

ITEM 6 PROCUREMENT OF ELECTRICITY FROM RENEWABLE SOURCES

At its meeting on 9 December 2019, Council adopted targets of net zero emissions by 2050 for the City of Wollongong and net zero emissions by 2030 for Council operations. Council subsequently adopted a Climate Change Mitigation Plan 2020 on 16 November 2020 that included an action to investigate the establishment of a regional Power Purchase Agreement (PPA) for the supply of renewable electricity.

This report outlines actions taken in relation to investigating PPA options and recommends that Council consider participating in a tender for a long-term renewable PPA, in conjunction with other councils, that is being proposed and managed by Procurement Australia.

RECOMMENDATION

- 1 Council enter the Binding Agreement for Tender and Resultant Contract with Procurement Australia for a NSW Renewable Power Purchase Agreement.
- 2 The General Manager be delegated authority to execute the relevant contract with the successful tenderer from the Procurement Australia tender process.
- 3 Council nominate to participate in the Tender Reference Group that will assist in the preparation and assessment of tenders for the Power Purchase Agreement.

REPORT AUTHORISATIONS

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ATTACHMENTS

There are no attachments for this report.

BACKGROUND

Wollongong City Council is one of 26 Councils in Australia to commit to greenhouse gas reduction through the Global Covenant of Mayors for Climate and Energy (GCoM) program. Under the GCoM initiative Council is required to undertake a series of actions to respond to the risks and opportunities presented by climate change. These actions include adoption of a science-derived emissions reduction target on behalf of the City of Wollongong and development of a Climate Change Mitigation (emissions reduction) Action Plan.

At its meeting on 9 December 2019, Council adopted targets of net zero emissions by 2050 for the City of Wollongong and net zero emissions by 2030 for Council operations. Council adopted a Climate Change Mitigation Plan (CCMP) 2020 on 16 November 2020.

The CCMP includes an action (E13), in relation to the establishment of Power Purchase Agreements for the sourcing of renewable electricity to contribute towards the reduction in emissions from Council operations:

Pursue the potential for opportunity to establish a regional Power Purchase Agreements (PPA) and investigate the establishment of a joint PPA for the City of Wollongong and including major industrial and commercial entities within the LGA. Provide a briefing to Councillors by June 2021.

A number of options have been investigated in relation to establishing a PPA for the procurement of renewable energy to supply council's energy needs, including two options for a joint procurement with other councils, facilitated by Local Government Procurement (LGP) and by Procurement Australia. Initial investigations have also been undertaken in relation to the possible establishment of a City Wide PPA.

What is a PPA?

A renewable energy PPA is where a buyer/customer purchases renewable energy either through a retailer or directly from the energy developer/generator for a specified rate and fixed longer-term timeframe, usually 8-12 years.

PPA arrangements are generally for longer timeframes, as the aggregated electricity consumption of the participants in the PPA over a longer period provides the electricity supplier a level of certainty to fund the construction of renewable energy infrastructure to generate the required supply. Additionally, a benefit for the participants in the PPA, the longer term allows the supplier to offer lower pricing rates as they have revenue certainty for the contracted period.

A PPA can be entered into as a sole customer or within a buying group, and depending on the agreement, energy can be purchased from either existing or new energy sources and can come from one source or multiple e.g. solar farms, wind farms and/or hydroelectricity.

If the renewable energy sources can't generate power due to lack of such things as sun or wind, energy will be obtained from other sources to maintain supply to the customer. Parties to the PPA may also dictate the proportion of renewable energy under the PPA e.g. 50% or 100%, the source of residual energy is generally left to the discretion of the provider.

Advantages and benefits of PPA

PPAs are an increasingly popular and effective alternative to short term standard electricity retail contracts. PPAs provide several benefits including but not limited to -

- Sourcing of renewable energy in lieu of fossil fuel generated energy
- Assists in the achievement of sustainability goals/ emission reduction targets
- Can provide long term price certainty
- Can reference a specific renewable generating asset
- Can underpin renewable generation infrastructure investment
- Buying groups (collaborations) provide greater bargaining power and reduced prices

Disadvantages and challenges of a PPA

PPAs are notoriously difficult to engineer, despite the potential positive outcomes. They involve complex contractual arrangements, which can be compounded by variation in participants and their respective requirements or wants. Whilst PPAs provide long term price certainty this can also be a drawback as Council will be locked into a price for up to 10 years; if prices in the market fall Council will not be able to access these potential savings.

