



BRIGHT SPARKS

All about electricity

What it is, where it comes
from and how to use it wisely.

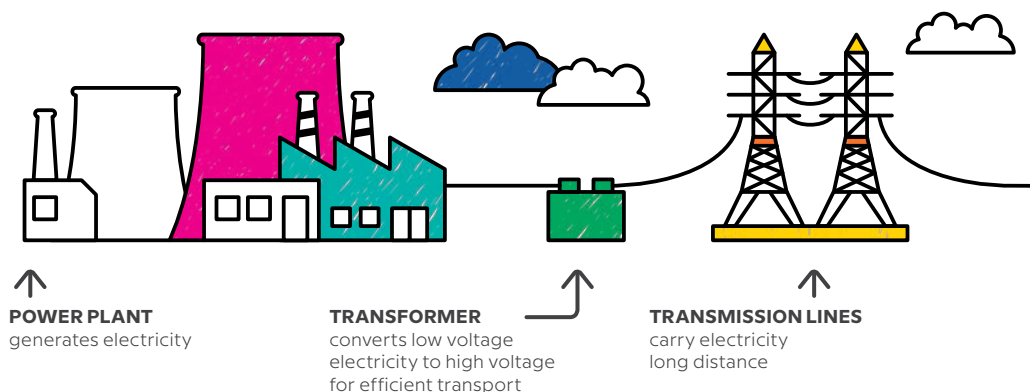
HOW DOES ELECTRICITY GET TO YOUR HOME?

In the NT, the majority of electricity is produced in power plants where fuel sources such as diesel and natural gas are burnt to produce heat.

This heat is used to boil water which in turn creates steam. The steam under high pressure is used to spin a turbine which interacts with a system of magnets to produce electricity.

The electric current is sent through transformers to increase the voltage to push the power long distances across the high-voltage transmission lines that stretch across the Territory.

The electric current then reaches a substation, where the voltage is lowered so it can be sent on smaller power lines. It travels through distribution lines to your neighbourhood, where smaller pole-top transformers reduce the voltage again to take the power safely to your home.

