DISCUSSION PAPER:

ELECTRICITY PROCUREMENT IN THE VICTORIAN LOCAL GOVERNMENT SECTOR

ALIGNING COUNCIL MONEY WITH COUNCIL VALUES

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Prepared by the Victorian Greenhouse Alliances

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EXECUTIVE SUMMARY

This paper has been collaboratively developed by the Victorian Greenhouse Alliances to inform future approaches to electricity procurement in their member councils. It provides a summary of new and emerging opportunities for Victorian councils to collectively procure *best value* electricity whilst meeting multiple policy commitments and objectives, particularly with respect to emissions reduction.

A unique set of market conditions presents the Victorian local government sector with an opportunity to re-evaluate its current approach to procuring electricity. The findings within this paper indicate that:

- business as usual practices are likely to expose councils to financial risks
- economies of scale (aggregating load or electricity demand) across multiple parties is less effective in securing lowest costs than previously thought
- the ability of retailers to integrate value-added services and meet obligations of contracts has been mixed
- the costs of renewable energy are rapidly plummeting and may now be approaching price parity with traditional fossil fuel based generation
- there are a proliferation of new market models emerging to support councils to procure renewable energy
- in most instances, onsite generation (rooftop solar) presents the most compelling businesses case, however, scaling-up this solution is problematic – a council's usable roof space is unlikely to meet its total electricity demand
- recent studies conducted by the State's water authorities confirm two approaches can deliver the State's legislated renewable energy target and reduce costs:
    - power purchasing agreements (PPA)
    - investing, owning, operating large scale off site renewable generation infrastructure

These findings demonstrate that there are several alternate and parallel pathways available to councils (and groupings of councils). The recommendations outlined below are intended to inform discussions within and between councils and other stakeholders:

- Councils should request that their respective procurement agencies (PA and MAV) revise the current tender evaluation criteria to include a weighting based on the policy objectives of councils:
    - 40% price
    - 20% emissions reduction or ability to support renewable energy generation
    - 20% procurement obligations under the LG Act (i.e. to incorporate best value services such as data access, tariff reviews, fault resolution, and virtual net meeting/local electricity trading)
    - 20% economic development, to support projects in Victoria

- Councils who are already committed to purchasing GreenPower through MAV's large market retail contract should consider collectively going to market for the supply of unbundled LGCs. This process could be undertaken in parallel to the existing procurement process at the end of 2017.
- Proactive councils looking to minimise the risks posed by imminent price increases should look to establish a long term PPA for low-cost renewable energy. This would involve entering into a 7-10 year retail electricity supply agreement with the specific requirements that:
    - the retailer contracts with a new or existing renewable project(s) for the agreed period
    - the retailer will pass through to councils any LGCs from the project that are not required to meet the retailer's RET obligation (more than 80%)
    - councils have rights to claim that power they are using has been sourced from the project(s) and have the option to voluntarily surrender the LGCs

  This approach offers a number of benefits by:
    - decreasing the risks of the retailer opting to pay penalties rather than meet its RET obligations
    - offering flexibility to individual councils within the purchasing group who can either surrender the LGCs to assist in meeting emission reduction targets, or on-sell the LGCs to improve project economics and only make claims about their support for renewable energy (without the associated emissions reduction)
    - streamlining development costs by using a model that is likely to meet the majority of needs of councils and allowing interested parties to opt in, rather than attempting to 'co-create' a model to meet the needs of all stakeholders
- Councils should engage with the State Government (via DELWP) to scope and understand state supported options for PPAs. These may include:
    - Victoria's emerging reverse auction process
    - a metropolitan wide version of the Melbourne Renewable Energy Project, currently being considered by the Resilient Melbourne Delivery Office
    - a collaboration lead by the Victorian water utilities to meet their mandatory renewable energy targets under the Climate Change Act

  Engagement should not be limited to State lead options – councils are encouraged to engage through local networks to better understand alignment and collaboration potential with councils and other stakeholders within their region
- PPA options should be considered alongside of opportunities for councils to invest, build, own and operate their own large scale generation infrastructure. Councils should proceed with a feasibility study that assesses the high level costs and benefits of a range of investment scenarios considering different levels of aggregation, project scale and location. This study would inform the scope of a subsequent Victoria-wide site identification and assessment, which could be the subject of a New Energy Jobs Fund application, led either by the MAV or other coalition of regional greenhouse alliances.

1. INTRODUCTION

This paper has been collaboratively developed by the Victorian Greenhouse Alliances to inform future approaches to electricity procurement in their member councils. It provides a summary of new and emerging opportunities for Victorian councils to collectively procure *best value* electricity whilst meeting multiple policy commitments and objectives, particularly with respect to emissions reduction.

The issues presented within this paper relate specifically to current retail arrangements for the supply of electricity for council facilities and public lighting. It does not address natural gas. The review contains a high level assessment of the costs and benefits of a number of emerging energy procurements models and provides recommendations for councils to pursue low cost, sustainable energy procurement practices that are better aligned with council values.

2. CURRENT PROCUREMENT PRACTICES

Historically, councils have collectively engaged a third party agency to tender on their behalf to leverage economies of scale and capture significant cost savings on retail electricity for facilities, public lighting and natural gas. These savings are derived only from the contestable components of the charges – demand based consumption – and do not include regulated components, such as fixed network charges. This procurement arrangement protects councils from the complexities within the market and overcomes the information asymmetries that would otherwise prevent local governments from securing the lowest price.

