

Solar case study: Large business

Tyrrell's Wines, Hunter Valley, NSW



Our power purchase arrangement (PPA) means that we have a renewable electricity supply with no upfront cost. It provides us with a fixed, low electricity price for the next 20 years.

Tyrrell's Wines

Project summary

Tyrrell's is protected from changes to electricity costs by sourcing their electricity through on site solar systems at a fixed rate for the next 20 years. Tyrrell's is on track to save approximately \$50,000 in 2018. This case study demonstrates a power purchase agreement (PPA) for a large-scale solar installation, which alleviated up-front capital costs.

Fast Facts

Solar system

- 1 x 250 kilowatt (kW) ground-mounted system and two rooftop systems of 40kW and 60kW
- 1,344 x 260W polycrystalline solar panels connected to 16 x 20kW inverters

Results

- Zero up-front cost
- Guaranteed electricity price over 20 years
- Security of energy supply enhanced

Costs/savings

- Power purchase agreement with zero up-front cost
- 20-year fixed rate for solar electricity with a fixed price that is lower than the current price from the grid
- Solar systems are owned by Tyrrell's at the end of the contract

Environmental benefit

- The system will save over 9,000 tonnes of carbon dioxide (CO₂) over the lifetime of the agreement

About the business

Tyrrell's Wines, established in 1858, is a 5th generation family winery in Pokolbin, located in the Hunter Valley.

The main electrical demands are for temperature control for fermentation and ancillary refrigeration.

Electricity demand and consumption is highest in the summer months, with total annual electricity spend over \$300,000.

Solar strategy

Why solar?

Since 2009, Tyrrell's has been measuring their greenhouse gas emissions per dozen bottles of wine produced.

Tyrrell's has implemented energy efficiency initiatives to enhance business productivity and achieve environmental goals.

The business began to seriously consider a solar system in late 2011 as the cost of solar was reducing and their electricity bill was increasing.

How does a solar PPA work?

In early 2012, Tyrrell's asked several companies for proposals for a solar system, but in almost all cases the up-front installation costs were too high to provide a reasonable payback period.

A proposal by a solar provider to install and maintain the solar panels at no cost to Tyrrell's for 20 years through a power purchase agreement (PPA) was chosen.

Tyrrell's would pay for the solar electricity produced at a rate less than the electricity rate at the time. Additionally, the solar rate would be fixed for the life of the contract, after which Tyrrell's would own the system outright, and take responsibility for all functions of the system.

The solar provider would also own the large-scale generation certificates (LGCs) throughout the lifetime of the system. Current and assumed future LGC prices were included in the PPA contract.

Due to lack of suitable roof space, part of the total system is ground-mounted. While the ground-mounted component was slightly more expensive, the benefits justified the additional cost.

Batteries were also considered to store the excess solar energy however were too expensive at the time to be financially viable.

Maximising excess solar

During operation of the system, it became apparent how quickly electricity consumption can change.

The first year of solar operation coincided with a huge increase in wine production, as well as the hottest summer on record for the region. These factors significantly increased electrical demands.

Motorised equipment such as fridge plants, cooling units, pumps, and crushers are started and stopped frequently, so the demands for electricity rise and fall sharply. These fluctuations mean that more solar energy is exported to the grid than anticipated.

Tyrrell's is exploring how battery storage can capture exported electricity or help smooth demand. In their next retail electricity contract, Tyrrell's will negotiate the feed-in tariff (FIT).

Cheaper electricity for 20 years

Solar generates about a third of the total electricity required by the winery.

Initially, savings were minimal because the contracted PPA rate was close to the previous electricity grid rate in 2016. However, savings are now increasing as the electricity price from their retailer rose by 32% in July 2017 while the solar PPA rate remains fixed.

With the solar system installed, Tyrrell's is on track to save approximately \$50,000 in 2018.

In the first 12 months of operation, the solar system saved 475 tonnes of greenhouse gas emissions and is helping Tyrrell's to meet their ambitious environmental goals.