investigate, tender and contract a retail PPA with Tango Energy and Crowlands Wind Farm. In total, the group purchased 88 GWh.</p> <p>Due to the PPA, Tango Energy's parent company, Pacific Hydro, financed and constructed the 80 MW Crowlands Wind Farm which became operational in 2020.</p>   |
| <p><b>Procurement</b></p>   | <p>The City of Melbourne, whilst forming the group, used an RFI process to understand interest and gather market data on potential suppliers and projects and different contract models. It subsequently narrowed the scope of the project and prepared a tender with specification, preferences and outcomes sought.</p> <p>A major challenge was stakeholder management of the 14 parties and all their internal stakeholders. This took significant resources and skill to complete successfully, particularly as the energy market was going through substantial change, and PPAs were very novel in Australia at this point.</p> |
| <p><b>Benefit of Group</b></p>  | <p>City of Melbourne itself is not a very large electricity user, and it alone does not have the scale where its electricity and LGC purchasing can support the finance of a new large scale wind farm. By bringing together a group, it was able increase the scale of the PPA approximately four-fold, achieving a level that was material for investment in large scale wind.</p>  |
| <p><b>Highlight</b></p>   | <p>Despite being one of the first PPA buyer groups in Australia, the PPA achieved incredible outcomes. Firstly, the contract includes "Asset linked LGCs" to ensure the LGCs come from the nominated wind farm. Secondly, the PPA enabled finance and construction of Crowlands Wind Farm. Thirdly, the City of Melbourne and other group participants enjoyed high-profile media stories and photos on its construction, jobs and investment in renewable energy.</p>  |

## Process

Generally, buyer groups have to form and tender for the PPA before knowing what the final price and other key PPA terms will be. All group members may have to commit to sign the PPA, without knowing these details. This is essential so the group can progress confidently, and provide the necessary details to tenderers, but it can be an insurmountable obstacle for some members.

To overcome this, often consultants are used who are experienced and knowledgeable to provide guidance on likely tender responses, contracting models and prices. Generally this is provided as a business case prior to tender for use by Councils.

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## 5. Common challenges

In this section, we discuss some of the common questions and challenges councils have about PPAs.

### Term Length

One of the most common challenges is adjusting to the longer-term of PPAs – from 2-3 years (standard retail contract) to typically 5-10 years. There are a number of considerations that should be kept in mind.

Firstly, the longer-term of a PPA can appear highly risky against traditional retail contracting but as explained without a PPA to fix a price for some or all of electricity consumption an organisation is exposed to the risks of price increases.

Secondly, a longer-term agreement has more value for a renewable energy project (essentially, greater revenue certainty, less risk and better financing terms)<sup>1</sup> – and therefore better pricing and conditions is typically available with longer-term PPAs.

Thirdly, if you or internal stakeholders are uncertain about committing to longer-terms once you have evaluated offers, there are some other options:

- Contract only for a portion of your load (e.g. 50%): this may not be a viable option for all councils as smaller loads may not attract good offers - but one option is a mixed strategy contracting for some of your requirements through a PPA and some through a standard retail contract.
- Negotiate a shorter term with an option to extend – such as the case study example of Northern Beaches which negotiated a 7-year agreement with an option for a 10-year deal.

### What will it cost?

Closely associated with term length is the question of whether a PPA will deliver savings. This is difficult to answer definitively. External consultants can provide a range of price scenarios to understand potential outcomes but no-one can be sure about future prices.

Past buyers advise it is important not to 'over-sell' the potential for cost savings and instead focus on the core attribute of a PPA – greater budget certainty.

*'as we looked at it further, it became more sensible to look at it in terms of reducing risk rather than saying you can definitely save money over 15-20 years because no-one can put their hand on heart and tell you what prices are going to be ... we shifted from 'going to saving money' to 'this is going to put a ceiling on costs'. This is something our finance department liked. If you can tell us we're going to get our costs steadier then that's very useful' (NSW council).*

Budget certainty is a key potential benefit of longer term renewable retail contracts. For forecasting future budgets, councils often have to include contingency in case costs increase. If the electricity rates are known, this contingency can be reduced (whilst still allowing some contingency for change in usage). By reducing this contingency due to increased budgetary certainty, this frees up the contingency for other council operations and projects.

PPAs may deliver cost savings but should be considered and framed primarily as a tool for delivering a mix of greater budget certainty, lower environmental impacts and social and reputational benefits.

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<sup>1</sup> As most of the cost is up-front for construction, solar and wind investors can spread cost over a longer-term and offer cheaper prices. Secondly, a major cost for wind and solar projects is the finance costs – which over the life of a solar or wind project may be more than the construction cost! Longer term PPAs allow longer term cheaper finance, such as loans or "Project Finance" from debt. A PPA which provides revenue certainty to projects allows a lower cost of finance due to reduced market risk.

## **Costs of External Consultants**

An external consultant will be a key part of any PPA journey. Some councils balk at the cost of a consultant, which will be upwards of \$50,000 to \$100,000-\$120,000. It's important to keep these costs in context, given it is a transaction of around \$2 - \$2.5 million. For smaller councils, sharing the costs of the consultant may be a key driver for joining a buyers group.