Nearly all of Victoria's councils purchase their electricity through either Procurement Australia (PA) or the Municipal Association of Victoria's (MAV) group tendering processes (see Table 1). The exception to this is one small rural council which utilises the state government's electricity contracts and another large council which purchase electricity direct from the market.

TABLE 1: Estimated split of procurement groups across Victorian Councils

Contract type	Procurement Australia	MAV	State Government	Other
Electricity (large market)	60	17	1	1
Electricity (small market)	60	17	1	1
Public Lighting Electricity	56	22	0	1
End date of current contracts	**Procurement Australia**	**MAV**	**State Government**	**Other**
Electricity (large market)	30 June 2018	31 Dec 2017	30 June 2018	31 Dec 2017
Electricity (small market)	30 June 2018	30 June 2017	31 Dec 2018	30 June 2017
Public Lighting Electricity	30 June 2018	31 Dec 2017	N/A	31 Dec 2017

The responsibility of managing energy contracts has typically resided with local government procurement officers and asset managers whose contract preferences have primarily been

driven by price alone. Over time, this has changed as councils have sought additional value-added services within their retailing arrangements, including:

- Data access and reporting - including support for online data analysis and reporting functionality to meet councils' broader environmental reporting obligations
- GreenPower – as a means of reducing emissions from purchased electricity in facilities and public lighting
- Network tariff reviews - depending on which distributor region the account is held in, the possible number of tariffs ranges from 29-61. These tariffs change every year on the 1st of January and are a regulated pass through charge
- Rectification of billing errors – verifying the accuracy of bills, meter readings (including their locations) and streamlining fault resolution and reimbursement processes
- Metering innovations – to support virtual net metering initiatives (or 'local electricity trading') where energy generated on one council building can be netted-off against the consumption of another council site

The capacity of retailers to integrate these services into their contract delivery has been mixed. Despite PA including a 50% weighting on '*customer service*' in their tendering process, councils using AGL as their retailer (multi-contract winner) have historically been dissatisfied with substandard data access arrangements and supporting information platforms. AGL has also been criticised for its inability to conduct network tariff reviews and rectify billing faults, leading councils to engage independent consultants to deliver these services at their own cost[1]. Consequently, councils have often claimed that their needs in these areas have been lost within the broader portfolio of PA's clients, which include water utilities, universities, hospitals and other organisations. In 2016, the Australian Conservation Foundation (ACF) awarded AGL the dubious title the country's 'largest polluter'. This malalignment of council values and investment has become a source of significant discomfort for councils, particularly those seeking to divest and adopt ethical procurement practices.

Conversely, councils with ERM as their retailer (via MAV tender process) have generally been satisfied with data access, reporting platforms and customer service. This is surprising given that price has been the only tender evaluation criteria used by MAV's technical consultants in assessing retailer proposals. Unfortunately, ERM's decision to pay penalties rather than meet its obligations under the Renewable Energy Target (RET)[2] has flow on implications for councils purchasing bundled GreenPower/LGCs through ERM and any assertions they might make regarding the environmental benefits of these purchases.

A high level comparison of the current demand tariffs under the contracting groups (see Tables 2 and 3) indicates that load aggregation may not be as critical for delivering savings as previously thought. Whilst a 'like for like' comparison of prices within contracts spanning different periods is difficult, the ultra-competitive nature of the market demonstrates councils should be more proactive in pursuing a broader range of energy services without fear of compromising on price in future procurement rounds.

[1] EAGA's Tariff Review Project: https://eaga.com.au/projects/tariff-review/
[2] Clean Energy Regulator (2017) ERM falls short of their renewable energy obligations (link)

TABLE 2: Comparison of average peak tariffs across large market contracts

PROCUREMENT GROUP	RETAILER	LOAD (GWh/yr)	PRICE VARIANCE
Procurement Australia	AGL	450*	+14%
MAV	ERM	50	+12%
State Government	Red Energy	Unknown	Unknown
Other	ERM	10	Lowest

*note: council's load is 35% of the total portfolio load at 158 GWh

TABLE 3: Comparison of average off peak tariffs across public lighting contracts[3]

PROCUREMENT GROUP	RETAILER	LOAD (GWh/yr)	PRICE VARIANCE
Procurement Australia	AGL	160	11%
MAV	ERM	105	10%
State Government	N/A	N/A	N/A
Other	ERM	10	Lowest

The ability of councils to 'shop around' for a better deal is partly constrained by the conditions on the current tendering processes. For instance, participants in the PA process agree to a fixed price arrangement based on a "committed volume" which excludes standing offers. If a council does not consent to the outcome of the tendering process, it is not permitted to undertake a separate tender (individually or via an agent) for a minimum of six months. This means that councils considering rolling over to an alternate tendering agency should do so during the contract period and not at the time of the tendering process.

The lack of clear guidance for councils looking to switch providers and bridge the gap between contract periods (see Table 2) has proved to be a barrier to action. The task for rolling each site onto a new contract resides with the incoming retailer, whilst the administrate process for councils generally involves:

- Registering interest with the new tendering agency
- Speaking directly with the category manager to confirm eligibility
- Provision of all NMI numbers, sites address, billing address, incumbent retailer, annual consumption, and commencement date
- Specifying the required billing type (per site or consolidated)

Furthermore, councils typically have limited timeframes (one week) to make a decision after a tender has been awarded by their procurement agency. Despite the significant cost implications, councils are typically rushed into a decision to sign a retail contract.

