

Eastern Alliance for Greenhouse Action

Scaling Up Solar On Council Facilities – Buy Options

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IMPACT
GROUP**

EAGA

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1. Executive Summary

This report has been developed to:

- assist Local Governments to assess and implement opportunities to install solar on their facilities for zero upfront costs (i.e. to 'buy' solar, rather than invest)
- foster innovation and the development of ownership and contract models in sites where there is a split incentive for Local Governments to invest in on-site solar generation (e.g. sporting facilities owned by Local Government where clubs pay utility bills) and extend savings to community groups and rate payers

The Eastern Alliance for Greenhouse Action (EAGA) engaged Frontier Impact Group to review and assess the benefits and risks of two key 'buy options' and their supporting contractual arrangements:

- leases (or rental agreements), where the energy user enters into an agreement with a financier to fund the solar installation in exchange for making fixed payments over a fixed term (e.g. 10 years)
- Power Purchase Agreements (PPA), where the energy user commits to purchasing electricity produced by the Solar PV installation on the site at an agreed rate over a fixed term (e.g. 10 years)

The findings of the of the review demonstrates:

- Leases/PPAs are viable when ongoing savings generated by the Solar PV system exceed the agreed repayments, so the energy user is cash-flow positive from day one. Local Governments should undertake their own financial modelling to fully understand the underlying assumptions, and the impact these can have on expected returns
- Decisions to pursue leases/PPAs will be driven by the tenancy model and operating arrangements at a specific site and who is responsible for payment of energy bills
- Other key considerations underpinning 'buy options' include whether a Local Government's procurement policy prohibits particular types of investments, security, interest rate and payment capacity
- If a tenant is deemed by the solar installer's finance provider to be an unacceptable credit risk, or if Solar PV provider terms extend beyond the prevailing tenancy lease agreement duration, Local Government may need to act as guarantor to the lease/PPA agreement
- All leases are now will go on the balance sheet following updates to recent updates to accounting standard IFRS 16 - leases

- There are an extensive number of solar system providers in the Victorian market offering integrated solutions (installations via lease/PPA) backed by finance providers offering finance solutions that could support solar leases/PPAs. Some finance providers also offer solar leasing packages independently from solar system providers
- Whilst modelling undertaken through other stages of the Scaling Up Solar on Council Facilities project, and example commercial proposals provided in this report both present viable options, there is no precedence of Local Governments utilising leases/PPA

2. Introduction

This guide has been developed for the Eastern Alliance for Greenhouse Action (EAGA) to:

- assist Local Governments to assess and implement opportunities to install solar on their facilities for zero upfront costs (i.e. to 'buy' solar, rather than invest)
- foster innovation and the development of ownership and contract models in sites where there is a split incentive for Local Governments to invest in on-site solar generation (e.g. sporting facilities owned by Local Government where clubs pay utility bills) and extend savings to community groups and rate payers

The contents of this guide leverages the findings of the 'Scaling Up Solar on Council Facilities' project (undertaken 2018/19) which involved the systematic assessment of solar potential at 53 sites across five EAGA Local Governments, incorporating an overall assessment of the viability of two main 'buy option' types:

- Solar leases - attractive at 19 sites and could **avoid nearly \$500,000 in capital costs**¹
- Power Purchase Agreements (PPAs) - viable at 8 sites and could potentially result in a **reduction of \$180,000 in capital expenditure**

These findings highlight the extent of untapped solar potential in the Local Government sector. This guide is designed to unlock this potential by assisting Local Governments to evaluate the benefits and risks of various funding models and their supporting contractual arrangements.

¹ Based on an assumption of a 7.5% effective lease interest rate with zero balloon at the end.

3. Why ‘buy’ solar and not ‘invest’?

Currently Local Government purchases most Solar PV systems upfront, but there are financing opportunities available, that can accelerate the adoption of Solar PV systems. These financing options are referred to as ‘buy options’.

An upfront capital investment is usually justified where the Local Government can achieve an acceptable return on investment for the project. ‘Buy options’ allow Local Government to avoid the upfront installation costs and seek to ensure ongoing savings exceed the agreed repayments, so the energy user is cash-flow positive from day one. These options include the additional costs of finance (interest rates typically 5-15% p.a.) which may impact the overall viability of the project; however, this may be a preferred approach where there are insufficient funds available to invest up front.

Figures 1 and 2 demonstrate the difference between the more traditional approach of investing up-front versus a ‘buy option’ and the impact these have on the energy users’ cash flow. Solar PV Under the investment scenario (Figure 1) it takes nine years before the project is cash flow positive which may not meet the council’s investment criteria. However, under the ‘buy option scenario (Figure 2) there maybe immediate cashflow benefits from year one.

Figure 1: Cashflow Impact of Upfront Investment

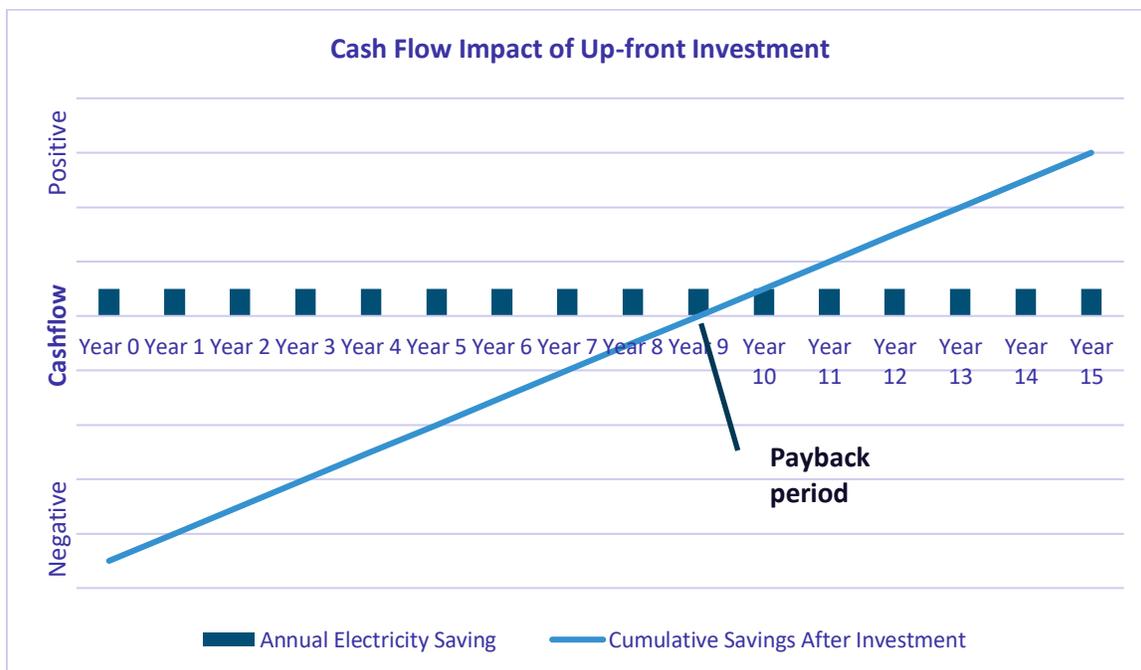
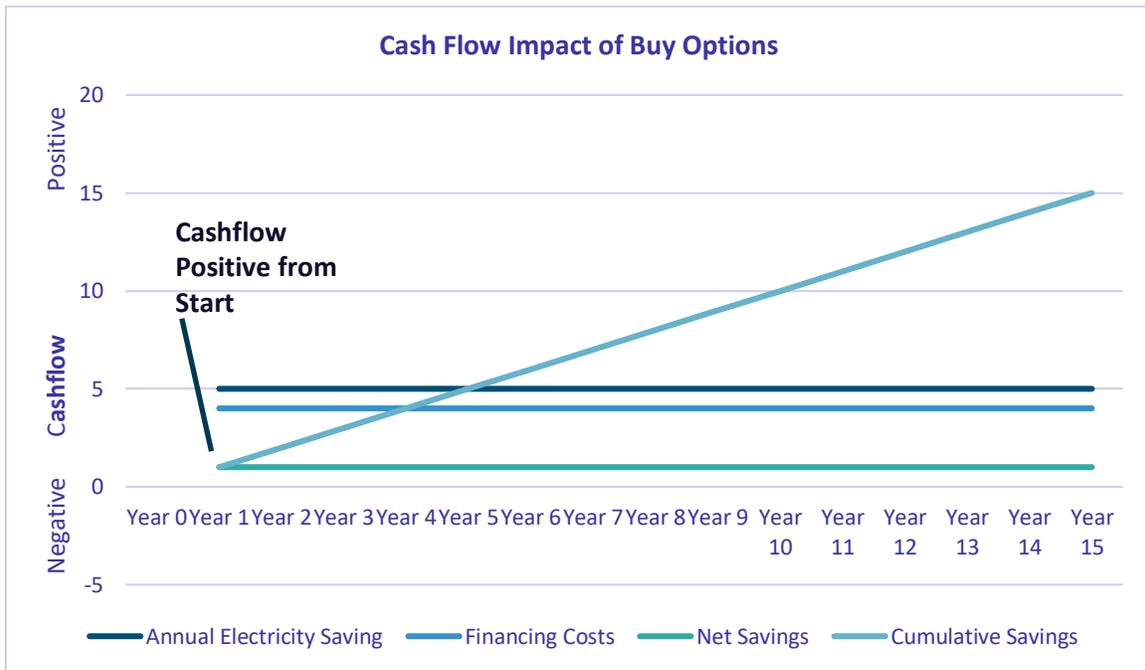


