

Planning and Infrastructure

January 2013

ITEM DESCRIPTION: Solar power

This document is intended to be a handy reference to highlight the benefits of the installation of solar panels at NT Schools.

BACKGROUND

The main points about solar:

- The sun shines on the solar panels generating DC electricity
- The DC electricity is fed into an inverter which converts it to 240V 50Hz AC electricity
- Surplus electricity is fed back into the main grid

Whenever the sun shines, the solar cells generate electricity. The grid connects to the inverter and converts the DC electricity produced by the solar panels into 240V AC electricity, which can then be exported to the electricity grid.

In Darwin and its surrounding rural areas we have a Gross feed-in-tariff. A Gross feed-in-tariff measures all the generated power from the photovoltaic (PV) system and provides a reduction on your bill through a credit. The tariff at which this is paid is 25.09c per kW.

When the solar cells are not producing power, for example at night, your power is supplied by the mains power grid as usual. Power and Water charge the usual rate for the power used.

As all of the components in a grid connect system have no moving parts, you can expect a long and hassle free life from your solar power system.

THE MAIN BENEFITS

1. Solar energy is not only sustainable, it is renewable and this means that we will never run out of it. It is about as natural a source of power as is possible to generate. Not only are we able to refuel our vehicles with it we can heat our water and light our homes.

2. We can generate our own source of electricity via solar panels potentially enabling us to live off grid. In other words we need not be dependent on the public utility companies to supply our power and we also won't be required to pay for our power.
3. The creation of solar energy requires little maintenance. Once the solar panels or troughs have been installed and they are brought up to maximum efficiency there is little else to do to ensure they are in working order.
4. They are a silent producer of energy. There is absolutely no noise made from photovoltaic panels as they convert sunlight into usable electricity.
5. The creation of solar power is unobtrusive, particularly the solar electricity that is generated from photovoltaic panels that sit on top of the roofs of buildings.
6. Many governments around the world, including our government, offer generous rebates and monetary incentives to install solar panels and solar hot water systems. The governments of various nations understand the importance of the creation of electricity from renewable sources is to the entire world and are receptive to making it as attractive a proposition as possible for everyone.
7. If you produce enough solar electricity or if you don't use all of the electricity that you produce you can sell it back to the utility company for electricity credits. This is a rare occurrence for the most part, unless the school is on school break, in which case your solar panels will go on producing electricity that you won't be using.
8. Large solar energy facilities can produce electricity regardless of whether the sun is shining or not, making them sustainable and reliable electricity producers. The solar power plants capable of achieving this feat are generally thermal solar power producers capable of storing the heat generated and using it when the sun is not shining.
9. The advancements in technology used to create solar energy are continuing to improve making it even more cost effective and more efficient. As it becomes cheaper to install new solar energy generators the price of solar electricity will continue to drop bringing it more into line with traditional, fossil-fuel generated electricity.
10. Solar electricity power plants and personal solar panels produce zero carbon emissions and have no adverse effects on the environment.