## **Future Demand Flexibility**

Council electricity demand changes over time, due to energy efficiency initiatives such as street light upgrades or investment in new community infrastructure and buildings. "Volume Flex" is the term typically used by retailers for this item, and is even more important in longer term PPAs compared to typical 2-3 year retail agreements. Retailers can typically offer +/- 20% volume flex even for these longer contracts, but it is important to request this information during tenders and negotiation.

For the second Melbourne Renewable Energy Project group PPA, it was reported that not only did each participant get +/- 20% volume flex, but this was also afforded to the group as a whole, so if an individual buyer exceeded this volume change, but the overall group stayed within 20%, pricing and other terms will remain unchanged.

## **Small Sites**

Small sites represent approximately 20-30% of annual overall electricity demand for councils and can be made up of hundreds of sites, which may be complicated to include in a PPA. Often Renewable PPA tenders see proposals from newer retailers, that may not have the experience or systems to manage hundreds of smaller sites. For smaller sites, customer service and billing accuracy becomes more important than larger sites and renewable energy objectives. This means the evaluation criteria for small sites tenders may be different, and see different preferred tenderers compared to large sites.

Additionally, retailers may not be able to provide asset linked LGCs or PPA style retail agreements for small sites due to the smaller scale and different nature of supply.

Some councils have used the same retailer for Large Sites, Street Lights and Small Sites in the PPAs, overcoming this issue. They have managed the risk of the retailer having less capability in customer service and billing by incorporating more customer service Key Performance Indicators in the contract with the support of their consultant.

Other councils that have just their large sites and street lights on their renewable PPAs have either overpurchased on this contract to cover LGCs for small sites, or have left the 20-30% of annual demand of small sites as a problem to be solved at a later date, once their renewable PPA is in place and more knowledge is gained.

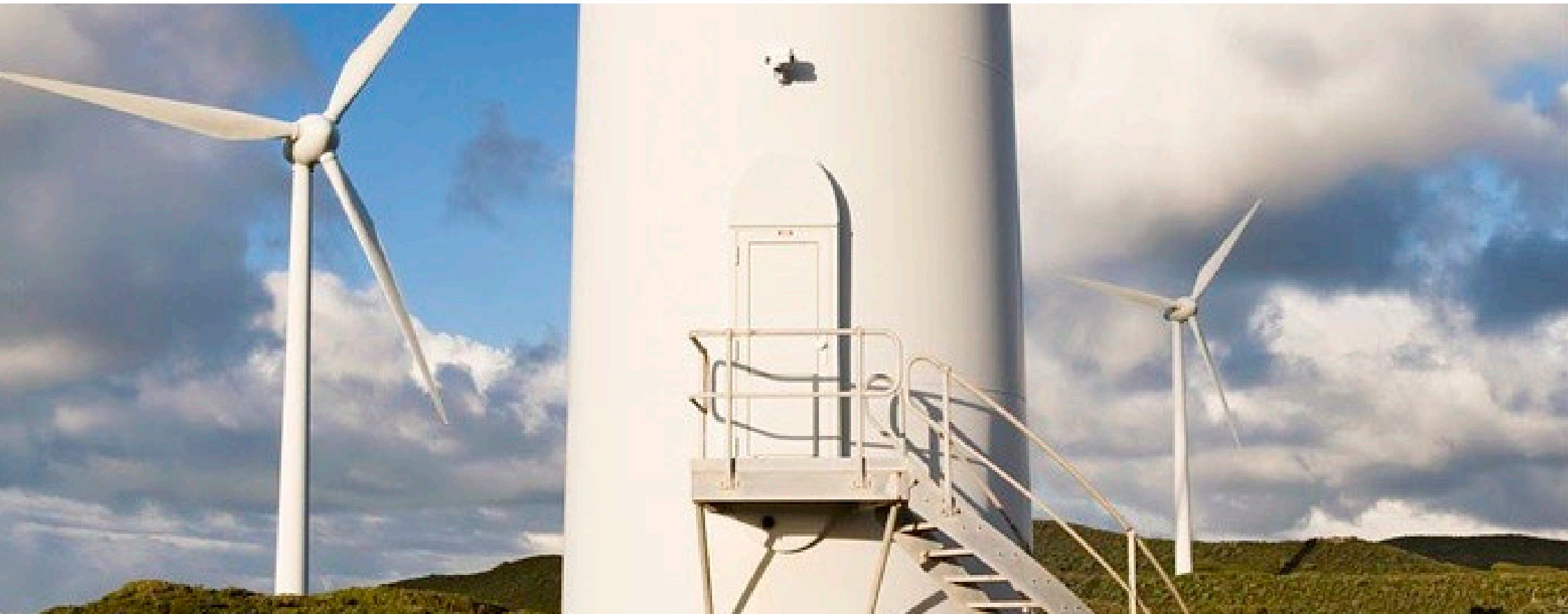
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## 6. Retail PPA offers

Seven retailers responded to a request for information on their retail PPA offer in NSW that is relevant to Councils:

- Engie/Simply Energy
- Flow Power
- Iberdrola Australia (formerly Infigen)
- Momentum
- Origin
- Simec Energy
- Tango

A summary of each retailer's model by the BRC-A based on the information provided the retailer is provided below. Information was current as of September 2021.