PPAs require parties to commit to purchase of an identified quantity of energy (within a window) in order to confirm a monetary return for the provider. Consequently, it is crucial that participants understand their energy needs with a fair degree of certainty now and over the term of the PPA in order to participate. This can inhibit energy savings initiatives beyond those that are already planned for and understood.

Large-Scale Generation Certificates

Large-scale renewable energy projects, such as wind and solar farms, and hydro-electric schemes, are entitled to create large-scale generation certificates (LGCs). One LGC is equivalent to 1 MWh of renewable electricity generated from the power station's renewable energy sources.

If a participant in a PPA purchases the LGCs for all of the energy they procure via the PPA and retire those certificates, they can then claim both the renewable energy as well as the carbon reduction of the renewable energy production. Put simply Council would need to purchase 100% of the LGCs for its energy consumption to claim net zero emissions from its electricity consumption.

PPA's often provide a structure where the participants can select the level of LGC's they wish to purchase, ranging from 0 to 100%.

PROPOSAL

Procurement Australia (PA) is a member organisation that acts as an aggregator and provides professional procurement services, including to local government. PA has established a process for interested NSW local councils to aggregate the electricity consumption to establish, by joint tender, a large-scale renewable generation power purchase agreement. PA have indicated that the NSW Renewable PPA will be targeting renewable energy generators and retailers that provide wind, solar and battery energy solutions and will not consider a Biomass project for its renewable PPA.

PA aims to bring together a buying group of at least ten participating councils with sufficient projected energy volume for large sites and street lighting to achieve a competitive response from the market to the tender.

Timetable

PA is now inviting councils to consider committing to the renewable energy procurement tender by formally executing a Binding Agreement.

30 June 2021	Commitment to Binding Agreement
July 2021	Tender made available to market
August - October 2021	Contract negotiations
October - November 2021	Contracting period
January 2022	Energy Flow noting a staged commencement date per member participant is being accommodated based on expiry dates of existing electricity contracts for each participating council.

Information is provided below in relation to the details of the PA proposed tender and additional analysis conducted in relation to modelling future electricity costs and impacts on Council.

Proposed Tender Details

PA intend to issue a tender for a fixed price Bundled PPA to supply 100% renewable energy with a nominated number of LGCs from a registered renewable power generator located in New South Wales. It is termed Bundled because the power and LGC price are combined into the package. This type of structure will include the following features:

- 1 Each participating council will have a contract with a licensed retailer, who in-turn may have a contract with a renewable generator owner so each Council will not be required to establish an agreement with a renewable generator.
- 2 The Supply Agreement is expected to have roll-in provisions and roll-out (for site closures only), and annual load flex arrangements.
- 3 Each participating council may nominate their preferred number of voluntary LGCs, in order to meet their sustainability targets.
- 4 By contracting a fixed price, participating councils will not be exposed to the variable spot price, nor the fluctuations of an intermittent renewable generation.

The tender issued by PA will include electricity usage for street lighting and large sites, however respondents will have the option of whether to include small sites in the contract for supply. At present approximately 88% of Council's expenditure on electricity and more than 80% of our emissions from electricity consumption are attributed to street lighting and large sites.

As the proposed PPA will cover street lighting and large sites, it is the most efficient and effective way for Council to reduce its emissions associated with electricity use. In the absence of a PPA it will be extremely difficult for Council to meet our emissions reduction target unless there is a radical shift in technology.

PA have indicated that the tender would seek a PPA for a period of 7-12 years, dependent on submissions received from respondents. The intention to provide a guide for contract length rather than request a specific contract length from respondents is to ensure that the maximum number of competitive responses are received as each potential respondent may have different requirements in relation to the length of the contract required for the provider to make a commercial return on their capital outlay in establishing the renewable energy assets.