Figure 2: Buy Options – Cash flow Positive from Day 1



Whilst solar is typically prioritised by Local Governments seeking to reduce risks from price shocks in retail electricity arrangements, sector wide survey data indicates that only 2.4% of the sector’s total electricity demand is met through on-site generation. It is estimated that covering all suitable roof space with solar could increase this to 25% and save Local Government in Victoria a total of \$11.7M per year in avoided electricity costs. The emergence of ‘buy options’ may be effective in unlocking some of this potential (particularly in capital constrained Local Governments) and reduce the estimated \$75M in required capital investment identified in the survey.²

This relies on the model being able to provide low interest rates and long repayment periods to Local Government, while providing confidence to the lender that they can recover the debt in case of default.

² <https://eaga.com.au/wp-content/uploads/2018/01/Survey-Report-Summary-2018-01-23.pdf>
Buy Options

4. Overview of ‘Buy Options’

The Australian solar market has matured to a point where there are now several models enabling the installation of on-site Solar PV systems without the need to provide upfront capital.

The actual terms offered by a solar financier will depend on the nature of the project and the prevailing market conditions. Finance terms largely depend on the amount of risk borne by financiers. When the debt involves Local Government entities, the risks are usually perceived to be lower (given the low likelihood of default risk) so Local Government should expect competitive interest rates.

These ‘buy options’ can be generally categorised as:

- Leases or rental agreements, where the energy user enters into an agreement with a financier to fund the solar installation in exchange for making fixed payments over a fixed term (e.g. 10 years).
- Power Purchase Agreements (PPA), where the energy user commits to purchasing electricity produced by the Solar PV installation on the site at an agreed rate over a fixed term (e.g. 10 years)

Leasing/rental and PPA models are summarised below and reviewed in more detail later in the document.

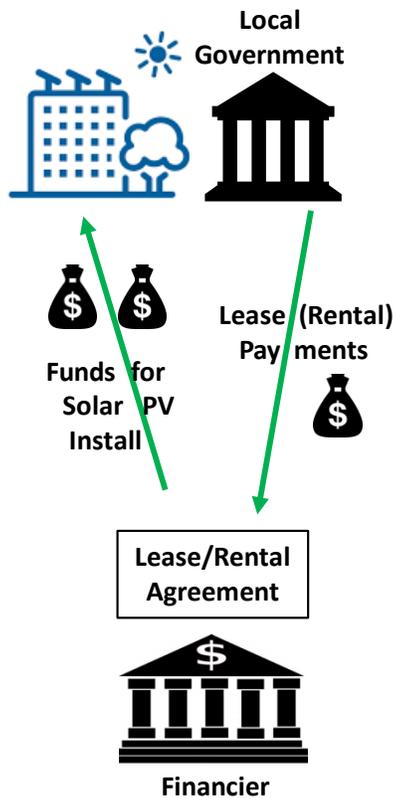
4.1 Leasing

Leasing (including renting) is a form of asset financing where the financing is for a specific solar installation asset or a group of assets.

The financier will lend to fund the solar installation on the basis that it will be able to sell the assets to pay back the debt in the case that the lease payments are not made.

Typical solar lease/rental arrangements are illustrated in Figure 3 below:

Figure 3: Typical Solar Lease Arrangements



SOLAR LEASING/RENTAL

- Financier pays solar installer
- Local Government uses electricity from solar PV
- Local Government makes lease/rental payments
- Local Government maintains solar installation in good working order

4.1.1 Lease Agreements

Under a lease, funding for a solar installation is provided by a financier (lessor) and the customer (lessee) has the sole right to utilise the solar installation in exchange for making regular lease payments. The lessee is required to maintain the equipment and at the end of the lease period, equipment ownership is able to be transferred to the lessee at the lessee's option under certain conditions.

4.1.2 Rental Agreement

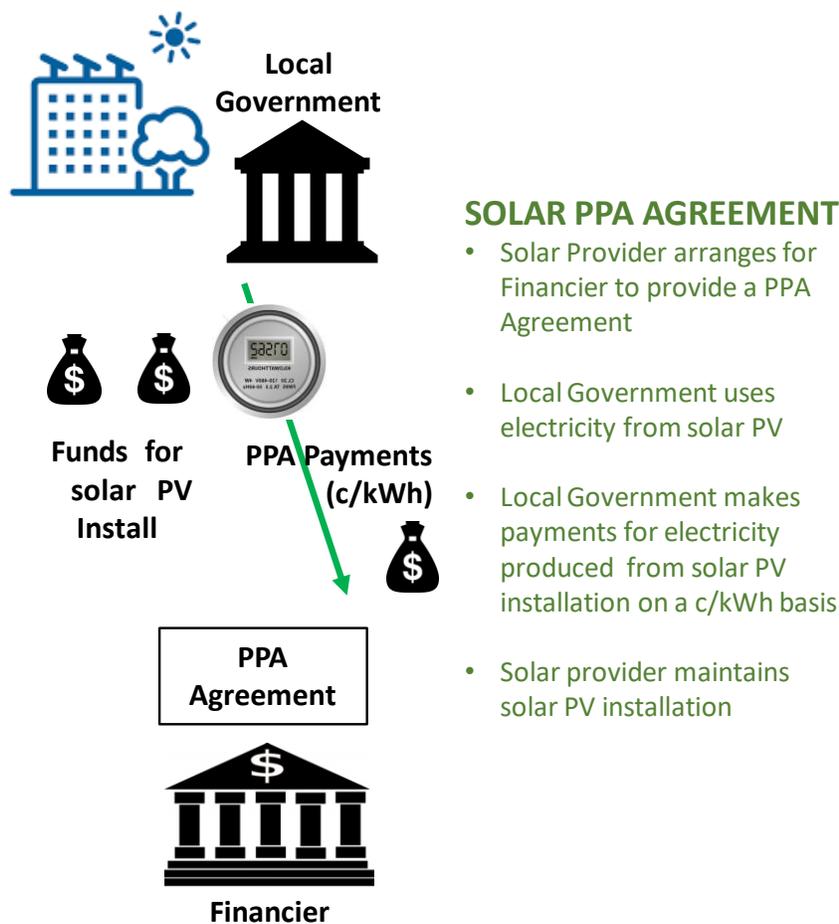
Under a rental agreement, the Solar PV system is owned by the financier and the customer obtains the sole right to use it. The renter makes regular rental payments to the financier and is required to maintain the equipment in good order. At the end of the rental period there is usually an option for the renter to take ownership under the specific terms of the rental agreement option e.g. the payment of an additional number of rental payments.

4.2 PPA

Under a Power Purchase Agreement (PPA), a Solar PV equipment provider will supply and install a Solar PV system on the Local Government site and will recoup the costs by charging for the electricity produced by the Solar PV installation on a cents per kWh basis. The electricity price includes the cost of the equipment, maintenance and interest associated with the time-based repayment of the installation costs.

The key elements of a PPA financing arrangement are illustrated in Figure 4 below.