## Engie

[engie.com.au](http://engie.com.au)

With over 100 GW installed generation capacity globally, ENGIE is the world's largest Independent Power Producer. We are currently developing around 2000 MW of renewable generation in Australia to add to our operational 250 MW renewable portfolio and 900 MW firming capacity. The convenience of a retailer with the benefits of a PPA

As an electricity retailer and a renewable energy generator, a Retail PPA offered by ENGIE will be linked to a diverse renewable energy portfolio. Physical electricity supply will be provided from the National Electricity Market and billed just like a standard C&I energy contract. Renewable Energy Certificates are sourced from GreenPower accredited generators and supplied directly to your REC Registry account or we can surrender them on your behalf.

largebusiness.au@engie.com w: <https://engie.com.au/home/what-we-do/energy-solutions/renewable-energy-solutions>



| Scope   |  | Pricing  |  |  | Environmental Impact  |  |
|---|--|--|--|--|---|--|
| Size & terms  | Buyer Groups   | Wholesale Pricing  | Firming  | Demand Response & Risk Instruments   | New Projects?   | LGCs and Environmental Attributes  |
| <p>Long-term fixed price PPAs available for loads between 10 – 300 GWh p.a.</p> <p>Standard terms are 10-years with a minimum of 4-5 yrs.</p> <p>Tailored options available for smaller customers – down to 10,000 MWh/y individual or 100 MWh/y for members in an aggregation.</p> | <p>Organised purchasing groups can be managed as individual contracts or in aggregate (i.e. firming and consumption flex apply to the group).</p> <p>Small sites can be serviced by Simply Energy.</p> | <p>Yes. Customers &gt;20,000 MWh/y with load profiles and systems suited to managing risk of intra-day price exposure.</p> | <p>Firming agreements can be set for 1-3 years &amp; then reset at regular intervals referenced to ASX Energy futures market.</p> <p>PPA firming options available to shape the generation output to your consumption.</p> | <p>ENGIE can provide financial contracts (e.g. cap contracts, collars) to limit spot price exposure.</p> <p>Customers on fixed price contracts can access our Load Reduction Agreement with payments for demand response during high-price events.</p> | <p>Our portfolio includes a mix of existing and new generators.</p> <p>Bridging supply from operational projects or virtual renewables options are available to minimise exposure to project delivery risk for buyers contracting with a new project.</p> | <p>100% of volume will originate from renewable sources; it can be linked to specific renewable energy generation projects or just linked to the ENGIE ANZ portfolio to reduce specific project risks.</p> <p>Long-term agreements (1 to 10 years) for the supply of LGCs only until 2030 with fixed certificate pricing.</p> <p>LGC-only PPAs are available for customers with a large SME portfolio.</p> |

## Flow Power

[flowpower.com.au](http://flowpower.com.au)

Flow Power offer two retail PPA products: the *Renewable PPA* and *Virtual Generation Agreement (VGA)*. The Renewable PPA is a short-term agreement where customers are allocated a single wind/solar generator. The VGA is a longer term, back-to-back corporate power purchase agreement. Flow Power has customers who have signed PPAs in varying sectors including agriculture, industrial, hospitality, education and local councils.



| Scope  |   | Pricing  |  |   | Environmental Impact  |  |
|--|---|--|--|---|---|--|
| Size & Term  | Buyer Groups  | Wholesale Pricing  | Firming  | Demand Response & Risk Instruments  | New projects?   | LGC's  |
| <p>The Renewable PPA is typically available for customers with annual consumptions greater than 160MWh. Smaller consumptions available in NSW. Term lengths are 1-3 years.</p> <p>The VGA is available 5 – 10 year terms. Customers that contract VGA's range from 1 – 200GWh p/a.</p> | <p>Flow Power can respond to RFP's for buyer groups</p> | <p>Under the <b>Renewable PPA</b>, a fixed price is adjusted by the monthly Price Efficiency Adjustment (PEA), which reflects the alignment of consumption with the wholesale price. For more information, see <a href="#">here</a>.</p> <p>For the <b>VGA</b>, the balance of supply is from either the wholesale (Spot) market or from the ASX market.</p> | <p>PEA can be capped on an annual basis for a c/kWh premium.</p> <p>For the VGA, various generation sources are combined to optimise match with customers load, complemented by demand response &amp; tailored hedging as an alternative to fixed price firming.</p> | <p><b>Market Monitoring Service (MMS):</b> Flow Powers' team of experts monitor the market 24/7. MMS customers receive email and SMS notification of impending high market events, which allows sites to perform demand response</p> <p><b>Signalling Service (SS):</b> Through the SS, Flow Power will control site equipment or behind the meter generation to power down or power up in line with wholesale market prices.</p> | <p>Flow Power has PPA's with operational projects and new projects yet to commence operation (i.e. they have reached financial closure and are proceeding to construction).</p> <p>Flow Power has also developed its own projects in South Australia and is in the process of developing a community solar farm in NSW as part of an agreement with the City of Sydney.</p> | <p>For the <b>Renewable PPA</b>, customers are allocated to a single wind/solar generator, from which, they will receive LGC's equivalent to 100% of annual consumption.</p> <p><b>VGA's</b> can be contracted as "Energy Only" or with a percentage of LGC's from the customers chosen generators. Flow Power can transfer LGC's to a customer's Renewable Energy Certificate Registry accounts or surrendered to the Clean Energy Regular (CER) on behalf of customers</p> |