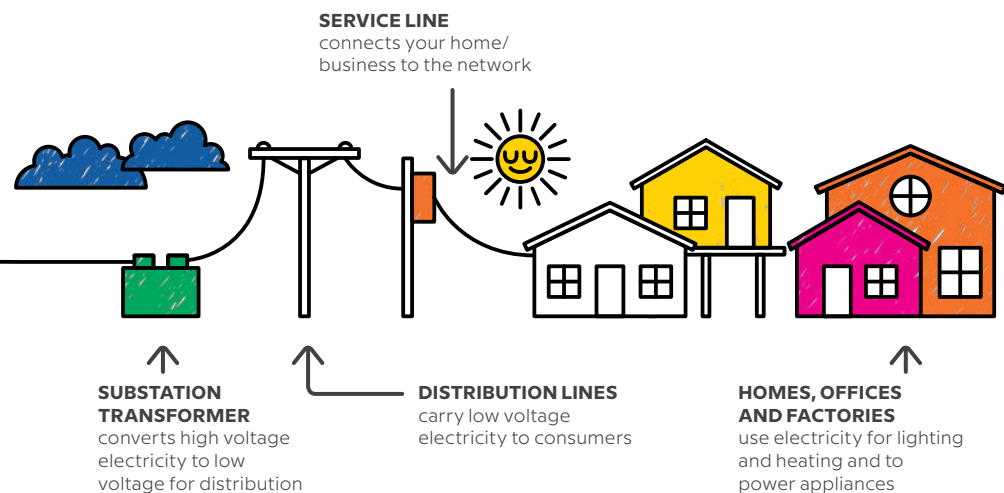




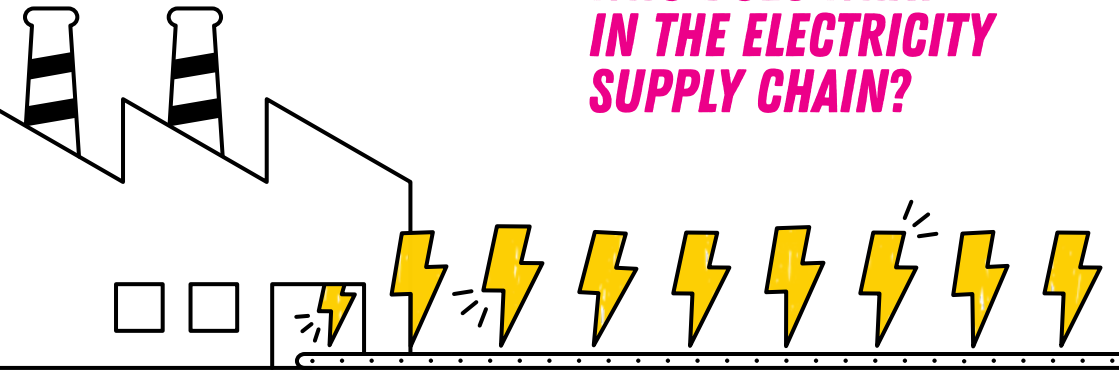
The electricity network connects to your house through the service line which transmits the electricity through a meter that measures how much your family uses. The electricity goes from the meter to the service panel where fuses protect the wires inside your house from being overloaded. The electricity then travels through wires inside the walls to the power points and switches all over your house.

DID YOU KNOW...

Thinking of electricity as a waterfall, the voltage would be the height of the waterfall. The higher it is, the more force the water has when it hits the bottom. Amps would be how fast the water flows. Watts would be the power the water could provide if used to operate a turbine for example.



WHO DOES WHAT IN THE ELECTRICITY SUPPLY CHAIN?



Generation

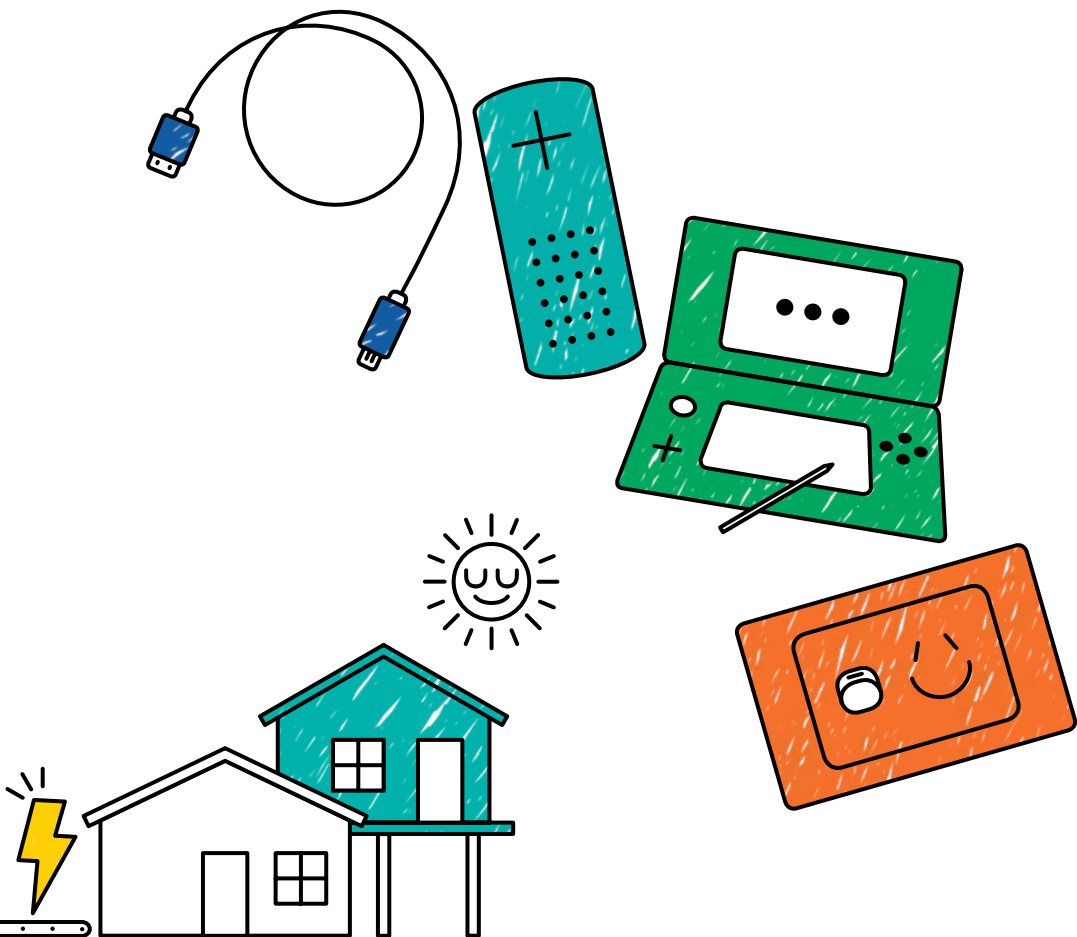
Electricity generators, such as Territory Generation, are like a 'factory' for electricity. They produce electricity in bulk to meet the demand of homes and businesses in the Territory.