[3] Off peak rates chosen for public lighting as a majority of consumption occurs in (night) off peak periods

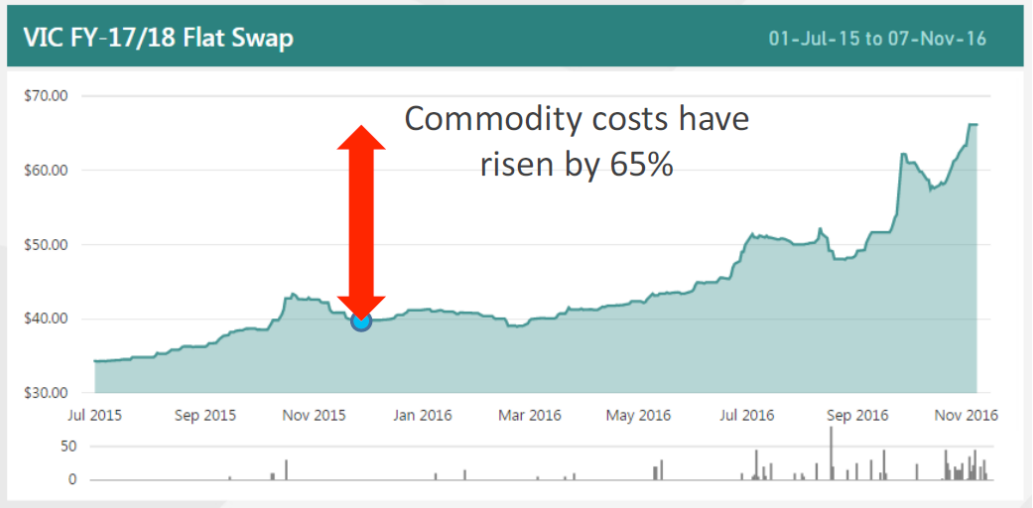
3. RISKS & OPPORTUNITIES

3.1 Risks

Due to a range of market and other factors, energy analysts are now forecasting significant price increases in the coming years, driven by:

- **Surges in commodity costs**: at the time of the last joint tendering process (November 2015), councils entered into fixed-price retail contracts for standard black power at unusually low prices. Since then, commodity prices have risen by approximately 65%, putting significant upwards pressure on the electricity wholesale market.

FIGURE 1: Spot price of electricity in wholesale market[4]



- **The closure of coal fired generators:** since August 2014, a number of aged power stations have been taken offline including Alcoa's Anglesea plant and Alinta's northern power plant at Port Augusta. The closure of Hazelwood (March 2017) has further addressed the oversupply of electricity in the National Energy Market (NEM). The potential closure of the Portland Smelter and Yallourn power station are expected to further destabilise prices in coming years.
- **Rapid expansion of natural gas markets:** large export contracts have resulted in Australian consumers becoming 'price takers' on international markets. As a result, domestic gas prices are rising more steeply than ever before, having risen by around 45% over the last year. This puts further upward pressure on electricity process as a significant portion of Australia's electricity generation comes from gas fired generators.[5] This will be compounded as gas fills the base load generation from exiting coal fired generators.

[4] Procurement Australia briefing Nov 2016
[5] Department of Industry and Science (2015), 2015 Australian energy update, Canberra, August

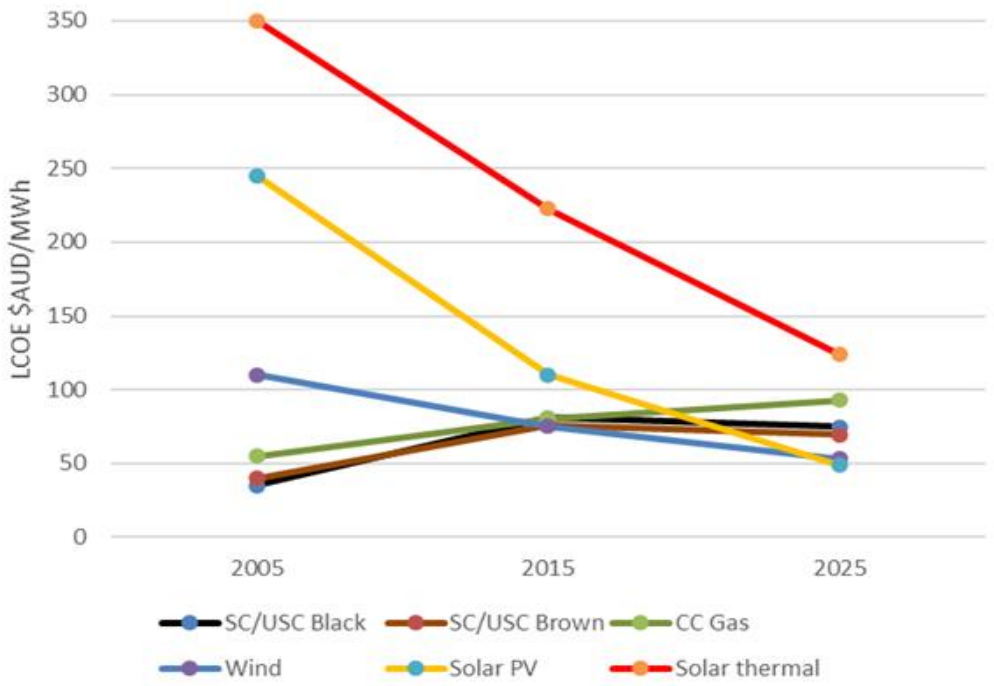
- **Gold plating of poles and wires:** current regulatory settings provide a capex biased to investment in transmission and distribution infrastructure which are passed through to consumers. These fixed (incontestable) network charges represent around half of all retail electricity costs.