## Iberdrola Australia

[iberdrola.com.au](http://iberdrola.com.au)

Iberdrola Australia has two main offerings:

- Run-of-plant' retail PPAs with operating and development-stage projects in SA, NSW, Queensland and Victoria for terms of 5+ years.
- Fixed price Retail PPAs'; a standard retail contract with LGCs linked to specific projects for terms of 2+ years in SA, NSW, ACT, Queensland and Victoria.



| Scope                           |  | Pricing   |   |  | Environment Impact   |   |
|---------------------------------|--|---|---|--|--|---|
| Size & terms                    | Buyer Groups   | Wholesale Pricing   | Firming   | Demand Response & Risk Instruments   | New Projects?  | LGCs and Environmental Attributes   |
| Minimum load size of 2 GWh p.a. | Both offerings are available to Individual customers and Buyers groups | Iberdrola Australia offers full spot exposure or variations based on negotiation. | <p>Firming based on physical generation or financial instruments.</p> <p>Pricing is based on a formula: ASX Baseload Electricity Futures multiplied by a risk factor (e.g. 1.1) based on load analysis.</p> <p>Repricing mechanism based on revised ASX Futures. Risk factor is only adjusted if there are substantial 'material changes' to load shape. Load-cap PPAs not available.</p> | <p>Iberdrola Australia can provide financial contracts (e.g. cap contracts) to manage spot exposure.</p> <p>Bespoke demand response regimes offered with revenue dependent on load size, response capability and measurement technology.</p> | Development-stage projects in NSW & SA. Qld projects in the near future. | <p>LGCs can be contracted from the mandatory level under the Renewable Energy Target up to a 1:1 match for load.</p> <p>LGCs can be linked to one or more RE projects.</p> <p>LGCs from owned projects are GreenPower-accredited.</p> |

## Origin Energy

[www.originenergy.com.au](http://www.originenergy.com.au)

Origin Energy can provide renewable solutions either from its portfolio or in collaboration with renewable project developers. Our product offerings range from fully firm retail PPA solutions to products which provide flexibility for customers to manage risk more actively.



| Scope   |   | Pricing   |   |   | Environment Impact  |  |
|---|---|---|---|---|---|--|
| Size & terms  | Buyer Groups  | Wholesale Pricing   | Firming   | Demand Response & Risk Instruments  | New Projects?   | LGCs   |
| <p>~20GWh p.a. minimum customer size</p> <p>Flexible in length of term, minimum term of 5 years</p> <p>Small site customers can be incorporated</p> | Origin has contracts in place with individual customers and buyers groups | Origin offer wholesale pricing exposure with Renewable PPAs from our portfolio. | Origin generally provides either fully-firmed solutions (where Origin manages renewable intermittency and spot price risk on behalf of customers), or products with wholesale price exposure where customers manage renewable intermittency and spot price exposures themselves | <p>Origin offers a range of demand response products, including:</p> <ul style="list-style-type: none"> <li>products with upfront payments for access to a customers demand response capability (generally available for 1MW-plus unless automated/operationally simple); and</li> <li>products to help optimise the customers demand response capability and the customer retains wholesale price savings</li> </ul> | Origin provides firming services for new projects to make renewables available to retail customers – either sleeving a PPA negotiated by the customer or negotiating a new PPA on behalf of the customer. | Origin offers LGC- only products from our portfolio. |

## Shell Energy

www.shellenergy.com.au

Contact: Craig Dickenson (major customer sales manager). e: [Craig.Dickenson@shellenergy.com.au](mailto:Craig.Dickenson@shellenergy.com.au).

For more information: [Demand Response Program - Business Electricity | Shell Energy & Australian Environmental Certificates for Business | Shell Energy](#)



| Scope  |              | Pricing           |  |   | Environment Impact   |  |
|--|--------------|-------------------|--|---|--|--|
| Size & terms   | Buyer Groups | Wholesale Pricing | Firming  | Demand Response & Risk Instruments  | New Projects?  | LGCs   |
| <p>Minimum volume of 30 GWh per state per year</p> <p>Term length is usually 3 or 4 years</p> <p>Available for large sites with interval meters in the National Electricity Market (NEM)</p> |              | n/a.              | Shell offers a fully firmed PPA with no exposure to variable spot prices, no contracts for difference and no electricity derivative accounting requirements. | Your business will be on call and paid for a short-term reduction in your energy consumption. You might power down machinery or appliances, shift the operating hours of your more energy-intensive equipment or switch to on-site generators for the agreed period. You can decide whether you want to participate during an event. Alternatively, choose to have our dispatch system integrate with your onsite control systems and we'll manage your demand response remotely. | PPAs are linked to projects within Shell's generating portfolio and subject to appropriate generator availability. | <p>Agreements include a fixed electricity retail rate and LGCs. For 'load following' LGCs, the minimum percentage is 25% and maximum percentage is 100%.</p> <p>For contracting loads in excess of 10 GWh per year, we can offer customers LGC self-surrender. Customers who take this approach transfer the appropriate number of LGCs each quarter to Shell Energy. As noted above, this may be appropriate if customers agree a supply of LGCs as a standalone arrangement or as part of a PPA.</p> |

