Article

Solar Energy

According to the Clean Energy Council in 2013 (assuming 85% self-consumption of solar PV output), "A small business consuming 50,000 kilowatt hours per annum that installs a 15 kW system can displace an average of 33 per cent of its electricity usage."

Energy is one of the big issues of our time and solar energy is a promising solution. The sun's energy is a renewable energy source, free of charge and causes no pollution.

Electricity costs are a substantial expense for many businesses and prices have steadily increased over the last few years. By installing a solar PV system, businesses and individuals alike are able to generate electricity on their own premises. It is a great solution to save electricity costs, mitigate the risk of increasing electricity prices and reduce the carbon footprint of your operation.

TCF Australia ONLINE ENERGY EFFICIENCY Training & Mentoring Project Manager Carol Hanlon said, "Improving energy efficiency was important, because it can help businesses save money on their operating costs while also lowering Australia's greenhouse gas emissions. One of the particular ways that TCF and creative business can lower their energy usage, is by harnessing solar power. The sun's energy is a renewable energy source, free of charge and causes no pollution."

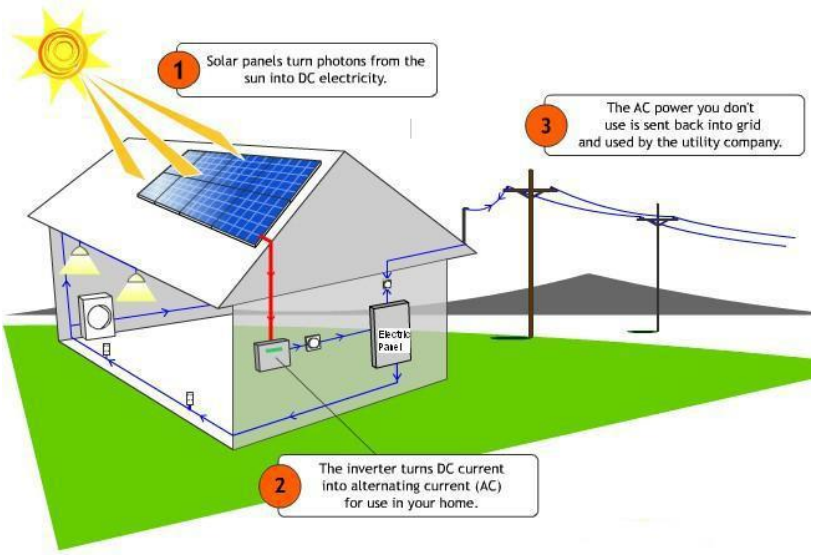
To generate solar electricity, two things are required:

- solar cells, and
- sunlight

Sunlight is made of photons which are small particles of energy. Solar cells are made from silicon (Si). When sunlight hits solar cells these photons are absorbed by the material of this solar cell. The photons cause a movement of electrons within the silicon, which essentially is the generation of current (electricity).

In general, a solar system (depicted below) comprises very few components and no moving parts:

- Solar panels
- Inverter
- Safety devices (circuit breakers).



The electricity that is generated by the solar panels is first used within the respective building.

There are a number of factors that need to be considered when considering solar for your business.

1. Load analysis based on historical data and system design based on roof characteristics (space, orientation, tilt)
2. Choice of quality equipment
3. Retailer and network operator approval
4. Installation
5. Performance monitoring (optional)

The economics of installing solar PV are great as systems costs have fallen tremendously over the past years whereas electricity costs have increased. Generally, the return on investment is influenced by the system's energy output, the electricity tariff, by how much of the output you are consuming on site (self-consumption), the system costs, the reliability of the system and the financial incentive schemes available.

The payback time varies according to the above factors but tends to be in the range of 3 to 7 years for commercial clients with internal rate of returns in the range of 14 to 38 per cent p.a. When assessing the investment into a solar PV system, the total lifetime cost of the system and the total energy generated should be compared to the cost of electricity from the grid during the same period.

Solar PV systems attract financial incentives based on their size and location as legislated in the RET scheme (Renewable Energy Target). The scheme is available both for commercial and residential customers. Systems up to 100 kW qualify for Small-scale

Technology Certificates (STCs) and whereas system above 100 kW need to be registered as "power stations" to receive Large-scale Technology Certificates (LGCs) on a quarterly or yearly basis depending on their electricity output.

There are financing options available such as leasing, rent-to-own and chattel mortgages that enable customers to get solar powered without upfront investment costs.
If cleverly designed, the systems can pay for themselves (when electricity cost savings are equal or higher than repayments).

TCF Australia ONLINE ENERGY EFFICIENCY Training & Mentoring Project Manager Carol Hanlon said, "To learn more about making the most of solar power in your business, register for FREE Online Training Webinars, ONLINE Energy Efficiency FREE 'ASK AN EXPERT' Forums and FREE mentoring. This exciting project has been made possible as a result of funding from the Department of Industry as part of the Energy Efficiency Information Grants Program."

To find out more about the Energy Efficiency business advisory services offered, or register for services as part of this project please visit
www.tcfaustralia.com/greenenergy or email greenenergy@tcfaustralia.com

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