Figure 4: Typical PPA Financing Arrangement

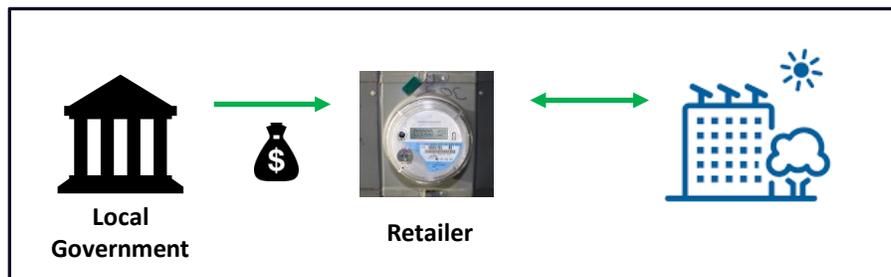


5. Local Government/Tenancy Operating Models

There are three main facility operating models within the Victorian Local Government sector, each with unique electricity usage and electricity billing arrangements:

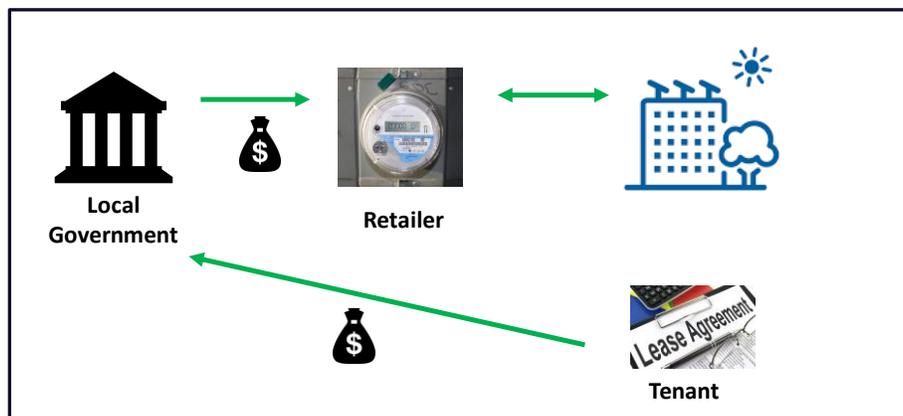
- I. Facilities owned by Local Government for which Local Government pays the electricity bills.

Figure 5: Operating Model - Facilities Owned by Local Government



- II. Properties that Local Government (acting as a Landlord) leases out and still pays some or all the electricity bills (and recover costs through other means).

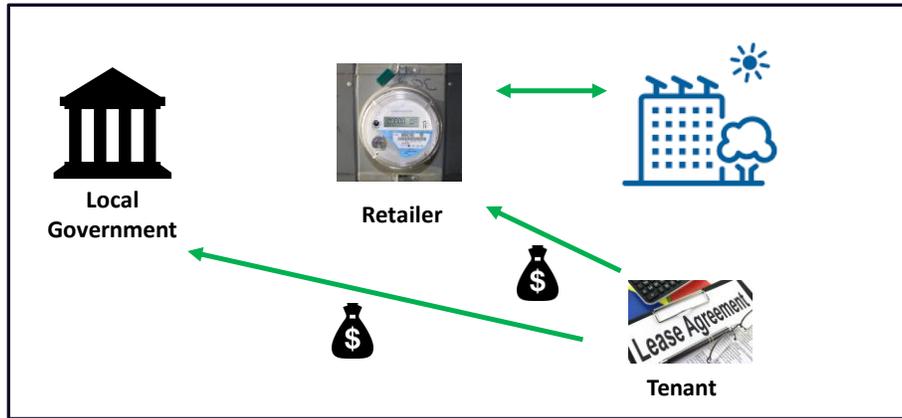
Figure 6: Operating Model – Facilities that Local Government Lease Out



In both situations above, the Local Government entity pays for the electricity costs and therefore any investment in energy savings technologies such as solar will flow back to Local Government. However, there is a difference in the tenancy cases because the tenant may not have the incentive to shift any discretionary energy usage activities into periods when the solar power is being generated in order to maximise the solar benefits.

- III. Properties that Local Government own and lease out (as a Landlord) and the Tenant pays the electricity bill (Local Government is not responsible for the electricity bill)

Figure 7: Local Government Leases Facility and Tenant pays Electricity Bills



Tenants within Local Government facilities are often not-for-profit sporting clubs, community groups, senior citizens clubs and childcare providers.

The Tenant would normally arrange the solar installation (with Local Government’s approval) and would sign the PPA or lease/rental agreement with the PPA or lease provider. There will be a requirement for Local Government to agree to this, and in practice this could take the form of a formal contractual agreement to allow the Tenant to install the equipment on the site or in some instances an email communication may be all that is provided.

If the Local Government, as the Landlord and building owner, needs to provide guarantees on the PPA or the lease/rental agreement, then they would be required to enter into a separate guarantee agreement with the PPA/Lease provider. The guarantee would generally be required if the Tenant is deemed by the solar installer’s finance provider to be an unacceptable credit risk or if Solar PV provider terms extend beyond the prevailing tenancy lease agreement duration.

Another option is that Local Government itself enters into the PPA or lease/rental arrangement and charges back the costs of the financing to the Tenant, either directly or as part of the tenancy costs. An advantage of this arrangement is that Local Government would normally attract lower interest costs than a Tenant would be able to achieve.

Where Local Government as facility owner is supporting the PPA or lease agreement either directly or as a guarantor, there may be credit risk for Local Government if the Tenant does not make the repayments to the Local Government entity to cover the financing costs.

In instances where a Local Government reports on its greenhouse gas (GHG) emissions, all three scenarios are likely to be captured within scope of Local Government corporate inventory when applying standard carbon accounting methodologies. Even when a Local Government leases out a premises if they have *operational control*³ it will still need to include it in their GHG calculations.

This may create further incentive for a Local Government to pursue solar projects in facilities where savings may not be returned to Local Government (operating model III).

³ A person will have **operational control** over a facility if they have the authority to introduce and implement any or all of the following for the facility:

- operating policies
- health and safety policies
- environmental policies, or

Where **more than one corporation** has the authority to introduce and implement any or all of these policies, the corporation that has the **greatest** authority to introduce and implement operating policies and environmental policies has operational control over the facility.

6. Key considerations for Local Governments

There are several factors Local Government will consider when determining the preferred 'buy' option for Solar PV equipment. The table below provides a summary with further detail provided further below.

Impact on financing decisions	Local Government Considerations
Prohibited investments	Check procurement policy to see if it places any constraints on particular finance arrangements
Credit Risk	Long payment increases risk. Tenants likely to be considered higher risk although more likely to yield positive cash flow. More likely to be an issue for a tenant as Local Government credit normally considered strong.
Security	Some finance options may require security or supported collateral. The security of the Solar PV asset relates to valuing the asset (solar equipment) in case there is a default. The security is what the lender can recover in the case of default
Return on investment	Determine appropriate metrics to use. May compare financing options by determining the one that provides the shortest return. Cashflow positive from year 1 may be more important than the quickest return on investment.
Payment Capacity	The impact on liquidity ratios may eliminate certain financing options
Budget Considerations	Certain financing models may enable Local Government to satisfy budget requirements
Property Ownership	The potential change of ownership or tenancy arrangements for a building during the term of a potential buy option needs to be considered
Interest Rates	Important to understand the cost of the interest that is embedded into the lease, rental or PPA agreement
Accounting and Tax Considerations	Key considerations generally relate to preferences to recognise cash flow in balance sheet or profit and loss.

6.1 Prohibited investments

A Local Government's adopted investment/procurement policy may place limitations on some investment arrangements and should be reviewed from the outset.

Local Government should check their procurement policy or speak to the CFO to see if the proposed 'buy option' structure constitutes an eligible investment.

6.2 Credit risk

The credit risk of any investment is based on the Solar PV financier's judgement of the capacity of the loan recipient to meet regular or scheduled payments. Credit risk assessment can vary depending on the operating model for the Local Government facility, but Local Government entity credit risk is usually viewed as low risk.

The longer the PPA or lease term the higher is the perceived credit risk and consequently higher interest rates usually apply for long term PPA or lease agreements.

Tenants are likely to be considered a higher credit risk than a Local Government entity and as such may incur higher interest rates under a PPA or lease agreement.

6.3 Security

Some finance options may require security or supporting collateral. The security of the Solar PV asset relates to valuing the asset (solar equipment) in case there is a default. The security is what the lender can recover in the case of default.

The value of the Solar PV asset will reduce over time and the Solar PV financier will need to assess how the value of the solar installation equipment will depreciate over time and the likelihood of being able to resell the asset in a situation of a default. This in turn will impact the PPA or Lease terms (principally the length of the agreement and the interest rates applicable).

