

# Lessons Learnt Report: Community Owned Solar (Stage 2)

**Project Name:** *City of Campbelltown, A Model for Community Owned Solar*

<b>Knowledge Category:</b>	Financial
<b>Knowledge Type:</b>	Research
<b>Technology Type:</b>	Solar PV
<b>State/Territory:</b>	South Australia

## Key learning

This project has been a valuable learning process for all involved, Council, Community, Monica Oliphant Research (MOR) and its partners on issues that need to be dealt with in the establishment of a Community Owned Solar program. ARENA contributed to Stage 2 of the project which sought to create a bankable, replicable, model for community owned solar utilising local government buildings. The model was created for buildings that currently are billed for electricity using South Australian Power Networks (SAPN) General and Business two Rate Tariffs i.e. with no demand charge. The Model was used to identify sites that, if selected, would be able to deliver an expected rate of return to community investors greater than the average bank rate. Prior to making the model available, MOR was of the view that it should be trialed to ensure it was robust and, as predicted, could stand alone without further subsidy. [A key learning was that a pipeline of projects would be needed to support the set up costs and ongoing administration costs associated with community owned solar in this form.](#)

Funding for Stage 3, piloting of this model, was subsequently obtained from the **South Australian** Government, Bendigo Bank and the City of Campbelltown. The pilot required at least five sites in order to amortise the set up costs and ongoing administration costs. MOR subsequently briefed nine councils and assessed over 70 buildings with the view to finding buildings which could meet criteria to be involved in this pilot. The time required to do this work was significantly underestimated leading to MOR contributing all of its work on a voluntary basis. [The key learning here is that, if community solar is to be self sufficient, professional services need to be acknowledged and catered for in the original set up costs.](#)

Engagement of legal advisers, accountants and tax advisers has been put in place and the Rules of a Trading Cooperative and Draft Disclosure documentation prepared. Final Council endorsements were being obtained when a change in electricity supply rules in South Australia forced a revision to the model. [This risk had not been factored into the project plan and while MOR had briefed the local Distributor, SAPN, and asked for exemptions from changes for community projects, this was not agreed to, leading to further loss of time, a change in building criteria and expensive revisions to the model.](#)

[As well as discovering that many of the councils are confused about how they are charged for electricity we discovered a big opportunity for energy savings by councils and community facilities. MOR has provided a number of councils with information to enable large savings to be made by better management of their bills and facilities.](#)

Note: The tariff changes mentioned above were publicised in the SAPN Industry News - PV Process Update 2#, October 2013; Item 1. **Will installing Solar or altering my power supply change my Network tariff?**

*“Any change/alteration to an existing installation, including new consumer mains, new main switch board, relocate existing main switch board or the installation of solar etc may have tariff implications.*

*Business customers with a capacity greater than 100 amp (current transformer metering) who make any change/alteration, including the installation of any size solar system, will be placed on the current applicable network tariff. The current applicable tariff for customers with a capacity greater than 100 amp is Low Voltage Stepped Demand (kVA)”*

An example given in this Newsletter demonstrates that the tariff change caused by adding 3 kW of solar photovoltaics would result, in the case study, to an annual bill increase from of \$19,553.22 p.a excl. GST to \$30,016.88 p.a excluding GST.

Most of our potential COS sites were affected by this announcement. As it was indicated that the sites’ Business two Rate tariff would become obsolete in future it was a risk to attempt to operate under this price structure, even if allowable for potentially small sites (<40 MWh/y), as our projects are to run over 10 years. It is believed that eventually SAPN would like to see a large scale conversion to demand tariffs for the majority of customers, including residential, within the SA Network. This is a risk other states may like to consider also if their projects are not already operating on demand tariffs.

The impact on our projects of the tariff change was - moving from, a very competitive (for solar PV) energy tariff of 30 – 40 c/kWh to one of around 16 c/kWh plus a maximum demand tariff. The latter is calculated once per year from the ½ hourly maximum demand metered between the beginning of December and end of March. The maximum demand benefit from solar is difficult to calculate and model.

In light of this tariff problem we are modifying the model to enable ‘demand tariff’ sites to be used and at the same time include energy efficiency initiatives to reduce Council maximum demand and thereby costs. This will require a different level of commitment from the councils and is yet to be tested with them. [The key learning is that flexibility is required by all parties attempting to get a community energy project implemented.](#)

## Implications for future projects

The initial ‘community solar’ model using an energy tariff only (no demand) is complete and deemed bankable. However, it needs to be tested. The intellectual property (IP) belongs to the City of Campbelltown which will need to determine how it proposes to share it once it has been road tested.

The larger, more complex energy plus demand model funded by the sale of \$500 “solar-efficiency” shares will have broader appeal and many more suitable sites. Once again, IP belongs to the City of

Campbelltown which will need to determine how it proposes to share it once it has been road tested.

## Knowledge gap

There were known gaps in MOR knowledge which have been capably filled, albeit expensively, by professional legal and accountancy advisers and advanced modelers.

Gaps in knowledge which have been identified along the way include the complexity of finding the appropriate business and governance structures, the restrictions and inflexibility around IP, and lack of understanding of the concept of community owned solar or energy by key partners.

Public engagement, creating of a web presence and graphic design was also underestimated in terms of time and complexity.

## Background

### Objectives or project requirements

The objective of Stage 2 was to create a bankable model for community owned solar using local government energy tariff only sites. The model was to be simple to use, implement and manage. Its aim was to provide a return to investors of equal to, or higher than, the current bank rate for the 10 year life of the project. During this time the price of energy to council would be locked in and at the end of 10 years the asset would be transferred to Council thereby creating a win-win for all involved. There is still potential to use this model in other jurisdictions where energy tariffs are still used in small and medium sized buildings.

### Process undertaken

- Prepared a model using valid technical and financial assumptions.
- Asked for feedback on the model from banks and financial institutions.
- Assessed buildings for suitability against criteria.
- Assessed and determined solar provider.
- Gathered energy demand data and fed into the model to determine which sites would be best for the pilot (5 sites).
- Liaised and briefed councils to ensure internal approvals undertaken.
- Briefed and engaged lawyers who subsequently confirmed appropriate governance and business structures.
- Draft Rules of Trading Cooperative prepared
- Briefed and engaged accountancy/tax advisers who subsequently questioned the business structure proposed and provided valuable tax advice.
- Draft Disclosure document prepared.
- Change to SAPN rules resulted in stop being placed on any further work and brief prepared to have model revised.

## Supporting information (optional)

The model is sensitive to quite a range of input parameters such as, solar irradiance, size of PV system, PV cost (\$/W installed), annual maintenance, administration, legal and web costs and tariffs charged. Annual charges and tariffs are the ones that have greatest impact, together with correct sizing of the PV system to ensure that as little as possible of the PV electricity generated is fed back to the grid.

Assuming a 30 kW PV system is installed on a council property with modest annual costs and a tariff of 35 c/kWh (inc GST) (in SA such a tariff would not be unusual), a \$500 investor could expect a return of about 8% if 100% of PV is used in house and about a 3.5 % return if just 75 % of solar is used in-house and the rest exported.

On the other hand, at this tariff (35 c/kWh) the council makes a small profit in year one and about \$265,000 over the 25 year life of the project (in current year \$) for a 100 % in-house use and about \$200,000 for 75 % in house use of solar PV. However, with a 16 c/kWh council energy tariff the project would need to charge the council about 26 c/kWh for PV electricity in order to get a 3.5% return for investors with 100 % in-house usage.