

Energy Factsheet - Solar

Introduction - Our lives are dependent on energy and electricity. Consider the role of energy in reading this: energy was required to create the computer that this article was written on. Energy is needed to keep the lights on and to keep the air warm (if you have the heater on) or cool (if you have the air-conditioner on). The materials and construction building you're in required energy to be built. If you're thinking of eating a snack while you're reading then chances are energy was needed to create, store or transport your snack. The clothes you're wearing needed energy to be made and will need energy later to be cleaned.

Evidence of our dependency on energy is all around us. And because we need it for so much in our lives, it makes sense that we should be using a form of energy that is best for us and best for our planet, both now and in the future. This is what we call 'sustainable energy'.

- **Energy** - Scientists describe energy as the ability of a body or system to do work. Energy is all around us and is constantly changing. When you feel the warmth of the sun on your back you're enjoying the heat energy from the sun. When you cook over a campfire you're using heat energy converted from the stored energy in the wood you're burning. There is energy in the food that we eat. This energy comes from plants who used the energy from the sun. And there is the energy we use for making electricity.
- **Electricity** - Electricity is a form of energy. We use this energy in almost every aspect of our lives: heating and cooling, cooking, lighting, charging phones and computers, watching TV and listening to music, and even for charging (some of) our cars.

About solar power - Solar is the Latin word for 'sun', so when we talk about solar energy, we are talking about energy that comes from the sun. We already use the energy from the sun for light and warmth – in fact, without the sun the earth would be completely dark, freezing and lifeless.

But we can also use photovoltaic (PV) cells to capture the sun's energy and convert it into electricity. Photovoltaic cells are found in solar panels. The sun shines onto the solar panel, and the photovoltaic cells generate "DC" (Direct Current) electricity. This electricity is then fed into a solar inverter that converts into "AC" (Alternating Current) electricity. You can then use the AC electricity to power appliances in your home or school. Any power that is 'left over' gets directed into the mains power grid for others to use.



The best part about solar energy is that it creates almost no pollution (some pollution may be generated in building and transporting the solar panels). And because the sun's energy is totally renewable it will never run out (well, it will in around 4 billion years but that means we've got a bit of time to prepare). On top of that, if you could capture it all, the amount of energy received from the sun in one hour could power the entire world for a year.



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