Distribution network

The network provider, such as Power and Water Corporation, is like the 'delivery truck'.

They transport electricity from power plants to homes and businesses along the local network of electricity poles and wires.

They are responsible for building and maintaining the power poles and powerlines, as well as reading the meter to record how much electricity each home or business uses.

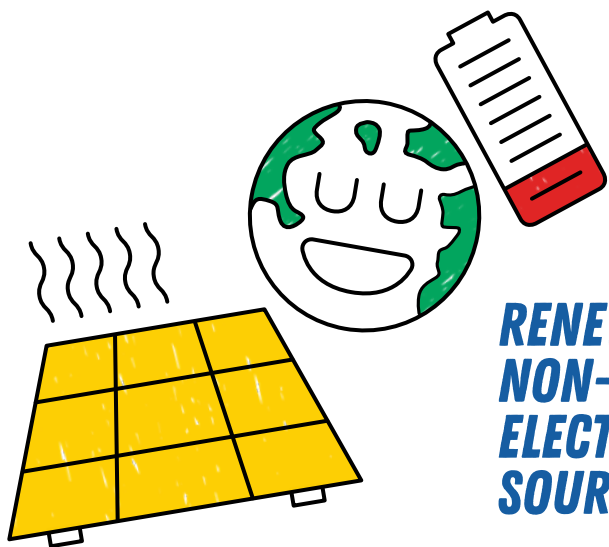


Retail

Electricity retailers such as Jacana Energy are like the 'shop front' for the electricity supply chain.

At Jacana Energy we purchase electricity from generators and sell it to customers in the NT through a range of electricity products and tariffs.

We also send bills to customers, collect their payments and provide customer support.



RENEWABLE VS NON-RENEWABLE ELECTRICITY SOURCES

DID YOU KNOW...

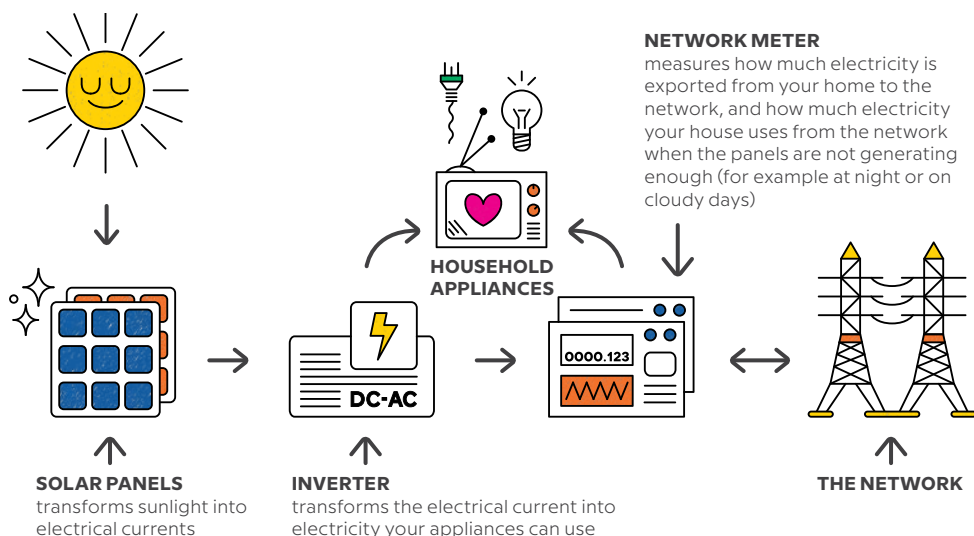
Since the 1950s, spaceships and space stations such as the International Space Station (ISS) have often used solar panels to generate power.