## Tango Energy

www.tangoenergy.com

Tango Energy, the retail arm of Pacific Hydro Australia, launched in 2012 to meet Aussies' demands for low-cost, simple energy plans with a clean conscience. With over 100,000 customers and growing, Tango's customer numbers create demand that enables Pacific Hydro Australia to invest in new renewable energy projects throughout Australia.



For more information please contact Francesco Presacco (C&I Manager) [largebusiness@tangoenergy.com](mailto:largebusiness@tangoenergy.com).

| Scope  |   | Pricing   |   |   | Environment Impact  |  |
|--|---|---|---|---|---|--|
| Size & terms   | Buyer Groups  | Wholesale Pricing   | Firming   | Demand Response & Risk Instruments  | New Projects?   | LGCs   |
| <p>Tango Energy currently offers retail PPAs in all states.</p> <p>The minimum threshold is around 5 GWh p.a. and term is 5-years.</p> <p>Tango Energy can include small meters in a Corporate PPA (as was done for the Melbourne Renewable Energy Project, MREP).</p> | <p>Tango Energy works with group of buyers (Government, commercial, non for profit etc).</p> <p>An example is MREP 1 and 2 where aggregate buyers from councils to Universities and manufacturers are all included.</p> | <p>Tango Energy can offer "as generated" PPAs off its renewable generation assets, either to a specific project or a portfolio.</p> | <p>Tango Energy offers full firming in the form of retail supply (typically 2-year price resets linked to the ASX futures price).</p> | <p>Demand response and Progressive Purchase will be offered in 2022, together with Smart Energy Management Systems.</p> | <p>Tango Energy offers retail PPAs for new projects before financial close or construction.</p> | <p>LGCs can be purchased through a stand-alone agreement or in connection with retail agreement.</p> |

## Zen Energy

go.zenenergy.co.nz

Lara Reid: [lara.reid@zenenergy.com.au](mailto:lara.reid@zenenergy.com.au) – p. 0415 621 760

Ryan McKee: [rmckee@zenenergy.com.au](mailto:rmckee@zenenergy.com.au) – p. 0439 073 857

ZEN Energy is a reliable energy partner for customers seeking an efficient path to a sustainable and affordable electricity supply. Our standard structure provides competitively priced, long term, 100% renewable energy contracts with tangible links to projects within the region of an organisation's energy use including:

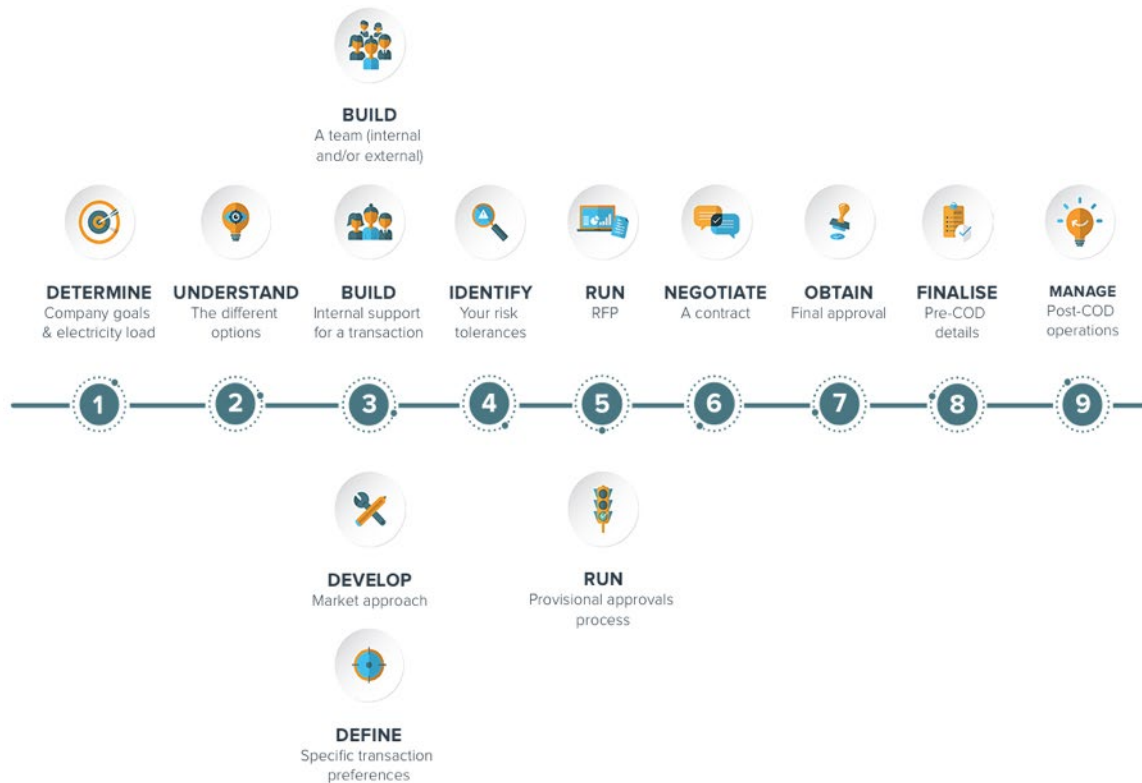
- A simple contract structure, with no exposure to the volatile spot market or derivative products
- A flexible structure that provides some market alignment, reducing the market risk of a long- term contract
- An energy partnership through our expertise in value- add offerings such as behind the meter solar and battery solutions, demand management and energy efficiency programs