It is difficult to quantify the overall impact of these changes in a complex dynamic system. Wholesale prices have already doubled since the last round of contracts were initiated. Following the reliability failures in SA (October 2016) and announcement of the Hazelwood closure, the federal government have released forecasts indicating further increases in wholesale prices of 27-33% in the next contracting period (2017/18 and 2018/19).[6]

3.2 Opportunities

Solar and wind is now the same price or cheaper than new fossil fuel capacity in more than 30 countries.[7] As prices for solar and wind power continue to tumble, two-thirds of all nations will reach the point known as "grid parity" within a few years, even without subsidies. Recent analysis of the levelised cost of energy (LCOE[8]) by Australian Industry Group (AI Group) indicates that Australia is included within this group.

FIGURE 2: Historical and future energy costs (Source: AI Group)



The confluence of prices provides councils with a number of opportunities that can deliver a range of complementary policy objectives:

[6] AEMC, 2016 Residential Electricity Price Trends, final report, 14 December 2016, Sydney, p. iv
[7] World Economic Forum (2016), *Renewable Infrastructure Investment Handbook*
[8] LCOE is the average total cost to build and operate a power-generating asset over its lifetime divided by the total energy output of the asset over that lifetime. The LCOE can also be regarded as the minimum cost at which electricity must be sold in order to break-even over the lifetime of the project.

- **Cost minimisation**: it is estimated that Victorian councils are currently paying $31M in contestable (demand) charges each year.[9] Taking a longer term view to support generation types with zero fuel costs is one way councils can reduce the risk of wholesale energy prices escalating to ~$80/MWh. A selection of recent power purchasing agreements (PPA) demonstrate this potential[10]:
    - Silverton wind farm at $65/MWh, capped for first five years
    - Hornsdale wind farm $73/MWh for 20 years
    - Crookwell wind farm at $86.60/MWh for 20 years

  Whilst these interstate projects represent some of the best available prices in the market, consultation with DELWP indicates that there are a number of Victorian project developers looking to establish cost competitive PPA's after missing-out on securing the recent state government contract to power Melbourne's tram network.
- **Emissions reduction**: there are 20 Victorian councils with commitments to become carbon neutral and 45 councils with emissions reduction targets. Many of these councils have been pursuing these targets through the implementation of ambitious energy efficiency programs and onsite renewable energy generation. In many instances, the 'low hanging fruit' have been captured and efficiency targets are being met, leaving offsite renewable energy or alternative procurement models to bridge the gap.
- **Procurement policies**: the Local Government Act 1989 requires all councils to apply *best value* principles in their procurement policies and practices. Price parity means greater consideration can be given to the additional services sought by councils (as specified in Section 2), allowing both quality and cost to determine procurement outcomes.
- **Economic development policy**: nearly all councils are committed to supporting local businesses and economies. Increasingly, new energy procurement models (see Section 4) allow energy users to support local distributed energy generation projects that facilitate low carbon economic development, improve energy security and help regions adapt to climate change impacts that affect energy supply. Estimates provided by the Clean Energy Council indicated that 15 FTE are required for the installation of 1MW of renewable energy capacity.[11]

4. PROCUREMENT MODELS

The proliferation of new market structures supporting renewable energy presents challenges of complexity to energy users looking for a better deal – a recent study by UNSW estimated there are up to 192 variations on a dozen models.[12] Many of these can assist councils to capture the opportunities described in Section 3. For simplicity, these are summarised into four categories as illustrated in Table 4.

[9] Excludes networks and other retailer charges, based on aggregate load data provided by PA and MAV
[10] Best available rates, not based in Victoria (http://reneweconomy.com.au/record-low-wind-energy-price-in-act-auction-but-solar-not-far-behind-12195/)
[11] Estimate includes direct and indirect jobs
[12] Mitchell, Mills (2017) Facilitating End User Deployment Of Off-Site Renewable Generation, UNSW RP1032 (link)

TABLE 4: Categories of market models

Category	Model
Black power (fossil fuel based)	• Business as usual (e.g. group tender for fixed-price over short period) • Progressive purchasing
Green Power	• GreenPower™ • GreenPower™ Connect • Buy and surrender LGCs
Power Purchase Agreements (PPAs)	• Retailer aligned PPA (e.g. Melbourne Renewable Energy Project) • Direct offsite PPA (e.g. UTS Singleton model) • Reverse auction PPA (e.g. ACT state government model) • Synthetic PPA (e.g. Grass Roots)
Investment	• On-site solar (e.g. behind the meter) • Invest, build, own and operate offsite (e.g. Sunshine Coast Council)

4.1 Business as usual

The emerging risks facing the current practice of procuring fixed-price energy through a group tendering process are outlined in Section 2. In addition, this kind of contract usually allows a +/-10% load variation without penalty which may become problematic for some councils currently undertaking energy performance contracting (e.g. Boroondara, Maroondah, Knox and Yarra Ranges). These projects are seeking to reduce energy consumption by ~30% in council buildings which may trigger penalty arrangements. Whilst it is understandable that retailers include such provisions to protect themselves from wholesale market risks, future fixed price contracts should not penalise councils for implementing energy efficiency measures within the contracting period.

