

Solar Power Purchase Agreements

Solar Power Purchase Agreements (PPAs) are a financing model that has the potential to transition those operating as suppliers of energy generating equipment to the role of the more traditional energy retailer. This transition will see solar installers mature commercially to become solar developers. PPAs have been around for many years and are widely used in the USA and are now being adopted by a number of Australian solar companies. How to define a solar PPA? What must customers and installers take into account when entering into these agreements? And what other options are there to finance a solar system?

What are they?

A solar power purchase agreement is a contract between a customer and a third party solar developer: the customer agrees to purchase the energy from the proposed solar system and the solar system will be installed, owned and maintained by the solar developer.

The traditional business model for rooftop solar in Australia has been that the homeowners purchase a solar system using their own capital and consume the energy produced by the system. The expectation is that the system provides energy savings through reduced power bills throughout the life of the system.

Under a PPA contract, the system is installed and financed by the third party solar developer who maintains ownership of the system over its life or for a nominated period. The homeowner agrees to purchase the energy that the system produces at an agreed rate (Figure 1).

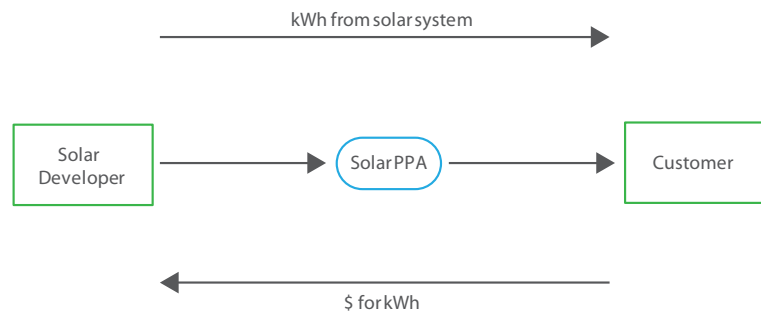


Figure 1: In a solar PPA, the customer does not pay upfront for the solar system, but contracts to purchase the energy produced by the system for a set amount of time.

Given the current cost of solar systems, the energy rate offered to the property owner will typically be less than the cost of electricity purchased from the grid through a retailer, while still providing profit for the solar developer. At the end of the contract (typically between 10 - 20 years), the home or business owner can extend the contract, negotiate to purchase the system at a fair price, or organise to have the system removed.

PPA contracts can be structured such that (i) all energy produced by the system is purchased by the customer or (ii) only the energy consumed at the premises is purchased. For instances where the customer contracts to purchase all of the energy produced by the system, it is essential that the system be sized to provide only for those loads that operate during daytime hours. The contract type (i) is best suited to commercial customers having a load profile that typically matches solar generation. Residential customers for example who have high energy use in the morning and evenings would be better suited to a PPA where they contract only to



pay for the solar energy that is consumed onsite (not the solar energy exported to the grid).

Benefits and limitations

One obvious benefit of solar PPA's is that there is no upfront payment required by the homeowner. This means that solar systems become more accessible to people who don't have the available capital to invest in buying a solar system. Financial savings are still generated, as the energy from the system is still cheaper than what the customer would buy from the grid. Additionally, all operations and maintenance costs are born by the solar system owner and not by the power purchaser. Under a PPA agreement if the system fails or under performs, the solar system owner losses a revenue stream. This introduces an incentive for the solar system owner to install a high quality system that is regularly maintained to ensure it performs as designed for its lifetime.

There are many challenges that must be overcome for a solar developer to offer PPAs. As outlined above, the solar developer will be accepting the technology risk and must therefore undertake due diligence to ensure that the proposed system will be of a high and lasting quality. Any system repair and replacement costs will be borne by the developer alone.

Of equal importance for the solar developer is to estimate the cost of financing that this business model incurs. Traditional solar sales consist of a single system payment that provides cash flow for the system's capital and operating costs: components, materials, labour, advertising, etc. Whereas in a PPA model, the payment to the developer will be in the form of an income stream over the life of the system - 10, 15 or 20 years (the administration of which will also have associated costs), as shown in Figure 2. This means that financial provision will have to be made by the developer for the initial installation, and the income from the system be used to pay this down, together with the interest. All these costs must be considered when developing any PPA contract to ensure that it will result in a commercially beneficial result.