| Scope   |   | Pricing  |  |   | Environment Impact   |   |
|---|---|--|--|---|--|---|
| Size & terms  | Buyer Groups  | Wholesale Pricing  | Firming  | Demand Response & Risk Instruments  | New Projects?  | LGCs  |
| Minimum size: 10GWh<br>Terms: 5-10 Years<br>Small meters: ZEN can contract small meters if they are aggregated into a large market contract structure | ZEN will work with buyers groups and we have significant experience managing these complexities | No. ZEN manage all wholesale price risk on behalf of the customer and offer a simple, low risk structure | ZEN provide a fully firmed structure. The standard option matches firming supply to the terms of the PPA.<br><br>Zen offer 100% RE with transparent re-set formula based on ASX futures. | ZEN provide an automated demand response platform as a value add for our customers.<br><br>Customers can receive financial incentives to change how and when energy is consumed for short periods of time in response to high wholesale price events. The offering is bespoke to each customer. | ZEN's portfolio of renewable energy assets continues to expand with our customer base.<br><br>This creates opportunities for some organisations to enter a PPA with a new project. | ZEN deliver renewable energy contracts through the transfer of LGCs to customers or the voluntary surrender to the regulator on their behalf. |

## Where to find further information

The BRC-A has a suite of primers, guides, tools and templates to support buyers navigate the PPA journey. The centrepiece for BRC-A resources is the Buyer's Roadmap, which includes a step-by-step guide to renewable energy PPA procurement with supporting resources for each step of the process. To join the BRC-A and access these resources visit <https://businessrenewables.org.au/how-to-join/>



Behind each of these steps, there are short call-out boxes with further information and then resources on the following topics:

| Topic            | Name here  |
|------------------|--|
| <b>Primers</b>   | <ul style="list-style-type: none"> <li>Accounting Primer</li> <li>Deal Team</li> <li>Energy Management Principles</li> </ul>   |
| <b>Templates</b> | <ul style="list-style-type: none"> <li>Chief Financial Officer (CFO) Pitch Deck</li> <li>RFP Template</li> <li>Term Sheet</li> </ul>   |
| <b>Guides</b>    | <ul style="list-style-type: none"> <li>Deal Structure</li> <li>Retail PPAs</li> <li>Social Benefits and Risks through PPAs</li> <li>Economic Analysis</li> <li>Engaging Consultants</li> <li>Internal Support</li> </ul> |



## Appendix A: Wholesale PPAs

Under a Wholesale PPA, the buyer pays for electricity generation and/or LGCs directly from a renewable energy project. It is a financial arrangement contracted in the wholesale electricity market that is completely separate from the retail supply agreement.

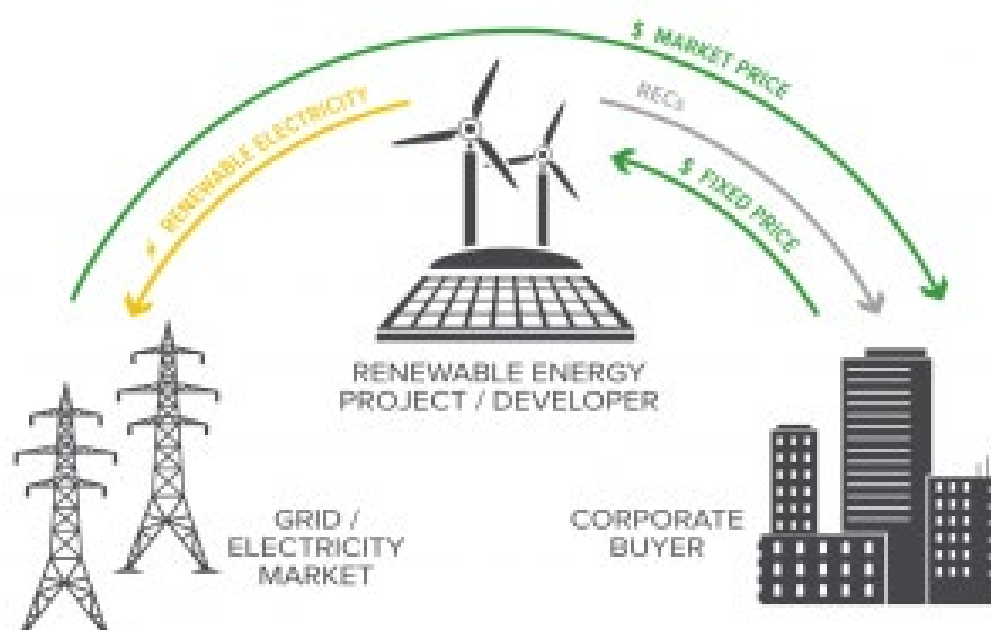
The two parties agree on a fixed 'strike price' for the output of the project under the PPA. At the end of a settlement period, typically monthly, one party pays the other based on the difference between the strike price and the average wholesale electricity price received by the project.