Renewable energy comes from sources that can be renewed or don't run out such as the wind, sunlight, tides etc. These energy sources are kinder to the environment as they don't produce greenhouse gases that contribute to the global warming of our planet.

Non-renewable energy sources cannot be replaced easily once they have been used. They take millions of years to form and new exploration and extraction need to be conducted to get them out of the ground.

These sources include coal, natural gas and oil. Australia currently sources the majority of its energy from non-renewable sources; however things are changing and more renewable sources are entering the mix.

In the Territory, electricity is generated from three main sources: diesel, natural gas and solar.



SOLAR POWER... HOW DOES IT WORK?

Solar panels on top of a roof are a common sight these days; however you may wonder how they work exactly.

Solar panels contain photovoltaic cells made from silicon that transform sunlight into electricity ('photovoltaic' means electricity from light; photo = light + voltaic = electricity).

Photovoltaic cells are made of a positive and a negative layer of silicon placed under a thin glass. As the sunlight hits these cells, the electrons in the silicon start to move about and break free.

The negative electrons are attracted to one side of the silicon layer, which creates an electric current that can be harnessed by the solar power system. This electrical current is then converted into electricity that your home can use.

These days more and more large solar plants are built around the country in an effort to reduce carbon emissions and secure cleaner energy sources for Australia.

In the NT, we have large solar plants located in Uterne (Alice Springs), Alice Springs Airport, Hermannsburg, Kings Canyon, Ti Tree, Lajamanu and Yuendumu.

HOW CAN WE BE MORE ENERGY SMART?

It's important that we all learn how to be energy smart. It's amazing how small changes can have a big impact on how much electricity we use and help reduce the amount of greenhouse gases in our atmosphere.

If you have old appliances at home, maybe it's time to upgrade them to more energy efficient models which will use a lot less electricity to run.

Lights

Energy-saving LED globes are the best to provide lighting in your home as they use around 1/5 the energy a regular globe uses.

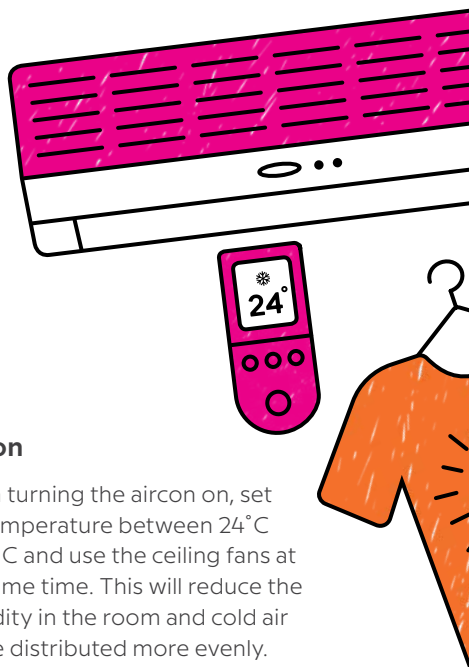
Aircon

When turning the aircon on, set the temperature between 24°C to 27°C and use the ceiling fans at the same time. This will reduce the humidity in the room and cold air will be distributed more evenly.

Don't sleep under a doona at night, simply put the aircon's temperature a little higher. That's because every time you lower the temperature by one degree, the cost of running the aircon goes up by 10%.

Fridge

Make sure your fridge and freezer doors seals are in good condition so they don't leak cold air. If cold air is leaked, the fridge will work a lot harder and use a lot more energy to maintain the temperature inside.





Hot water

Hot water makes up around 23% of our energy use at home, so it makes sense to use it wisely. By spending less time under the shower, you will need less electricity to heat up the water and you will also help to conserve precious water. Remember, 4 minutes under the shower is quite enough to be squeaky clean!