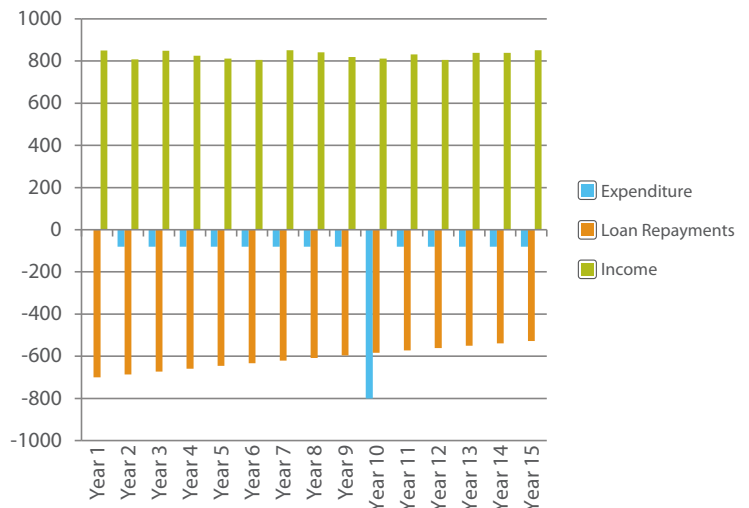


Figure 2: Cash flow of solar system under PPA contract. Note the yearly expenses for ongoing maintenance and the inverter replacement costs in the 10th year.

Legal Considerations

Under the National Energy Retail Law, energy retailers must have a Retailer's Authorisation (from the Australian Energy Regulator – AER) to sell energy to customers. This is because traditional energy retailers are deemed to be providing an essential regulated service. However, a business supplying energy through a solar system is treated differently to a traditional energy retailer, and is therefore eligible to apply for a Retailer's Exemption. This exemption allows them to sell energy to customers 'behind the meter'. Retailer's Exemptions are for businesses that are supplying customers with only a supplementary source of energy. If a solar company enters into a PPA with a customer and the solar system is suddenly disconnected, the customer would still be able to rely on their grid connection for power. Businesses interested in obtaining Retailer's Exemptions should contact the AER for more information.

Central to the PPA financing model is that the ownership of the system is maintained by the solar developer. Under property law however, a solar system installed on the roof of a house is regarded



as a fixture, and is therefore the property of the homeowner. This issue is relatively easy to overcome, as individual contracts are able to stipulate that the solar developer holds the ongoing ownership of the system. Problems arise however when the property is sold without this information being passed on to the new owners. It is therefore important that PPA contracts are clear in relation to the sale of the property, and the respective liabilities of all parties. It is also essential that the contract contain clauses relating to property access for system maintenance, and removal of the system at the end of its life or in the event of non-payment of energy bills.

This situation is further confused when the property is leased or mortgaged. In the case of a leased property, the landlord must give permission for a system to be installed. The ownership of such a system would be determined by an agreement between the tenant and the landlord (assuming the tenant is the customer signing up to the PPA). However the PPA model is not necessarily suitable to leased properties, as solar PPA contracts are generally for 5-10 years; much longer than average tenancy lease agreements. Given that the landlord will not receive any direct benefit from a solar system there is little incentive for them to install, or agree to install, a solar system.

For houses that are mortgaged, the bank will have rights as the mortgagee over the property. These rights will normally be greater than those given to the solar developer in any PPA contract regarding ownership of fixtures or property access. The mortgage agreement itself in the first instance may also prevent these rights being given to the developer by the homeowner. To guard against this, the consent of the bank providing the mortgage will have to be gained, and may be a requirement stipulated by the financier of the solar developer in order to protect their interests.

Other financing options

There are other financing options that may be considered instead of solar PPAs, such as leasing arrangements and bank loans. Both these options avoid any large capital outlay and allow the systems to be paid for partially from the savings they generate. The downside is that with both these

options ownership of the system is transferred to the owner, along with the technology risk.

Many solar companies offer leasing arrangements that are very similar to those that are found in other markets selling appliances. Under these arrangements, the system is installed at no cost to the customer, and they must then make regular payments to the installation company until the system is paid off. An interest rate is applied to the cost of the system to cover the solar company's financing cost. This means that the total system cost will obviously be higher than if the system was purchased outright, sometimes significantly higher. As with all leasing agreements, it is important that customers consider the total cost of the system repayments over its life time.

The cheapest option may be for an individual to obtain a bank loan (or to draw down on a mortgage) in order to finance a solar system. This option has all the benefits of a lease arrangement (i.e. the system can be financed by the savings it generates) at a potentially lower cost. The deciding factor will be the difference in the interest rates that are offered by a bank and those offered by the solar company under the lease agreement.

Conclusion

Solar PPAs present a great opportunity to solar installers; however also introduce a greater risk. This is a very different business model compared to the simple sale of systems and, as such it is advisable to seek advice regarding the financial and legal implications of any solar PPA to be offered into the market. When developing PPA contracts it is important to insure that the language used is simple, accurate and unambiguous, and that any financial statements made are correct and not misleading. Similarly if you are considering entering into a PPA, have the financial claims verified by a financial and/or legal adviser.

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