If, for example, the PPA strike price is \$70/Megawatt-hour (MWh) and the average wholesale electricity price earned by the project is \$90/MWh (the production weighted average price or PWAP), the project pays the buyer \$20/MWh. If the PWAP is \$50/MWh the buyer pays the project \$20/MWh.

This arrangement is sometimes called a 'green hedge'. The wholesale electricity price is highly volatile, ranging from below-zero up to a cap of \$15,000/MWh. If electricity prices rise, the PPA buyer will receive income from the project which partly offsets the increase in electricity prices for the rest of their demand (conversely, they will benefit less or not at all if electricity prices fall).

### Key features:

- **Size:** Wholesale PPAs are generally for contracts around 50 GWh p.a. – usually these are for larger buyers or buyers groups.
- **Environmental benefit:** wholesale PPAs are typically deals between a buyer and a new project. The revenue certainty enables the generator to obtain project finance – they are a key mechanism for enabling new investment in renewable energy.
- **Cost:** as a wholesale PPA is negotiated directly with a project, rates for wholesale PPAs are lower than a retail PPA.
- **Risk:** the risk profile of a PPA depends on its specific terms but in general a Wholesale PPA has a higher risk profile than a retail PPA or standard contract because the retailer manages some of the risks (e.g. spot price variations) for the buyer.
- **Legal status:** as a Wholesale PPA is a derivative, the advice from the Office of Local Government is that NSW councils are not permitted to enter into them under the Ministerial Investment Order.



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## Appendix B: Northern Beaches Renewable PPA – Case Study

### Overview

In January 2021, the Northern Beaches Council made the switch to 100% renewable-sourced electricity by signing up to a 7-year Power Purchase Agreement with Iberdrola. This is estimated to save \$1.9M over the next seven years and shave nine years from Council's commitment to purchase renewable electricity for all suitable sites.

### Background

In August 2019 Northern Beaches Council declared a climate emergency. In December of that same year Council adopted the *Protect. Create. Live – Environment and Climate Change Strategy 2040*. Among other things, this strategy committed Council to reduce corporate carbon emissions by 60% by 2040 and to have all suitable sites powered by renewable electricity by 2030. Baseline data showed that over 80% of corporate emissions came from electricity usage in 2016/17. The existing large sites electricity contract was due for renewal at the end of 2020 which provided a prime opportunity to switch to more sustainable electricity and reduce emissions.

### Implementation

The 100% renewable electricity project commenced in early 2020 and the new PPA contract, signed in December 2020, was ready to be implemented from 1 January 2021. Some of the key implementation activities included:

**Technical Paper:** In early 2020, Council engaged industry experts to prepare a technical paper that reviewed current electricity usage, time-of-use demand profiles, Council's renewable electricity and emissions reduction commitments plus current retail contracts. The technical paper identified that to meet emission reduction commitments, Council would need to procure renewable electricity at some point in the future and that it is possible to successfully procure a financially competitive 100% renewable electricity retail PPA in the current market.

**A Pandemic:** In March 2020, the COVID-19 pandemic emerged that caused delays in engagement with senior staff and Councillors and raised uncertainty around future modelling, budgets and priorities. As the pandemic progressed, the risks surrounding these items were able to be more accurately assessed allowing the project to progress.

**Procurement:** Council undertook an open market Request for Tender (RFT) process to identify potential suppliers. Delays as a result of the COVID-19 pandemic meant the RFT was not released until October, with submissions received in mid-November. This left a short turnaround time to undertake evaluation, due diligence checks, contract negotiations and engage the successful tenderer in order to have the contract up and running by the time the existing contract ended on 31 December 2020. Council was able to meet this deadline, largely due to the detailed stakeholder engagement undertaken throughout the process and overview of the process. Early involvement of these experts was a key contributing factor in being able to complete the evaluation and approve the contract.

**Consulted Networks:** Along the way, Council consulted with peers from other councils, including Sydney, Newcastle and Hawkesbury, to discuss their experience with PPAs. This approach was very useful as we navigated the finer details of the process and contract.