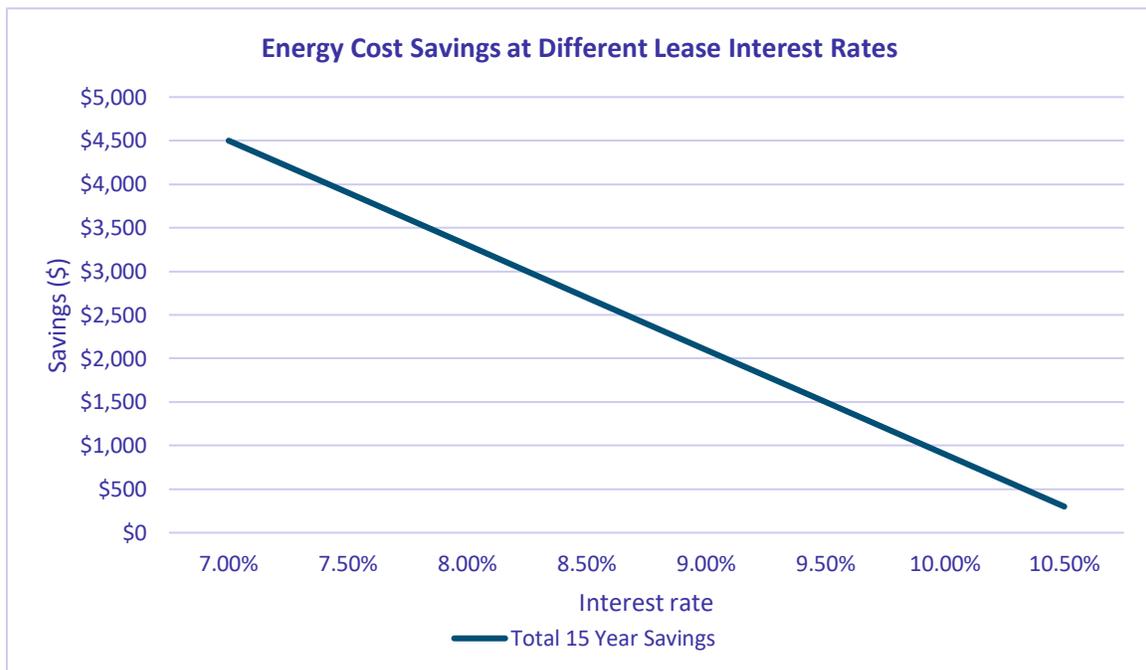
The solar financier will need to have a clear legal right to sell the asset to recover the debt. The only time this is likely to be an issue is if the Solar PV is being placed on a facility that is tenanted where the tenant has the agreement and Local Government owns the facility. The determination of the sale price of the asset and the recoverable amount includes the removal costs and the ability to sell the Solar PV system elsewhere, so it would provide only partial security to the financier.

6.4 Return on investment

Using simple metrics such a payback – the period over which the energy savings equal the initial capital cost - is typical for most upfront investment based projects. However, for ‘buy options’, metrics such as annual energy costs savings are more relevant.

Figure 8 illustrates the impact of underlying interest rates on total energy cost savings for a 10kW system over the 15-year assessment period.

Figure 8: Energy Cost Savings at Different Lease Interest Rates



Interest rates, while being an input into the overall economic assessment of a project, are not the indicator of the best ‘buy options’ but a comparison of the metrics below will be able to identify the best solution for a site.

Funding Arrangement	Benefits Assessment Metric
Lease/Rental Agreement	The annual savings after lease costs over the term of the Lease/Rental Agreement
PPA	The annual savings after PPA costs over the term of the PPA agreement

Capital Investment

Payback - the year in which payback of capital costs is made
IRR - The internal rate of return based on the initial capital cost and the net energy cost savings each year

6.5 Payment Capacity

If the 'buy options' (lease and/or PPA agreements) are required to be shown on the Local Government balance sheet, then they are likely to be evaluated in the same way that debt is from the perspective of overall lending criteria.

In some cases, financiers will evaluate the 'buy option' from the perspective of the cashflow of the Solar PV installation but generally they will make the assessment based on the overall capacity of the entity (Local Government or Tenant) to meet the repayments based on business cashflows.

The primary financing indicators that are used to determine an entity's capacity to meet the payment terms are summarised in the table below:

Financing indicators	Description	Calculation
Liquidity (ratio)	This measures an entity's ability to pay existing liabilities in the next 12 months. A ratio greater than 1.0 means there are more cash and liquid assets than short-term liabilities.	Current assets / Current liabilities
Internal financing (%)	This measures an entity's ability to finance capital works using cash generated by its operating cash flows. The higher the percentage, the greater the ability for the entity to finance capital works from its own funds.	Net operating cash flow / Net capital expenditure
Indebtedness (%)	This assesses an entity's ability to pay the principal and interest on borrowings, as and when they fall due, from the funds it generates. The lower the ratio, the less revenue the entity is required to use to repay its total debt. Own-sourced revenue is used, rather than total revenue, because it does not include grants or contributions.	Non-current liabilities / Own-sourced revenue

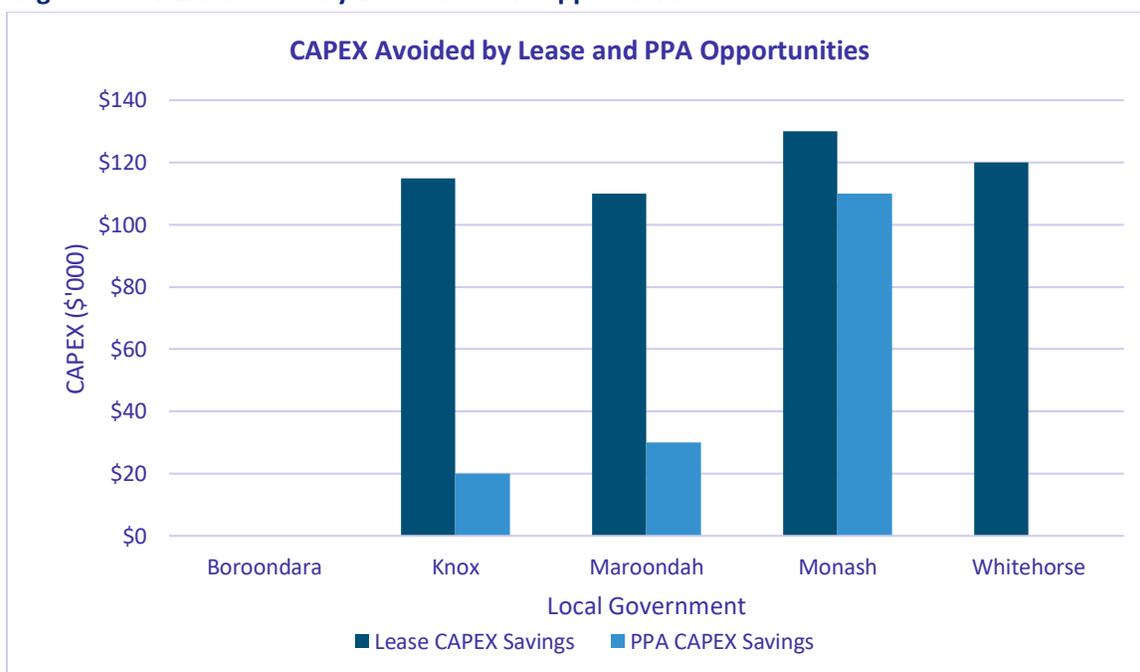
In cases where there is a positive net cash flow from the Solar PV financing, the 'buy option' will not have a negative impact on these ratios.

6.6 Budget Considerations

Avoiding upfront capital expenditure (CAPEX) may be particularly attractive for cash constrained Local Governments.

Based on the technical assessment of 53 EAGA sites, the chart below shows the potential avoided CAPEX savings available to Local Government for sites that may be able to be financed through PPA and Lease based 'buy options'.