4.2 Progressive purchasing

Procurement Australia have recently distributed a ‘white paper’ to their members proposing to move large market sites from a fixed price contract to a ‘dynamic price’ four-year contract. Under this arrangement, the retailer seeks to avoid the market risk of contracting on any one day and to try to take advantage of any downswings in market pricing. Typically, a margin for the retailer is agreed upon and electricity is bought on the wholesale market when favourable pricing is available and in advance of supply needs. This kind of contracting offers potential rewards when wholesale market pricing is better than available contract pricing, and when the market is trending down. However, it also exposes the organisation to market risk if the market trends up. Naturally this approach requires more resource time to negotiate and manage, and ultimately provides less certainty. It also has the advantage of avoiding ‘price shock’ at the end of the contract period. Many retailers offer this solution for the supply of standard black power.

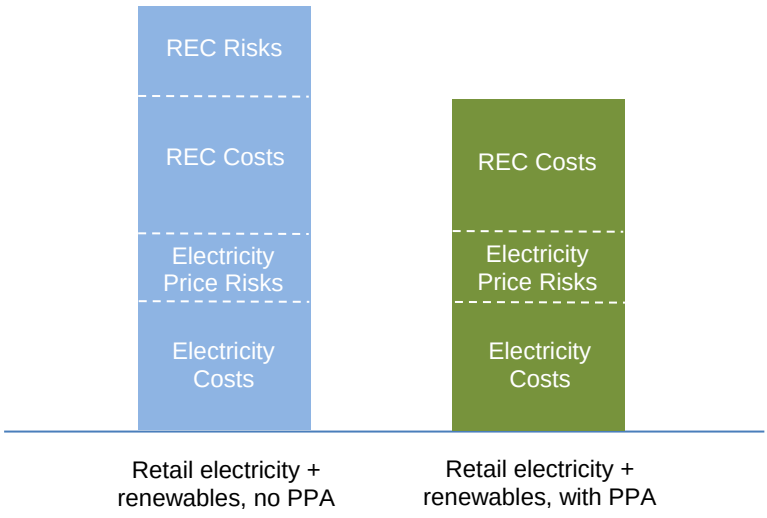
The State Government uses this approach for their agencies and offer a cost comparison for parties looking to roll in to their portfolio. Progressive purchasing contracts are generally more flexible and do not penalise users who curtail their load through efficiency measures.

4.3 GreenPower™

GreenPower is a mature federally administered scheme familiar to many councils. When a retailer sells GreenPower, the sale is registered in their database. At the beginning of the following year, they must purchase the amount of electricity from renewable energy generators in the form of Large-scale Generation Certificates (LGCs) to match their sales. GreenPower can also be purchased through decoupled GreenPower providers, which don't supply electricity but purchase and surrender LGCs. Either way, it amounts to the same thing – more certified renewable energy is added to the grid on the customer's behalf.

Councils have typically incorporated GreenPower into their existing retail arrangement as a simple means of reducing their emissions, however in recent years, many councils have redirected this investment towards energy efficiency, which provides a lower cost of abatement (and other benefits) in the long term. Costs of GreenPower LGCs are typically higher because it includes the premium of REC risks, unlike a Power Purchasing Agreement (PPA) which deals with this risk (See Figure 3) by providing longer term certainty.

FIGURE 3: Components of renewable energy costs



4.4 GreenPower Connect™

The Government has recently diversified the GreenPower brand in response to decreasing sales and an increasing number of consumers looking to support specific new renewable energy projects by purchasing LGCs through direct contracts with the generator (via offtake agreements). GreenPower Connect provides a low cost opportunity for direct funders of new large renewable energy projects to have their LGCs recognised as GreenPower accredited

renewable energy. These GreenPower purchases are considered additional to the number of certificates that liable entities are required to surrender under the Renewable Energy Target.

4.5 Buy and surrender LGCs

Proponents wishing to establish contracts with generators and de-coupled LGC providers can do so outside the GreenPower Connect scheme and avoid the associated government administration costs. Market intelligence indicates that a long term off-take agreement could secure the supply of LGCs at prices significantly lower ($50-$60) than those available on the spot market ($80-$100). This approach may be an attractive proposition to councils already committed to purchasing 'on-bill' GreenPower through their retailer. This separate procurement process could be managed and administered by MAV and PA in parallel to upcoming tendering rounds.

A slight variation on this model would be for councils to instruct their retailer to decouple the LGC liability from their bill and for the councils to self-manage their LGC obligation. By purchasing LGCs commensurate with the retailer's obligations under the mandatory RET, councils can avoid the problem where a retailer opts to pay the penalty price rather than surrendering certificates (as described in Section 2). Not all retailers may be amenable to this approach.

4.6 Retailer aligned PPA

This aggregated procurement model involves a consortium of organisations tendering for a long term retail contract to supply renewable energy, providing price certainty for both retailer, developer and consumer. This approach is being pioneered by City of Melbourne (CoM), Yarra City Council and Moreland City Council and a number of other organisations through the Melbourne Renewable Energy Project (MREP). The MREP seeks to drive new investment above and beyond the RET through the purchase of 110 GWh of energy from new large-scale renewable energy facilities, at an attractive price over a ten year term.

The MREP project involves the establishment of a long term PPA between a retailer and a number of renewable energy generators/developers. The retailer then holds individual Retail Service Agreements (RSAs) with each project partner. The arrangement involves locking in a wholesale electricity price and LGC price which underpins the development of the project.

The contract will involve the retail sale of electricity, which requires the retailer to smooth out the intermittency of the renewable energy plant and incur spot market costs. These retail costs can be reset periodically to reflect market movements. The benefit to the customer derives from the pre-determined wholesale price and the fixed LGC price. All three councils will be supplying 100% of their electricity component through this contract.