Dryer

The dryer is one of the most energy hungry appliances in your home. Hanging your clothes on the washing line or on a frame under a ceiling fan rather than putting them in the dryer could save your parents lots and significantly reduce greenhouse gas emissions.

Turn it off

Turn the lights and air conditioning off in the rooms you're not using and when you leave the house. It won't take long for the house to cool down again when you get home and you will save a great deal of electricity by turning aircons off!

HOW HUNGRY ARE YOUR APPLIANCES?

		SIZE	AVERAGE USE	ESTIMATED COSTS	
				PER USE	PER QUARTER
	Air conditioner	Medium room aircon	12 hours/day	\$1.22	\$111
		Large room aircon		\$2.30	\$209
	Television	50" LCD (LED)	4 hours/day	\$0.04	\$3.50
	Dishwasher	10 place setting – normal program	7 loads/ week	\$1.30	\$17
	Clothes dryer	7Kg capacity	5 loads/ week	\$3.80	\$50
	Ceiling fan	Standard ceiling fan	12 hours/day	\$0.25	\$22
	Lighting	Compact Fluoro lights	10 bulbs	\$0.28	\$25
		LED lights	6 hours/day	\$0.15	\$14
	Washing machine	7.5Kg front loader	5 loads/week	\$1	\$13.50
	Refrigerator	Fridge freezer 400L	Compressor running 30% of the day	\$0.24	\$21.60
		Side by side fridge freezer		\$0.43	\$39

HOW TO CALCULATE RUNNING COSTS

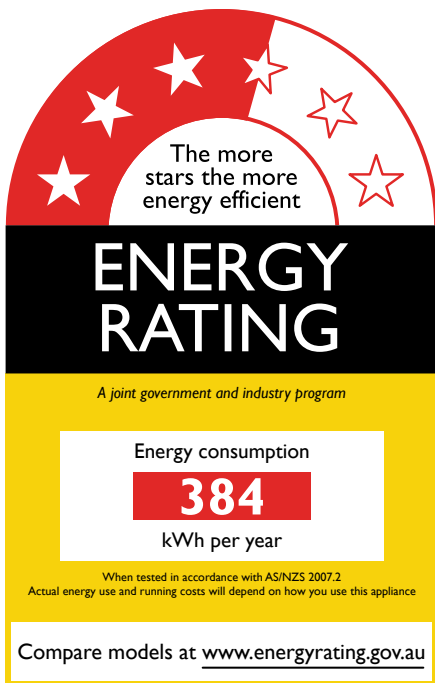
This is a simple way to calculate how much your appliances are costing you to run:

- 1 Find the input power in watts.** This is usually printed on a label attached to the appliance or in the user manual. Appliances with thermostats, like air conditioners and fridges, don't use their full wattage all the time. To work out how much power they are likely to consume, take one third of the wattage and use this number for the next step.
- 2 Multiply the input power by the average number of hours the appliance is used** over the period you want to check. Then divide by 1000 to find out the number of kilowatt hours your appliance is using.
- 3 Multiply the number of kilowatt hours by the domestic tariff (in cents) applicable.** This result is how much your appliance is costing you.

Remember that there is also a fixed daily charge per day added to your bill every day regardless of the number of kilowatt hours you used in the period.

Disclaimer: Appliances data based on averages and taken from a number of sources. Costs quoted are based on electricity tariffs effective 1 July 2017. Actual costs may vary depending on your circumstances. Residential flat rate \$0.2567 per kilowatt hour.