Figure 9: CAPEX Avoided by Lease and PPA Opportunities⁴



6.7 Property Ownership and Tenancy Tenure

Given the typical period of solar leases/PPAs (i.e. 10 years), the ownership tenure of a Local Government facility will be an important consideration for a 'buy option' project. Risks posed by change of ownership within an agreement period can be mitigated if:

- The solar installation would likely result in a better property resale value that will pay for the investment in the Solar PV panel e.g. by increasing the energy rating of the building
- Significant savings can be made in the short term

⁴ Note Boroondara did not have any sites identified that would appear to be attractive for 'buy options'
Buy Options

- As part of the sale agreement the finance contractual agreements can be novated to the new owner

Certainty of tenancy tenure risks, where a tenant's lease may be shorter than the term of the 'buy option', can be mitigated if:

- There is the ability to transfer the finance contractual agreements to a new tenant
- The incorporation of solar allows local government to attract new tenants and achieve higher rentals
- A new lease agreement can be negotiated that incorporates the Solar PV financing costs either directly or through incorporation in a higher lease rate

6.8 Interest rates

The 'buy options' that are available can vary in interest cost significantly. The transparency around this is sometimes not that clear as in the cases of PPAs for example, the interest rates and cost of maintenance are embedded into the cost of the electricity contract. The PPA is a popular arrangement and is often more expensive than lease financing, for example, and these additional costs should be identified and incorporated into the overall assessment of the 'buy options'.

Whilst the cost of PPA's may sometimes be higher, there may still be a preference to establish a PPA, as there are other value-added benefits of a PPA such as the solar financiers ongoing maintenance of the Solar PV equipment, and wearing the risk of lower solar performance.

The key to assessing alternatives is to understand the cost of interest that is embedded into the cost, the differentials in the services being provided and to be able to compare the products on a level playing field.

6.9 Accounting and tax considerations

The preference of a Local Government entity in relation to the accounting and tax treatment is an important consideration.

For example, if Local Government owns the solar installation it will be able to depreciate the asset, which provides a tax benefit. However, if no tax is paid this benefit is not relevant.

Leases may be operating or financing in nature and the latest accounting rules⁵ describe the specific accounting treatment of each of these

There are rental products and PPA's that may be able to be recognised as operating expenses for tax purposes if this is an important consideration for Local Government.

Under PPAs and rental agreements, Local Government will not own the asset and any PPA or rental costs would likely be treated as operating costs. PPAs and rental agreements may contain provisions to allow Local Government to acquire the solar assets at the end of the PPA or rental period although they may instead incorporate optional extension provisions

⁵ The attached link provides information on accounting for leases under AASB 16
https://www.localgovernment.vic.gov.au/data/assets/pdf_file/0025/411478/Guidance_on_transition_to_new_Accounting_Standards_2018-19_FINAL.pdf

7. Models - Pros and Cons

There are a number of pros and cons for various ‘buy options’, and the following factors should be considered. It is not simple, as the cost of debt is not always the primary driver. In some cases, PPA financing has other attractive attributes (simplicity, early positive cash flow, maintenance included, provider wears risk of poor solar performance) that is attractive to a Local Government entity.

Type of Finance	Pros	Cons	Availability
Finance/ Operating Leases	<p>Nil or reduced upfront cost.</p> <p>Limited collateral required (other than the asset).</p> <p>Local Government depreciates the solar PV.</p> <p>Interest component of repayments are tax deductible.</p>	<p>Regular lease payments are fixed and not tied to solar output so Local Government wears solar performance risk.</p> <p>The Local Government entity bears the risk of the Solar PV system becoming unusable and the residual value risks at the end of the lease period.</p>	<p>Finance/ Operating leases are supported by Financial institutions and boutique financing companies.</p>
Rental Agreement	<p>Nil or reduced upfront cost.</p> <p>Local Government treats this as an operating expense in the profit and loss.</p> <p>Limited collateral required (other than the asset).</p> <p>All costs are tax deductible.</p> <p>The financier bears the risk of the Solar PV system becoming unusable during the period.</p> <p>Financier wears residual value risks at the end of the rental period.</p>	<p>Regular rental payments are fixed and not tied to solar output so Local Government wears solar performance risk.</p> <p>At the end of rental period Local Government can opt to extend rental or return equipment. The latter option will come at a cost to Local Government to remove equipment.</p>	<p>There are quite a few specialist equipment rental financing providers. Solar providers will be able to recommend rental agreement solution providers.</p>

Type of Finance	Pros	Cons	Availability
PPA Financing	<p>Simple form of financing as regarded as an electricity purchase contract.</p> <p>PPA provider takes on solar performance risk.</p> <p>Generally, the PPA provider pays for the maintenance (doesn't happen in all circumstances).</p>	<p>The cost of financing is not transparent and, in many cases, can be a lot more expensive than other forms of debt.</p> <p>PPA provider owns the installation and not the Local Government entity.</p> <p>The PPA rate usually incorporates a c/kWh rate that applies to solar generation that is used both within an installation and exported. Any financial evaluation needs to incorporate an assessment of the cost of export power compared to the Feed in tariff Local Government would receive for exports.</p>	<p>Availability of PPA structures is increasing</p>

7.1 Tenancy Models

In the case where Local Government owns the premises and tenants consume the electricity and pay for the electricity bills then either leasing or PPA arrangements would be the preferred finance arrangement.

PPAs are the most attractive as there are no ownership issues for the tenant provided:

- the lease is for the same term as the PPA term and
- the PPA rate, after allowing for export quantities, is less than the projected electricity rates

From a leasing perspective, tenants would likely prefer leases or rental agreements provided:

- the lease/rental payments rate are less than the Solar PV electricity saving

as they would not wish to own the asset.

8. Case Study

A case study is incorporated below based on a PPA Financing and Rental proposal provided for Knox Gymnastics Centre by a third party solar solutions provider and their finance option providers.

FIG had previously undertaken analysis of opportunities at the Gymnastics Centre and recommended a 15kW solution as being an optimal size. This was confirmed by the third-party solutions provider. A summary of FIG desktop analysis factors compared to the onsite analysis undertaken by the Solar Provider is set out below:

Factor	FIG Desktop Analysis	Solar Provider Onsite Analysis
Solar System Size	15kW	15kW
Annual Solar Generation	19.4 MWh	18.5 MWh
Solar Export	39%	32%
Capital Cost ⁶	\$24,750	\$17,900

The third-party provider offered two “buy options” – a rental (lease) agreement and a PPA agreement.

The rental term was for 7 years while the PPA terms offered ranged from 10 years to 20 years.

FIG undertook a comparison of both ‘buy options’ using the solar modelling tool provided to each of the EAGA Local Governments with the underlying assumptions amended to be consistent with the Solar Providers assumptions

The key points to highlight from the case study include the following:

- The leasing and PPA options were viable irrespective of the different assumptions used in the EAGA model as opposed to the solar financier
- Care must be taken in understanding assumptions, such as with escalation of PPA prices at CPI or other fixed escalation rates, and this exercise demonstrates the importance of Local

⁶ FIG used figures provided by EAGA while the onsite solar provider used on their standard installation procedures. Local Government procurement provisions incorporate much more stringent safety provisions on the installation of the equipment and it is likely the actual cost will likely be somewhere between the 2 quoted figures.

Governments undertaking their own solar financial modelling to better understand the assumptions used and also to be able to model their own assumptions.

8.1 Rental Proposal

The rental term of 7 years was used to compare with the lease rates in FIG’s model and the table below sets out the comparative factors:

Factor	FIG Calculations	Rental Offer from Solar Provider
Rental Term	7 years	7 years
Solar Factors	As per Solar Providers Figures	As per Solar Providers Figures
Site Energy Rate	27.73 c/kWh	27.73 c/kWh
Feed-in Tariff	9.9c/kWh	9.9c/kWh
Rental Rate	\$3,320 p.a.	\$3,432 p.a.
Calculated Effective Interest Rate	7%	8%

The rental costs are in the ballpark of the figures that FIG included in its initial analysis assuming an effective interest rate of 7% per annum, noting that Local Government may receive a better effective rate than 8%.

FIG notes the following assumptions in the projected energy savings included in the third party’s overall economic assessment:

- Energy rates increase at 3% per annum (which is not an unreasonable assumption) but FIG’s modelling made a more conservative assessment of no increase in energy rates.

Even if it is assumed that there is no escalation in electricity prices and the feed-in tariff remains at 9.9c/kWh, the rental option will save approximately \$643 per annum across the term of the rental agreement so this ‘buy option’ is favourable for this facility.