To participate in the PA Renewable Energy PPA Council would be required to enter into a binding commitment prior to the issuing of tender documents to the market by PA. This is to ensure that a guaranteed level of electricity consumption is known by potential respondents to the tender. Council would be required to pay a non-refundable fee of \$20,000 to participate in the binding phase of the tender. This fee is to cover the costs of administering the tender and contract negotiations.

By entering into the binding commitment phase of the PPA process, Council would be authorising PA to undertake the following -

- Act as a tendering agent for Council and invite tenders in respect to the proposed contract
- Evaluate the tenders in accordance with the evaluation criteria and weightings
- Award the tender on merit to a respondent within the defined tender acceptance time period and only where the preferred tender satisfies the requirements of the tender and is within the Defined Authorisation Parameters.

Tender Assessment Process

As part of the binding commitment phase, Council will authorise PA to accept tenders up to maximum ceiling price which is outlined in the Binding Agreement document. This would mean that if the tender response of the preferred tenderer is below the ceiling price PA will be authorised to accept the tender on Council’s behalf, without further consultation with Council.

In instances where the preferred tenderer provides a PPA solution that has a cost that exceeds the ceiling price outlined in the Binding Agreement document, PA will not be authorised to accept the tender on Council’s behalf and will be required to seek the advice of Council as to whether to accept the tender, or to take other alternate actions.

To assist with the issuing of the tender documentation and assessment of tender responses, PA will establish a Tender Reference Group. The Tender Reference Group will be established with a maximum of four representatives from councils that elect to participate in the binding tender process. This group will act on behalf of the wider cohort and assist PA with guidance and input on product structure details, tender criteria, weightings, and assessment of returning tenders. PA will continue to liaise and inform the participating cohort on the progress of the Tender. If Council elects to participate in the PPA process, Council will nominate a representative to participate in the Tender Reference Group to assist with advancing Council’s interests throughout the process (noting there is no guarantee Wollongong would be selected to have a representative on the panel).

Recent Power Purchase Agreements established in Australia

The use of PPA’s is the most efficient and cost-effective way to procure renewable energy in the current electricity market. The table below shows details of 15 recent PPA arrangements entered in to by various public bodies to procure renewable energy.

Council/Organisation	Length of Contract	Electricity Source	Amount of Energy Purchased
Melbourne Renewable Energy Project 1 14 participants, including 4 councils, banks and government agencies	10 years	Crowlands Wind Farm	88GWh per annum
Melbourne Renewable Energy Project 2 7 participants, including 2 Universities	10 years	Yaloak South Wind Farm; other Victorian wind generation assets	110GWh per annum

Council/Organisation	Length of Contract	Electricity Source	Amount of Energy Purchased
City of Sydney	10 years – Began 1 July 2020	Sapphire Wind Farm; Bomen Solar Farm; Nowra Community Solar Farm	-
Victorian Energy Collaboration (VECO) 46 Victorian councils	9.5 years – Beginning 1 July 2021	Dundonnell Wind Farm; Murra Wurra II Wind Farm	240GWh per annum
Hawkesbury City Council	10 years – Began 1 January 2020	Griffith Solar Farm; Parkes Solar Farm	-
Eurobodalla Shire Council	10 years – Beginning July 2021	Griffith Solar Farm; Parkes Solar Farm; Hills of Gold Windfarm	-
City of Newcastle	10 years – Began 1 January 2020	Sapphire Wind Farm	-
City of Adelaide	9.5 years - Began 1 July 2020	Clements Gap Wind Farm; Streaky Bay Solar Farm; Coonalpyn Solar Farm	-
Northern Beaches Council	7 years	Infigen wind turbines; energy generated by solar and battery-stored power incl. Wallgrove Battery	-
Swinburne University	Began 1 July 2020	Cherry Tree Wind Farm	-
SSROC 18 Councils mostly Sydney-based	10 years - to 2030	Moree Solar Farm	Approx. 440GWh supplied over life of agreement
CSIRO	10 years	Numurkah Solar Farm; Nevertire Solar Farm	-
Macquarie University	7 years – Began 1 July 2020	Snowy Hydro Portfolio	54GWh per annum
University of Newcastle	7 years – Began 1 January 2019	Mix of solar, wind and hydro power with Snowy Hydro subsidiary Red Energy	40GWh per annum
University of NSW	15 years – began in 2019	Sunraysia Solar Farm	124GWh per annum

From the recent PPA's entered in to by the various public bodies the length of contracts ranged from 7 years to 15 years in length with the average length being 10 years in duration. PA have indicated that they expect a contract length of between 7-12 years which is consistent with the length of contract entered into by all of the above examples.