### Outcomes

Northern Beaches Council signed an agreement with Iberdrola for all of its 382 sites and street light network to be powered by renewable-sourced electricity from 1 January 2021. The switch to 100% renewable-sourced electricity saves an estimated \$1.9 million from budgets over the next seven years which can be diverted to other important services.

“This is a quadruple win: a win for the environment, a win for Council’s budget, a win for ratepayers and a win for the rural economy,” the Mayor, Cr Regan said.

The contract reduces Council’s carbon footprint by about 80% or around 20,000 tonnes of carbon dioxide every year – equal to the yearly emissions of 2,800 homes. Council was proud to meet two of its Environment and Climate Change Strategy commitments much earlier than expected, these being: all suitable sites to use renewable electricity by 2030 and reducing carbon emissions by 60 per cent by 2040. This contract is a big step towards reaching the goal of net zero carbon emissions by 2045.

The PPA is a hybrid fixed price model. This provides Council long-term certainty in budgeting, something not achieved through typical, short-term electricity contracting.

The electricity is sourced from a portfolio of mostly wind-generated renewable assets, but also energy from solar and stored in batteries, including the Wallgrove big battery. The Large-scale Generation Certificates (LGC’s) are being sourced from Iberdrola’s Bodangora windfarm site near Wellington, NSW. This allows us to directly link our support to a renewable project as well as directly support the regional NSW economy. To achieve the 100% renewable target, Council is purchasing LGC’s to cover its large sites load plus enough each year to account for electricity usage at its small sites.

## Key Learnings

Our process, despite uncertainty from a global pandemic, was reasonably straight forward. Some key learnings include:

- **Strategic Direction:** Having adopted strategies, and more specifically commitments or targets for emissions reduction and renewable electricity is important. This provides the necessary strategic support for the project up front.
- **Internal Engagement:** Early identification and ongoing engagement of key internal stakeholders and decision makers made the project possible, in particular around the short procurement timeframe.
- **Evaluation:** Preparing a detailed, well thought out evaluation plan up front made for a smooth RFT evaluation process. Having a good process in place for comparing different length contract terms and pricing mechanisms was essential.
- **Experts:** Working with internal and external experts and network contacts meant we were not reinventing the wheel and provided surety in the processes we followed.
- **Risk Assessment:** One of the most important parts of the process was the development of a detailed risk assessment. Council relied heavily on this during review of the contract and evaluation of submissions.

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## Glossary and key terms

| Term   | Definition   |
|--|--|
| <b>Australian Energy Market Operator (AEMO)</b>  | AEMO manages Australia's electricity and gas markets including operating the systems for energy transmission and distribution, and the energy financial markets.   |
| <b>Cap contract</b>                              | A cap contract limits the exposure of a buyer or retailer to higher wholesale electricity prices. The standard contract in the National Electricity Market is a "300 cap". The seller pays the buyer the difference in the spot price and \$300/MWh every time the spot price exceeds \$300/MWh. A retailer may use a cap contract to limit exposure of a buyer to spot prices under a renewable PPA.  |
| <b>Firming</b>                                   | Firming is the process by which intermittent renewable energy is complemented by physical generation or storage and/or financial instruments (e.g. contracts with other suppliers) to deliver a reliable, consistent supply of electricity.  |
| <b>Large-scale Generation Certificates (LGC)</b> | LGCs are created by eligible renewable electricity generated by an accredited power station. One LGC can be created per MWh of renewable electricity and is validated by the Clean Energy Regulator. Registered LGCs can be sold or transferred in the market to entities with liabilities under the Renewable Energy Target or other companies looking to voluntarily surrender LGCs.   |
| <b>Load-following PPA</b>                        | Under a PPA, buyers typically agree to purchase a percentage of the output (say 20%) which varies in line with generation. However, under a load following PPA model, the generator agrees to supply based on the customers load or consumption curve. Load following PPAs are very rare in Australia.   |
| <b>National Energy Market (NEM)</b>              | The NEM is the wholesale market through which generators and retailers trade electricity in the six eastern and southern states and territories of Australia.  |
| <b>Power Purchase Agreement (PPA)</b>            | A PPA is an agreement between an electricity generator and a purchaser for the sale and supply of electricity. A renewable PPA is an agreement with a renewable energy generator such as a solar or wind farm.   |
| <b>Spot/wholesale electricity price</b>          | <p>Generators bid to supply electricity within a competitive wholesale electricity market. Generators submit bids with a price and volume to the Australian Energy Market Operator (AEMO) every 5-minutes. AEMO forms a 'bid stack' and accepts bids up to the volume of electricity required to meet demand. The price of the last or 'marginal' generator sets the price for the whole stack (i.e. generators that bid lower prices receive the price of the final bid accepted).</p> <p>The wholesale price (sometimes also known as the 'spot price') for each 5-minute increment varies significantly across different time-scales – across a year between seasons, across a week and within a day (it is generally cheaper in the middle of the day when there is solar generation than at the end of the day when the sun does down and residential demand increases). The price can vary from less than zero up to a cap of \$14,700/Megawatt-hour, generally averaging between \$40 - \$80/MWh over a year.</p> |