8.2 PPA Proposal

A third party PPA provider supplied an offer for a PPA option over periods of 10 years, 15 years and 20 years as follows:

- 10 Year Rate: 19.4c/kWh
- 15 Year Rate: 15.0 c/kWh

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- 20 Year Rate: 13.06 c/kWh

The rates for longer term PPAs are lower because the rates are usually escalated at CPI or a fixed rate annually and on a Net Present Value (NPV) equivalence basis the above 3 price/terms combinations would likely produce similar risk adjusted NPV values for the finance provider.

A comparison of FIG calculations with the third party PPA provider highlights several factors that Local Government should be aware of in evaluating PPA proposals. The table below provide an initial high level comparison between FIG calculations and the comparable PPA provider figures. The FIG inputs have been adjusted to meet the PPA providers assumptions.

Factor	FIG Calculations	PPA Offer from Solar Provider
PPA Term	15 years	15 years
Solar Factors	As per Solar Provider's Figures	As per Solar Provider's Figures
Site Energy Rate	25.27 c/kWh	25.27 ⁷ c/kWh
Feed-in Tariff	9.0c/kWh	9.0c/kWh
Annual Maintenance Cost	\$500 (assumed)	Not clear as bundled in overall price
PPA Return required	10%	Not clear as bundled in overall price
PPA Sale Rate	16.3 c/kWh	15 c/kWh

On face value the PPA provider values appear very attractive as the rates are lower than those calculated by FIG but the PPA provider rates are escalated at a fixed rate (FIG's assume no escalation) so the PPA rate in year 15 would be close to 21.9c/kWh. However, as an overall package this might still be attractive as the Year 15 price is lower than the prevailing site electricity rates.

The PPA provider provided an indicative saving over a 15-year PPA term in excess of \$26,000 incorporating the following assumptions:

- 5% annual increase in energy costs (which seems to be on the high side)
- 10% discount rate on cashflows (which for Local Government would be more like 5%)

⁷ The reason for the difference between the rates used by the rental solution provider and the PPA provider is not known
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FIG's saving projections over 15 years are more modest at \$7,500 but have different underlying assumptions including:

- No escalation in energy costs over 15 years
- No discounting of cashflows

In evaluation of the PPA proposals it is important to understand the underlying assumptions, with escalation of PPA prices at CPI or other fixed escalation rates important considerations.

Under the assumption that there is no escalation in electricity prices for the site, the feed-in tariff prices remaining at 9.9c/kWh and with the PPA prices escalated at a CPI = 2.5%, set out below are the PPA benefits over 10, 15 and 20 years:

- 10 Years = \$513 savings
- 15 Years = \$11,537 savings
- 20 Years = \$19,772 savings

Note the savings above are only for the PPA term. At the end of the PPA term Local Government will own the solar and receive the solar benefits with only maintenance outlays. So for the 10 year PPA an additional \$30,000 plus in solar benefits would be achieved in the subsequent 10 years.

As such, the PPA 'buy options' above provide savings to the facility over the term of the agreement but are contingent on the assumptions outlined. A direct comparison of PPA and Lease options on the basis of simple cashflows (discounted or undiscounted) will always favour a lease option as PPA's carry much more risk and cost for the PPA provider.

It is not appropriate to recommend a PPA option over a lease option or vice versa without taking into consideration maintenance costs, risk factors and Local Government risk preferences.

If a PPA provides reasonable savings over the PPA period then it represents the lowest risk option for Local Government.

9. Contractual Templates

This section sets out key contractual elements that may be incorporated in Solar PV PPA and Lease/Rental Agreements from a commercial perspective. The elements considered relate to specific elements of the ‘buy options’ and Solar PV installations rather than more general contract conditions. The section also considers potential additional Solar PV related contractual elements where the ‘buy option’ agreement is with a tenant, and the Landlord (Local Government) needs to enter into an agreement to facilitate the installation and operation of the Solar PV system on the Local Government facility.

In the context of the examination of the key contractual terms, this document refers to:

The *Customer* – being Local Government or the Tenant (as applicable) who has usage of the Solar PV system

The *Provider* – being the ‘buy option’ finance provider and their representatives who install and pay for the initial Solar PV installation.

The *System* – as representing the Solar PV system and all associated ancillary equipment installed by the Provider.

9.1 PPA Contracts

The table over sets out key contractual elements associated with PPA ‘buy options’, noting that the terms of every agreement will be different and Local Government will need to carry out their own review of all terms and conditions.

PPA Contractual element	Details	Local Government Impacts/Risks
Term of PPA	<p>The PPA contract will incorporate the term of the PPA agreement.</p> <p>The contract may include options for the customer to extend the agreement.</p>	<p>Future factors such as potential sale or upgrades to the building need to be considered especially when considering terms that may extend up to 20 years.</p> <p>For Tenants the PPA term needs to be considered with reference to the term of their Tenancy agreement with Local Government.</p>

PPA Contractual element	Details	Local Government Impacts/Risks
Installation of the System	<p>The Customer must allow the System to be installed on the site and provide access for installation.</p> <p>The Provider will be entitled to receive all of the Environmental Credits associated with the System</p>	<p>Local Government will normally incorporate required safety standards to be met as part of installation which needs to be accommodated.</p> <p>The Environmental Credits are an offset of the capital cost of the System to reduce the cost of the PPA.</p> <p>In some cases, Local Government may want to treat this differently and retire the Environmental Credits as part of the commitment to carbon neutrality, but this will need to be clearly stated.⁸</p>
Title to and Maintenance of the System	<p>The Customer will be required to acknowledge that the equipment is not a fixture and that title to the System is with the Provider.</p> <p>The Provider will carry out routine maintenance on the System and the Customer is required to grant the Provider safe access to both maintain and operate the System at times. The contract may state that the Customer provides a licence for such purposes.</p>	<p>It is in the Provider's interest to maintain the equipment in good working order as the revenue that the Provider received is directly related to the amount of solar generation. PPAs remove the solar performance risk from the Local Government or Tenant.</p> <p>Local Government may have OH&S obligations to assist in the provision of safe access.</p>
Rent	<p>The Provider may pay the Customer a rental amount to allow the Solar PV to be installed on the site although this is not always included in an agreement. A licence payment may apply instead of a rental payment.</p>	<p>Rental /licence payment amounts are often very nominal amounts as the Provider will include the rental costs in calculations of the PPA rates that are charged.</p>

⁸ In Australia you can claim zero emissions associated with electricity use (behind the meter) from a small-scale renewable system regardless of whether STCs have been sold or not but subject to specific conditions. For larger-scale systems where LGCs are produced, these need to be retired in order to claim zero emissions with that energy use (or offsets purchased to compensate for that electricity use). This is contained on Section 2 of Appendix B of the National Carbon Offset Standard. Therefore, as long as the residents, tenants and Local Government don't deploy 100 kW or larger systems (which is unlikely) zero emissions can be claimed to the extent that the solar energy offsets site electricity consumption. This is independent of the 'buy option' or capital investment mechanism used to fund the solar installation

PPA Contractual element	Details	Local Government Impacts/Risks
Customer's general responsibilities	The Customer must usually agree not to alter or amend the System and advise the Provider of any defects in the System.	It is important to comply with these provisions especially as some agreements can include penalties for not advising of defects that the Customer should be aware of. In practice the Provider will generally have remote monitoring software installed and as such they will usually become aware of any defects impacting performance themselves
Purchase option and return of the System	<p>The agreement may contain provisions for the Customer to have the option to purchase the System for a pre-agreed purchase price at the end of the Term. In addition, some contracts may allow for Early Termination at the Customer's option and allow the Customer to purchase the System upon Early Termination. The contract will then include the basis upon which the Early Termination purchase cost will be calculated.</p> <p>If the purchase option isn't exercised, or the PPA expires or is terminated, the Provider or the Customer must decommission and remove the System.</p>	<p>Prior to agreeing to purchase at the end of the period (or upon Early Termination) the Customer should inspect the System and ensure that is in adequate working order.</p> <p>If the Provider is required to decommission and remove the System, then there should be contract provisions to ensure that they may make good any modifications made to the building in order to install the equipment. This may include things like rectifying roof penetrations.</p> <p>If the Customer is required to decommission and remove the System, then the Customer will need to make good any building modifications and must return the equipment in good condition.</p>
Limitation of liability & indemnities	<p>The contract will normally contain various limitation of liability and indemnity clauses which may include provisions such that:</p> <ul style="list-style-type: none"> • The Provider is not liable for certain events such as the Customer's misuse of the System and may limit its liability in relation to other events. • The Customer must indemnify the Provider for loss or damage arising out of the Customer's own negligent acts or omissions 	Most of these clauses would normally be reasonably standard and tailored to refer to an event impacting the System, the Provider and the Customer.
Termination	<p>The contract will include Termination provisions in the case of events that may include:</p> <ul style="list-style-type: none"> • Customer payment defaults • Customer damaging the equipment • Material breaches to the agreement <p>In the case of Tenant agreements, the Provider may be able to terminate the PPA if the Lease with the Landlord is terminated or expires.</p>	<p>Each termination event will usually have an associated financial element attached to it, such a penalties or reimbursement of costs e.g. costs for removal of the System.</p> <p>Early termination may be useful when the Local Government wishes to sell or re-purpose the building and especially where long term PPAs are being considered.</p>