The above examples show that the annual energy usage per annum for the PPA's ranged from 40Gwh per annum to 240GWh per annum. The proposed PA tender is anticipated to have approximately 100GWh of electricity usage, if that is achieved it would be expected that the market would see that as a viable aggregate load for which to tender.

The most recent PPA entered into by local government was signed by some 40+ Victorian councils, and was a 9.5-year contract. This means that almost all Victorian councils, have a long-term renewable energy contract, via a PPA mechanism. This demonstrates that renewable energy PPAs are quickly emerging as the procurement model for meeting council energy needs into the future.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 Goal 1 – *We value and protect our environment*. It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2018-2022	Operational Plan 2020-21
Strategy	4 Year Action	Annual Deliverables
1.5.1 Participate in the Global Covenant of Mayors and set emissions reduction targets for the LGA	1.5.1.1 Set an emissions reduction target and carry out actions to reduce greenhouse gas emissions through the Global Covenant of Mayors	Finalise and deliver priority actions in the Climate Change Mitigation Plan

SUSTAINABILITY IMPLICATIONS

Entrance into a PPA will allow Council to access renewable energy for its services and operations, as opposed to traditional black power provided under our current energy contracts. When combined with the purchase of large-scale generation certificates (LGCs) the PPA will reduce Council’s greenhouse gas emission production and significantly contribute towards achieving our organisational emissions reduction target, thereby assisting to mitigate the impacts of climate change.

The energy provider who enters a contract under the PPA will create LGCs for eligible electricity generated from the provider’s renewable energy sources. The LGCs can be sold or transferred to entities with liabilities under the Renewable Energy Target or other entities looking to voluntarily surrender LGCs.

If Council wishes to claim net zero emissions, it will need to purchase the LGC’s created by the electricity provider for electricity consumed. The proposed PPA arrangement will include a facility for Council to purchase these LGC’s from the electricity provider. Council would have the ability to choose the amount of LGCs it purchases throughout the length of the proposed agreement.

If Council entered a PPA and purchased LGCs for the entire amount of electricity provided under the contract it would lead to a significant reduction in emissions from electricity consumption. Emissions from Council’s street-light usage and 18 Large Sites would be reduced to zero, leading to a reduction in overall emissions from total electricity consumption by 81%. This would be equivalent to a total reduction in emissions of almost 15,000tCO₂-e per annum, this represents ~10.7% of our current carbon emissions profile.

It should be noted that the balance of electricity emissions arise from electricity consumption at small sites. PA have indicated that the inclusion of small sites will not be a mandatory requirement for tender respondents. As such there is no guarantee that Council will be able to incorporate its small sites into the PPA agreement. If Council could not include small sites, investigations would occur in relation to additional measures that could be undertaken to continue to reduce emissions in this area.

RISK MANAGEMENT

The procurement of electricity is often accompanied by several opportunities and risks due to the volatility of energy markets and the speed with which prices can fluctuate. In addition, the volatility of the market creates difficulties in modelling and predicting future energy and LGC prices as these are usually based on the half-hour spot price.