If this project was to be repeated, CoM recommend using a consortium of stakeholders that have similar load profiles and drivers (for example councils) rather than a variety of organisations. This would enable a more efficient product development process from the outset, rather than attempting to co-create a model to satisfy each organisation's drivers.

4.7 Direct offsite PPA

A direct offsite PPA involves an end user establishing a supply agreement with an independent generator at an offsite location, in parallel to the overarching retail contract. The main example of this model is the University Technology of Sydney (UTS) and Singleton Solar Farm. The solution involves UTS paying the solar farm directly for electricity generated. The retailer (ERM) treats the solar farm as an extra site in the University's electricity supply agreement and the energy it generates creates a credit, which is then allocated against the electricity consumption of the Chau Chak Wing Building.

The procurement process involved an expression of interest which identified the existing 200 kilowatt Singleton Solar Farm in regional NSW. The parties established the contract outside of the tendering process for the main retail agreement via direct negotiations. It is important to note that the purchase and retirement of LGCs were excluded from the agreement to make the project commercially viable. This limits the claims the University can make regarding the environmental benefits of the project i.e. there are no additional emission reductions.

Furthermore, the UTS model requires the output of the renewable energy plant to be less than the customer's base load demand (typically weekend demand for solar or overnight demand for wind). Otherwise this would mean that the generator was exporting to the grid without the same volume of energy being used by the customer, meaning the retailer would need to export the energy into the grid and manage 'overs and unders'. There are potential commercial solutions to this, but they haven't been adopted with UTS/Singleton. The model in its current form only works because the output of the solar plant is less than 20% of the University's demand.

4.8 Reverse Auction PPA

The ACT Government has run two reverse auctions to drive investment in 400 MW of wind generating capacity (2014 and 2015). Combined, the ACT's supported wind farms will deliver about 50% of the Territory's electricity supply from renewable energy sources in 2020. This will reduce emissions by 1.9 million tonnes in that year.

The auction was the first in Australia to offer a *contract for difference*. Under this arrangement there was a strike price, which provided the generator with a guaranteed fixed revenue stream. If the generator earns revenues on the spot market above the strike price they pay a refund to the customer. If they earn revenues below the strike price, the customer makes up the difference. The customer only pays the difference if the revenues are below the strike price. This potentially can result in customer paying very little for the electricity component. This arrangement sits alongside a normal retail agreement and offsets (or adds to) the retail costs.It likely that this arrangement would involve derivative accounting practices and disclosures therefore need to be considered. For these reasons, the applicability of contract for difference models may be limited

The elegance of this solution is not within the auction process itself, but the evaluation criteria applied which allocated a 20% weighting to community engagement and 20% to local economic development benefits. This approach has incentivised energy providers to innovate

in new ways not previously seen in the energy market. Whilst the generation facilities are located in Victoria and South Australia, successful tenders have delivered on their commitment to support local economies by establishing the generation control centres in the ACT, investing in local TAFE courses to support renewable skills and establishing a community investment fund to facilitate residential batteries trials.

The Victorian Government will shortly launch its own auction scheme as the primary mechanism to deliver on the State's recently legislated renewable energy target of 40% by 2025.

4.9 Synthetic PPA

In a traditional PPA, an energy retailer agrees to buy a large quantity of renewable energy over a long and fixed time period, e.g. 20 years. 'Synthetic PPAs' can be more flexible and maximise value over shorter time periods. Extending the progressive purchasing model described in Section 4.2 becomes challenging in the instance of a 100% renewable generation portfolio, particularly due to the intermittent generation nature of the technologies. Consequently, there are only a few retailers providing this type of service.

Procurement Australia has proposed the councils could pursue this model through the establishment of a co-op and dedicated retailer (Grass Roots). This is an emerging model that requires further development and investigation. PA will be seeking expressions of interest from councils in the coming months to establish the parameters for a feasibility study.

4.10 On-Site Solar

The deployment of rooftop solar PV on council facilities is a well understood and applied solution within the local government sector. This behind the meter solution has the benefit of avoiding network costs associated with offsite generation and has been further incentive through the generation to Small-scale Technology Certificates (STCs) supported by the Renewable Energy Target (RET). In most instances, onsite generation presents the most compelling businesses case, however, scaling-up this solution is problematic – a council's usable roof space is likely to only meet ~25% of its total electricity demand.

To ensure councils can leverage maximum benefits from new and existing onsite installations, councils should specify retailers offer 'virtual net metering' services within future retail contracts. This enables councils to net off the excess electricity from one large on-site solar system to another council building that has high daytime energy demand but limited options for onsite generation. There up to one hundred separate projects using this approach across Australia, typically facilitated by the smaller more progressive retailers.

4.11 Invest, build, own and operate offsite

Sunshine Coast Council (SCC) have commenced building a 15MW solar farm that will offset more than 100% of the council's electricity consumption across its facilities and operations. The off-site facility will cost council $50M to construct and a further $10M to operate, but will generate $22M in savings over the lifetime of the asset (30 years). The farm is being built on

24 hectares of a 49 hectare site within close proximity to a 33kV transmission line where it connects to the network. The investment decision was made after an exhaustive four-year process, including a business case that was independently reviewed by an investment bank and a business advisory firm with experience in the commercialisation of renewable energy technology. [13]

Newcastle, which is pursuing a similar solution, has completed an expression of interest (EOI) for a 5MW solar farm to be built on an ex-landfill site. The EOI seeks a proponent to: design, construct, operate and maintain the solar farm and provide retail services that maximise the value from the generation asset.