PPA Contractual element	Details	Local Government Impacts/Risks
	<p>Termination may also be permitted if the Customer ceases to occupy the site.</p> <p>The contract may allow for termination for convenience (early termination) as an option for the Customer and if so the agreement will set out any payments to be made including any options to purchase the System from the Provider under such termination provisions.</p>	
<p>Electricity sales Agreement and payment</p>	<p>The Customer must purchase all the electricity generated by the System at the rates included in the agreement and pay for the electricity.</p> <p>In some circumstances, the Customer must pay a deposit which can be used to reduce some of the Electricity Payments.</p>	<p>In considering the Electricity Sales agreement the following factors are significant:</p> <ul style="list-style-type: none"> • The rates included in the contract may be subject to price escalation based on CPI reflective indexing or fixed escalation factors. At a 2.5% escalation over a period of 20 years the price in Year 20 will be more than 60% higher than the Year 1 rate. The impact of indexing needs to be factored into any evaluation of PPA savings over the life of the contract as while the savings may appear to be very attractive in Year 1 they might not be so high in later years of the agreement. Local Government may be able to specify non-escalated PPA rates (they will obviously be higher) if they do not wish to be exposed to escalation risk. The escalation risk will become relevant if the Customer energy prices do not increase at the same or a higher rate than the PPA escalation rate. • The rates normally apply to all electricity that is produced by the System even the electricity that is not used by the Customer and which is exported to the network. Given this, it is very important for Local Government to calculate any energy savings by factoring in the amount of electricity that will be exported and for which the Customer would only receive the export rate (retailer feed-in tariff) from the retailer. For example, if the PPA rate was 15c/kWh and the feed-in tariff was 10c/kWh then the Customer will be making a net loss of 5c/kWh for the electricity that is exported and this loss needs to be subtracted from the Energy savings that are made from System electricity generation that is utilised within the building.

9.2 Lease/Rental Agreements

Lease/Rental Agreement Contractual element	Details	Local Government Impacts/Risks
Term of Agreement	<p>The lease/rental agreement will incorporate the term of the agreement.</p> <p>The contract may include options for the customer to extend the agreement at the end of each agreement expiry period.</p>	<p>Future factors such as potential sale or upgrades to the building need to be considered especially when considering lease/rental terms that may extend up to 10 years.</p> <p>For Tenants the PPA term should be considered with reference to the term of their Tenancy agreement with Local Government.</p>
Installation of the System	<p>The Customer must allow the System to be installed on the site and provide access for installation.</p> <p>The Provider will be entitled to receive all Environmental Credits associated with the System</p>	<p>Local Government will normally incorporate required safety standards to be met as part of installation which needs to be accommodated.</p> <p>The Environmental Credits are offset of the capital cost of the System to reduce the cost of the lease/rental agreement.⁹</p> <p>In some cases, Local Government may want to treat this differently and retire the Environmental Credits as part of the commitment to carbon neutrality, but this will need to be clearly stated.</p>
Title to and Maintenance of the System	<p>The Customer will be required to acknowledge that the equipment is not a fixture and that title to the System is with the Provider.</p> <p>The Customer will generally be required to carry out routine maintenance on to keep the System in good working order. The Customer may be able to contract the Provider to carry out maintenance as part of the agreement or under a separate maintenance agreement.</p>	<p>It is in the Local Government's (or the Tenant's) interest to maintain the equipment in good working order a fixed payment is being made regardless of the performance of the System. The System performance risk (i.e. the amount of electricity produced from the System) is with the Local Government.</p> <p>Local Government may have OH&S obligations to assist in the provision of safe access for maintenance.</p>

⁹ Refer to Section 2 of Appendix B of the National Carbon Offset Standard Buy Options

Lease/Rental Agreement Contractual element	Details	Local Government Impacts/Risks
Lease/Rental Payments	<p>The Customer must pay the Provider a periodic lease/rental payment as set out on the agreement for the use of the System but the electricity from the system is supplied to the Customer free of any other charges.</p> <p>In some circumstances, the Customer must pay a deposit which can be used to reduce some of the rental payments.</p>	<p>The lease/rental payments are usually monthly payments and can include annual CPI indexed or fixed escalation factors which need to be considered in any potential future energy savings evaluations.</p>
Customer's general responsibilities	<p>The Customer must usually agree not to alter or amend the System and advise the Provider of any defects in the System.</p>	<p>It is in the Local Government's interest to monitor system performance especially during the equipment warranty periods to ensure that the System operates efficiently given the Local Government is paying a fixed lease/rental payment regardless of System performance.</p>
Purchase option and return of the System	<p>The agreement may contain provisions for the Customer to have the option to purchase the System for a pre-agreed purchase price at the end of the Term. These are often quotes with reference to paying 'x' months of lease/rental payments.</p> <p>In addition, some contracts may allow for Early Termination at the Customer's option and allow the Customer to purchase the System upon Early Termination. The contract will then include the basis upon which the Early Termination purchase cost will be calculated.</p> <p>If the purchase option isn't exercised, or the Lease/Rental Agreement expires or is terminated, the Provider or the Customer must decommission and remove the System.</p>	<p>Prior to agreeing to purchase at the end of the period (or upon Early Termination) the Customer should inspect the System and make sure that is in adequate working order.</p> <p>If the Provider is required to decommission and remove the System, there should be contract provisions to ensure that they may make good any modifications made to the building in order to install the equipment. This may include things like rectifying roof penetrations.</p> <p>If the Customer is required to decommission and remove the System, the Customer will need to make good any building modifications and must return the equipment in good condition.</p>

Lease/Rental Agreement Contractual element	Details	Local Government Impacts/Risks
Limitation of liability & indemnities	<p>The contract will normally contain various limitation of liability and indemnity clauses which may include provisions such that:</p> <ul style="list-style-type: none"> • The Provider is not liable for certain events such as the Customer’s misuse of the System and may limit its liability in relation to other events. <p>The Customer must indemnify the Provider for loss or damage arising out of the Customer’s own negligent acts or omissions</p>	<p>Most of these clauses would normally be reasonably standard and tailored to refer to an event impacting the System, the Provider and the Customer.</p>
Termination	<p>The contract will include Termination provisions in the case of events that may include:</p> <ul style="list-style-type: none"> • Customer payment defaults • Customer damaging the equipment • Material breaches to the agreement <p>In the case of Tenant agreements, the Provider may be able to terminate the agreement if the Lease with the Landlord is terminated or expires.</p> <p>The contract may allow for termination for convenience (early termination) as an option for the Customer and, if so, the agreement will set out any payments to be made including any options to purchase the System from the Provider under such termination provisions.</p>	<p>Each termination event will usually have an associated financial element attached to it, such a penalties or reimbursement of costs e.g. costs for removal of the System.</p> <ul style="list-style-type: none"> • Early termination may be useful when the Local Government wishes to sell or re-purpose the building and especially where long term agreements are being considered.

9.3 Provisions for Tenant and Landlord Situations

Where the facility is owned by Local Government and the Tenant wishes to install Solar PV then any ‘buy options’ will require the Landlord (Local Government) to provide permissions to allow the Solar PV equipment to be installed and operated at the facility. In these situations, the Landlord will be required to enter into a Lease Agreement, Licence Deed or other form of contractual arrangement with the solar provider that permits the Solar PV system to be installed at the facility and allows the ‘buy option’ finance provider’s representatives access to Solar PV system. Contractual elements that would likely be included in such agreements are summarised in the table below and would be very similar for both PPA based and lease/rental agreements:

Landlord Agreement Contractual element	Details	Local Government Impacts/Risks
Term of the agreement	The term matches the length of the PPA or lease/rental agreement.	The term may extend beyond the current tenancy arrangement with the Tenant. The agreement may need to be considered in terms of potential impact if the building may be sold within the term of the PPA agreement or lease/rental agreement.
Installation of the System	The Landlord agrees to allow the Provider to install the Solar PV system on the building noting that it will not become a fixture and remains the property of the Provider. The Provider will be entitled to all Environmental Credits produced by the system.	Agreement may require Local Government to place a caveat protecting the Provider’s interests under the Agreement. Local Government may not claim any credits from the solar system and may need to take care how the greenhouse benefits for the system are reported. ¹⁰
Access to the System	The Landlord is required to permit the Provider to enter the building for the purpose of accessing the equipment for maintenance and other reasons e.g. removal under certain conditions.	Local Government must ensure access for the Provider is safe and the equipment is reasonably accessible. This may have implications under Local Government’s OH&S policies.