Opportunities of Procurement Australia PPA Option

Entering a PPA and the Procurement Australia PPA in particular, would provide several opportunities and advantages to Council, outlined below -

- According to the Australian Energy Regulator the NSW wholesale electricity market is at relative lows compared to recent years. Entering a PPA at the present time may allow Council to capitalise on the current lower price points in the market
- PPAs present an opportunity to avoid electricity market volatility, by avoiding price spikes as contract price will be locked in at commencement

- A PPA offers the most effective method and opportunity to contribute to reducing Council's emissions from electricity consumption and contribute to Council's overall emissions reduction target
- Engaging through a third-party broker allows Council to minimise resources required to go to market, negotiate and establish the contract
- The expected contract term of 7-10 years offers council budget certainty and can hedge against fluctuating markets and price spikes. As evidenced in this report the average term for PPAs is generally 10 years.
- The PPA option offered by PA will allow Council to choose the level of emissions reductions it achieves throughout the contract and allows Council to increase the emissions reductions over several years during the contract. Additionally, Council does not need to determine its emissions reduction (LGC) strategy until the tender price is known
- Council may be able to bring small sites into the contract (currently less than 10% of electricity load), however this will not be known until the contract terms are received
- Off-peak (night-time) prices for electricity are rising over time and are expected to increase significantly towards the end of this decade. This is because renewables are forming a larger portion of the total electricity supply and there are less coal fired power stations in operation and more will close throughout the next 10-15 years. As such a long-term deal of 7-10 years, entered now can hedge against rises for power consumed by Council at night, which is a significant amount of Council's electricity consumption due to street lighting requirements.

Additionally, there are advantages and assumed reduced risks in committing to this type of arrangement with other local government authorities, including -

- Understanding and consistency of load profile – most local governments understand their energy consumption and whilst it may vary seasonally it is generally consistent year to year
- High likelihood of financial solvency
- High level of forward infrastructure planning (i.e. understanding of future energy using/saving projects).
- The contract with the electricity provider is expected to require a minimum electricity consumption load. By participating in an aggregated contract with other participating councils this will be a combined level of usage, and not determined at Council level. There may be an opportunity for council to reduce its consumption over time, i.e. by implementing energy efficiency features, without attracting a financial penalty under the contract. Additionally expanding levels of energy consumption by council's in growth areas may offset individual council reductions in consumption.

Risks & Challenges of Procurement Australia PPA Option

There are several risks associated with entering a PPA at the present time, outlined below -

- The confidence of electricity price modelling past 2030 is low due to expiry of current renewable energy programs in 2030, and no replacement programs announced by the Federal Government at this stage. However, it should be noted that this would be an uncertainty that potential providers would need to consider as well
- Several issues that would provide more clarity in relation to the expected outcomes of the tender process, would not be known unless Council enters the binding commitment phase of the PPA process. Once the participants are known PA will establish a reference group of participating councils that would consider the ceiling price. PA have confirmed that the ceiling price cannot be increased from that already communicated to Council, however the participating Council's may choose to lower it. Additionally, the participating cohort would determine the level of guidance placed in tender documents around the potential contract length.

- In addition to the point above, if Council chooses to participate in the PPA tender process, Council's opinions on ceiling price and contract length may be at odds with the majority view of other participants, however Council would be bound to continue with participation if it enters this phase. Council has liaised with some other interested council's and in general most councils have similar views so this risk should be low.
- PA have indicated that the inclusion of small sites will not be a mandatory requirement for tender respondents. As such there is no guarantee that Council will be able to incorporate its small sites into the PPA agreement. As small sites are only a small portion of Council's electricity load and emissions profile this is not considered as an impediment to participating and if Council could not include small sites, investigations would occur in relation to additional measures that could be undertaken to continue to reduce emissions in this area.
- As this would be an aggregated usage contract, there is a risk that if all, or a large proportion, of the participating councils reduce their consumption over time, due to energy efficiency initiatives that Council may attract a financial penalty under the contract. This could occur even if Council did not reduce its individual energy consumption profile.