Councils in the north east and north west of Victoria are currently experiencing significant interest from solar farm developers. Opportunities for Victorian councils to collectively invest in their own offsite generation infrastructure should be investigated through a separate feasibility study. Should such an approach prove economically feasible, further commercial and technical due diligence will be required through more detailed business case studies. Initial feasibility analysis should be conducted in parallel to reviewing existing retail arrangements.

5. COMPARING OPTIONS

Table 5 summarises the ability of the various options described in Section 4 to deliver on the council policies and objectives described in Section 3.

TABLE 5: Ability of procurement model to meet council policy objectives

Option	Cost minimisation	Emissions reduction	Procurement policies	Economic development
BAU	No	No	Partly	No
Progressive purchasing	Potentially	No	Partly	No
GreenPower	No	Yes	Yes	Yes
GreenPower Connect	Potentially	Yes	Yes	Yes
Buy & Surrender LGCs	Potentially	Yes	Yes	Yes
Retailer aligned PPA	Potentially	Yes	Yes	Yes
Direct offsite PPA	Potentially	Potentially	Yes	Potentially
Synthetic PPA	TBC	TBC	TBC	TBC
Onsite solar	Yes	Yes	Yes	Yes
Invest, build, own, operate	Yes	Yes	Yes	Yes

[13] https://d1j8a4bqwzee3.cloudfront.net/~/media/Corporate/Documents/Solar%20Farm/solar-farm-business-case.pdf?la=en

Evaluating the ability of each model to reduce future costs in a dynamic and rapidly evolving market is challenging. It is also dependent on the base case (or business as usual practice) for each individual council. For instance, a council who already purchases on-bill GreenPower will have a different cost minimisation opportunity to a council that simply procures standard black power. Generally, costs can be minimised through longer term contracts (7-10 year PPA) with renewable energy generators. These deals are likely to be financially attractive and include the provision of LGCs equivalent to 20% of total demand (as a minimum). Booking the sale of LGCs can improve the economics further, however this restricts any claims councils can make about any associated emissions reductions or support new renewable energy generation projects. Similarly, establishing an off-take agreement for LGCs with an existing generator will secure a better price than those sourced from a new project, however this will not contribute to the uptake of new renewable energy.

The ability of these models to generate savings was recently confirmed in a joint study conducted by Victoria's water utilities. The project examined how the agencies could meet the State Government's mandatory renewable energy target of 40% by 2025. The report included an economic assessment of fifteen market models (categorised into four main groups as per Table 4) and found that two options could deliver savings to the consortium of partners – PPAs and invest, build, own and operate models.

The findings of this investigation are significant given the aggregate demand of the water utilities is of a similar scale (280 GWh) to that of Victoria's councils (530 GWh). The project also considers the collaborative and governance models to advance these opportunities which are also likely to be transferrable to the local government sector. Ideally, councils could choose to 'opt in' to future state government procurement process to deliver these solutions.

TABLE 6: Comparison of costs and benefits of procurement models

Option	Deal Complexity	Capital Cost	Annual cost	Avoids Network Charges	Established solution	Fixed electricity cost
BAU	Low	Nil	Minor	No	Yes	Yes
Progressive purchasing	Low	Nil	Minor	No	Yes	No
GreenPower	Low	Nil	High	No	Yes	Yes
GreenPower Connect	Low	Nil	Medium	No	Yes	Yes
Buy & Surrender LGCs	Medium	Nil	Medium	No	Yes	Yes
Retailer aligned PPA	High	Nil	Minor + management	No	Emerging	Yes
Direct offsite PPA	Low	Nil	Minor	No	Emerging	Yes
Synthetic PPA	High	TBC	Minor + management	No	Emerging	No
On site solar	Low	High	Minor	Yes	Yes	Yes
Invest, build, own, operate	High	High	Minor + management	No	Yes	Yes

6. WHAT ABOUT GAS?

Victorian councils are more exposed to the imminent price increases in the natural gas market compared to councils in other states where gas use is less prevalent for heating services. Councils collectively consume over 730TJ of gas each year at an estimate annual cost $55M.

The main opportunity for councils to address this risk is through internal energy efficiency and fuel switching initiatives. There is growing momentum for domestic and commercial customers to move away from natural gas as a fuel source. Electrification opens up more opportunities for integrating renewable energy and reducing local greenhouse gas emissions. With the advent of cheaper and new efficient electric technologies, and the need to move away from fossil fuels, a large number of councils are now progressively electrifying their facilities.

The role of gas in providing secure, affordable, low carbon energy into the future is highly questionable. In particular, councils should consider:

- Gas prices have recently doubled and are projected to continue to increase
- New gas plants will lock in additional emissions for decades to come
- Fugitive emissions from unconventional gas could cancel out any emissions benefit of using gas over coal
- Gas relies on fuel inputs exposed to domestic and world markets, making gas more vulnerable to price shocks
- Australia should limit is use of gas and stay below a carbon budget consistent with a temperature increase below 2^{o}C
- Transitioning directly to renewable energy is the cheapest option and there are many demonstrated technologies that can provide security of supply, such as through batteries, thermal, pumped hydro storage, energy efficiency and a diverse suite of renewable energy technologies
- Lack of community support for unconventional gas

7. FINDINGS AND PATHWAYS

A unique set of market conditions presents the Victorian local government sector with an opportunity to re-evaluate its current approach to procuring electricity. The findings within this paper indicate that:

- business as usual practices are likely to expose councils to financial risks. Wholesale prices have doubled since the previous tender rounds and the Federal Government forecasts indicate prices will continue to increase by a further 27-33% in the next two financial years
- economies of scale (aggregating load or electricity demand) across multiple parties is less effective in securing lowest costs than previously thought. The ultra-competitive

nature of the market means tendering agencies should give greater consideration to the additional services sought by councils allowing both quality and cost to determine procurement outcomes

- the ability of retailers to integrate value-added services and meet obligations of contracts has been mixed. Furthermore, councils may be penalised for implementing significant energy efficiency measures under existing contract terms
- the costs of renewable energy are rapidly plummeting and may now be approaching price parity with traditional fossil fuel based generation. If councils can adopt a longer term approach (contracts periods 7-10 years) to buy from generation sources with zero fuel costs, they can mitigate the price risks posed by commodity markets
- there are a proliferation of new market models emerging to support councils to procure renewable energy. These new models can also assist councils deliver a number of complimentary policy objectives including costs minimisation, emissions reduction, procurement (best value) and economic development
- in most instances, onsite generation (rooftop solar) presents the most compelling businesses case, however, scaling-up this solution is problematic – a council's usable roof space is unlikely to meet its total electricity demand
- recent studies conducted by the State's water authorities confirm two approaches can deliver the State's legislated renewable energy target and reduce costs:
    - power purchasing agreements (PPA)
    - investing, owning, operating large scale off site renewable generation infrastructure

These findings demonstrate that there are several alternate and parallel pathways available to councils (and groupings of councils). The recommendations outlined below are intended to inform discussions within and between councils and other stakeholders:

- Councils should request that their respective procurement agencies (PA and MAV) revise the current tender evaluation criteria to include a weighting based on the policy objectives of councils:
    - 40% price
    - 20% emissions reduction or ability to support renewable energy generation
    - 20% procurement obligations under the LG Act (i.e. to incorporate best value services such as data access, tariff reviews, fault resolution, and virtual net meeting/local electricity trading)
    - 20% economic development, to support projects in Victoria as opposed to interstate

  This is a small but incremental change intended to incentivise providers to innovate and propose retail solutions that better meet the needs of councils. The evaluation criteria should be broad enough for all councils to agree to but still flexible enough to accommodate the diversity of new market models. PA may be constrained in its ability to meet this request, as it must accommodate the needs of other energy consumers in its portfolio. If this is the case, PA councils are encouraged to roll over to an alternative

agency or procurement channel. A consultation process should be conducted over the second half of 2017 to confirm the above criteria and the proposed weightings.

- Councils who are already committed to purchasing GreenPower through MAV's large market retail contract should consider collectively going to market for the supply of unbundled LGCs. This process could be undertaken in parallel to the existing procurement process at the end of 2017. If the parties are able to agree to a longer term offtake agreement, their collective load (10GWh) should attract competitive responses from the market, particularly from project developers who were unsuccessful in the state government's 'solar trams' tender and nearing financial closure. Preliminary discussions with MAV Procurement indicate they are open to facilitating this opportunity should councils confirm their interest in pursuing this model. If this 'pilot' approach to buying and surrendering LGCs proves to be successful, it could be scaled and replicated to include other councils over time.
- Proactive councils looking to minimise the risks posed by imminent price increases should look to establish a long term PPA for low-cost renewable energy. This would involve entering into a 7-10 year retail electricity supply agreement with the specific requirements that:
    - the retailer contracts with a new or existing renewable project(s) for the agreed period
    - the retailer will pass through to councils any LGCs from the project that are not required to meet the retailer's RET obligation (more than 80%)
    - councils have rights to claim that power they are using has been sourced from the project(s) and have the option to voluntarily surrender the LGCs

  This approach offers a number of benefits by:
    - decreasing the risks of the retailer opting to pay penalties rather than meet its RET obligations
    - offering flexibility to individual councils within the purchasing group who can either surrender the LGCs to assist in meeting emission reduction targets, or on-sell the LGCs to improve project economics and only make claims about their support for renewable energy (without the associated emissions reduction)
    - streamlining development costs by using a model that is likely to meet the majority of needs of councils and allowing interested parties to opt in, rather than attempting to 'co-create' a model to meet the needs of all stakeholders

  Advancing this opportunity will require robust consultation and the education of stakeholders across the sector. Councils are encouraged to use briefing sessions (scheduled for the second half of 2017) at their respective procurement agencies as forums to explore this opportunity in greater detail.
- Councils should engage with the State Government (via DELWP) to scope and understand state supported options for PPAs. These may include:
    - Victoria's emerging reverse auction process
    - a metropolitan wide version of the Melbourne Renewable Energy Project, currently being considered by the Resilient Melbourne Delivery Office

    - a collaboration lead by the Victorian water utilities to meet their mandatory renewable energy targets under the Climate Change Act

  Engagement should not be limited to State lead options – councils are encouraged to engage through local networks to better understand alignment and collaboration potential with councils and other stakeholders within their region

- PPA options should be considered alongside of opportunities for councils to invest, build, own and operate their own large scale generation infrastructure. Councils should proceed with a feasibility study that assesses the high level costs and benefits of a range of investment scenarios considering different levels of aggregation, project scale and location. This study would inform the scope of a subsequent Victoria-wide site identification and assessment, which could be the subject of a New Energy Jobs Fund application, led either by the MAV or other coalition of regional greenhouse alliances.