¹⁰ Refer to **Section 2 of Appendix B of the National Carbon Offset Standard Buy Options**

Landlord Agreement Contractual element	Details	Local Government Impacts/Risks
Rent	<p>The Landlord can charge rent to the Provider in exchange for entering into the agreement.</p> <p>The rent may have escalation provisions such as annual escalation.</p>	<p>Rental amounts are often very nominal amounts as the Provider will include the rental costs back into the 'buy option' rated that are charged.</p>
Termination	<p>The termination provisions are usually linked to the termination provisions under the PPA or lease/rental agreement and may provide for:</p> <ul style="list-style-type: none"> • Termination at the end of the agreement • Termination for material breach of the agreement • Termination if the building is sold and the new owner does not agree to take on the agreement by way of novation or entering into of a new equivalent agreement 	

9.3.1 Other Agreements

While not considered in this guide in any detail, there may be a requirement for a Landlord (Local Government) to provide a guarantee to make lease or PPA payments where the Tenant defaults, or does not make the lease payments in cases such as:

- the Tenant not having a strong credit history
- the remaining Tenancy lease term being less than the term of the 'buy option' agreement so that the Tenant might not be getting the benefit of the Solar PV installation for all of the term of the 'buy option' agreement

Local Government may or may not be willing to enter into such guarantee agreements on a case by case basis.

10.Potential Providers

Typically solar providers will have a relationship with parties who are prepared to provide lease, rental and PPA agreements. As part of a procurement process if Local Government requests ‘buy options’ then solar providers should be asked to transparently disclose details of their aligned finance providers. Most solar providers will be able to provide offers supporting various ‘buy options’.

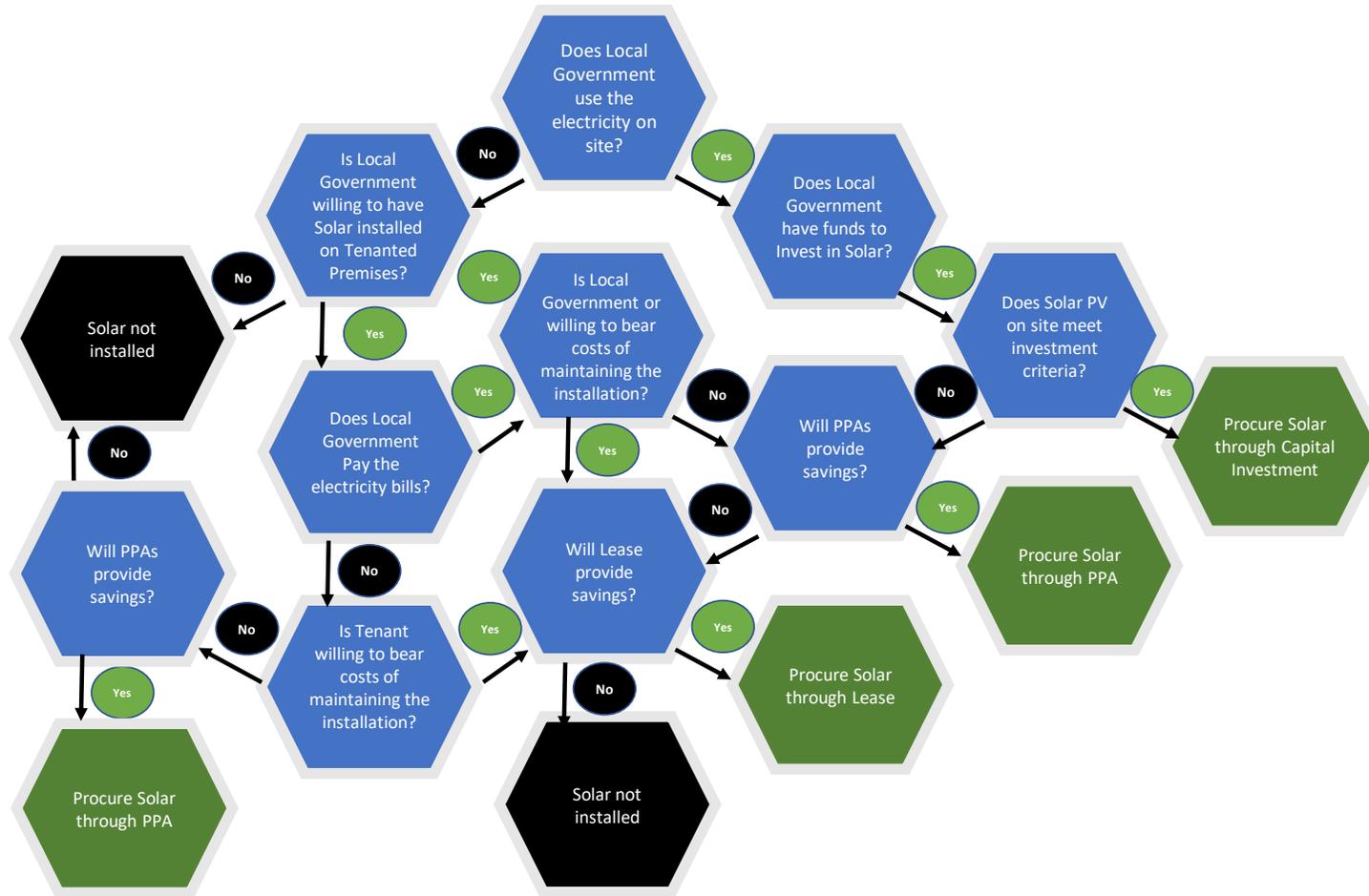
The table below identifies finance providers in the Victorian market place who can provide various buy options, many independently but some contingent on buying solar installations from them directly and having them as a retailer. This list is not exhaustive, and the number of potential providers will continue to grow rapidly particularly given that Solar PV is very much a proven technology.

Provider	Lease	PPAs	On-bill Financing
AGL		✓	✓
ANZ	✓		
Bank Aust		✓	
Blue Star Energy			✓
CBA	✓		
Energy Australia			✓
Flexi-group	✓		
Macquarie	✓		
Origin Energy		✓	✓
Genesis Now		✓	
Eco Save		✓	
Gem energy		✓	
Westpac	✓		

11. 'Buy Options' SUMMARY

The figure below sets out a very high-level summary of potential 'buy option' decision paths.

Figure 10: High level summary of potential 'buy option' decision paths



12. Glossary of Terms

12.1 Key debt terms

Key debt term	Definition
Finance period (term)	This is the period of time over which financiers are willing to provide debt. Longer terms increase risk for the debt provider so to obtain long-term funding the project needs to be able to demonstrate low long-term risks.
Finance amount (Loan Principal)	The total dollar value of debt provided. The amount will be dependent upon the customer's ability to service the debt repayments and the value of security provided to support the debt being sought. There is generally a minimum finance amount (minimum threshold) that is able to be obtained. This is required to ensure that the expected return for financiers covers both the transaction costs associated with assessing the risks (due diligence) and setting up the debt facility (including the cost of documentation) and a profit margin. As a result, financiers may impose minimum thresholds to ensure transaction costs are covered by the interest return on the lending.
Finance percentage (debt gearing): The	Percentage of the required capital expenditure for which debt is to be provided. This can be close to 100% or as low as a few percent depending on the assessed risk of the project. Financiers are generally willing to fund a larger portion of the overall project cost as risk decreases.
Finance Cost (Interest Rate):	The cost (price) of debt funding (interest payable) will vary depending on the term, debt amount, debt gearing and the perceived risk of the project.
Internal Rate of Return:	The IRR is an approach for estimating the profitability of potential investments. It is the discount rate that makes the net present value (NPV) of all cash flows from a particular project equal to zero.