FINANCIAL IMPLICATIONS

In addition to the general modelling provided by Procurement Australia to all interested councils, Council has had detailed modelling prepared in relation to costs and emissions impacts for Wollongong City Council if it chose to participate in the PPA. This analysis was performed based on the following data and assumptions:

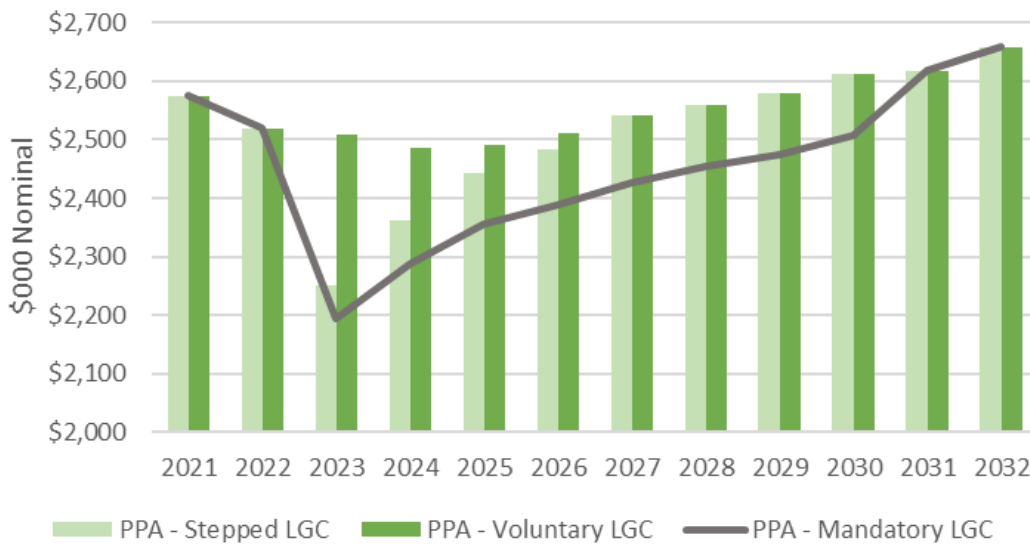
- all electricity consumption for Council's street lighting
- all electricity consumption and network charges for Council's 18 large sites
- modelling does not include the costs associated with the Streetlight Infrastructure charge – (SLUOS), which is paid directly to Endeavour Energy. The SLUOS charge is a separate regulated charge set by IPART that is payable irrespective of who Council contracts with for the supply of electricity.

The detailed modelling and analysis that has been produced to identify the pricing assumptions and expectations used to model the potential impacts of the proposed PPA on Council have been provided to the Council in a confidential attachment as the modelling would be advantageous to potential tender respondents if released publicly.

The analysis found that the estimated PPA cost (with 100% voluntary LGC purchase) would be slightly less than the current level of expenditure under Council's current contracts for electricity supply for street lighting and large sites. It should be noted the modelling has been undertaken based on the ceiling price. If tenders come in under the ceiling price then the potential savings to Council would be greater. As noted above, the SLUOS charge, which is paid directly to Endeavour Energy, is a payment made separately to, and over and above, from Council's electricity supply contracts.

As previously indicated, Council would have the option to increase its purchase of LGCs over time throughout the contract. As part its analysis Council modelled a stepped approach to increase the purchase of LGCs over a 5-year period. As shown in the graph on the following page, if Council chose to take a stepped approach to increasing its LGC purchases Council is likely to generate savings, until 2027, when compared to its current level of expenditure for electricity under existing contracts.

PPA Options Median Cost Outlook



Procurement Australia will receive a trailing commission from the PPA electricity retailer. This will be calculated once the number of participating councils and the committed electricity volume is known. Based on previous examples the trailing commission will be somewhere between 1.5% and 1.9% of the energy component only. The trailing commission will be included in the tender documentation, which will be a public document.

CONCLUSION

The electricity market is currently at levels close to historic lows and the current pricing levels and the projected pricing levels of coming years indicate that the present PPA option may be best opportunity for Council to capitalise on the current low-price points in the market. Additionally, a PPA offers the most effective method and opportunity to contribute to reducing Council's emissions from electricity consumption and contribute to Council's overall emissions reduction target.

It is recommended that Council participate in the joint tender, for a large-scale renewable generation power purchase agreement coordinated by Procurement Australia as it presents the best opportunity for Council to avoid electricity market volatility, by locking in a long-term energy contract that also allows council to procure renewable energy at a competitive price, whilst contributing to Council meeting its emission reduction targets.