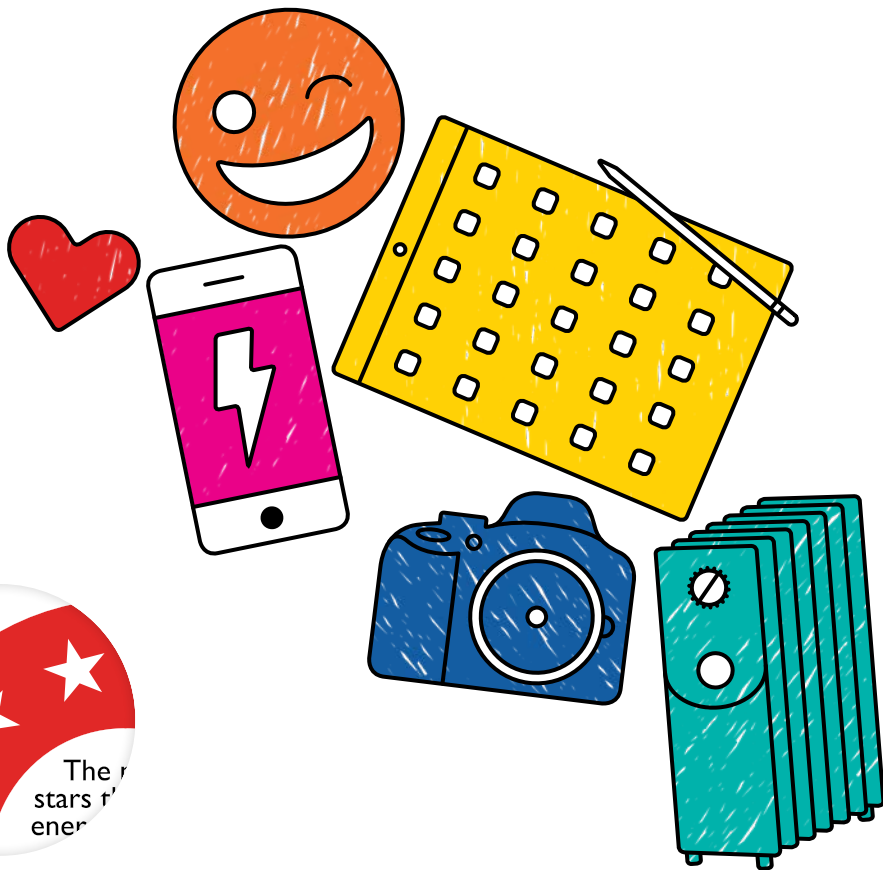


HOW TO READ ENERGY RATING LABELS

Choosing energy-smart appliances can help save money on energy bills and reduce greenhouse gas emissions. That's because they use less electricity than other models of similar size to achieve the same or even better results. The more energy smart a model is, the less energy it uses to work.

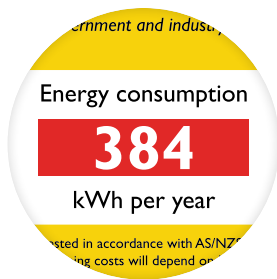
Many appliances sold in Australia have an Energy Rating Label to help customers compare how much electricity a product uses compared to another. The Energy Rating Label uses stars to show how energy smart an appliance is. The more stars, the better, the more energy smart the appliance is.

Sometimes high star-rated models can cost a little more to buy, but they will cost less to run and save you money over time compared to cheaper products with fewer stars.



Star rating

The more stars, the more energy smart the appliance is.



Energy usage

The lower the kWh (kilowatt hour) is, the less energy the appliance uses to run each year.

DID YOU KNOW...



Energy Star is another example of a labelling program for energy efficiency which originated in the US. Appliances that carry the sticker usually are in the top 25% most efficient.

QUIZ

1. **WHAT IS THE UNIT TYPICALLY USED TO MEASURE ELECTRICITY YOUR FAMILY USES AROUND YOUR HOME?**

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2. **WHAT ARE SOME EXAMPLES OF RENEWABLE ENERGY SOURCES?**

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3. **WHAT IS THE RECOMMENDED TEMPERATURE TO SET YOUR AIRCON AT HOME?**

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4. **TRUE OR FALSE: TAKING SHORTER SHOWERS WILL HELP YOU SAVE ELECTRICITY?**

- ☐ True
- ☐ False

5. **WHICH APPLIANCE USES THE MOST ELECTRICITY TO RUN... A CEILING FAN OR AN AIRCON?**

- ☐ Ceiling fan
- ☐ Aircon

6. **WHAT IS AN ENERGY RATING LABEL ON AN APPLIANCE USED FOR?**

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7. **WHAT KIND OF LIGHT GLOBES USE AROUND 1/5 THE ENERGY OF REGULAR GLOBES?**

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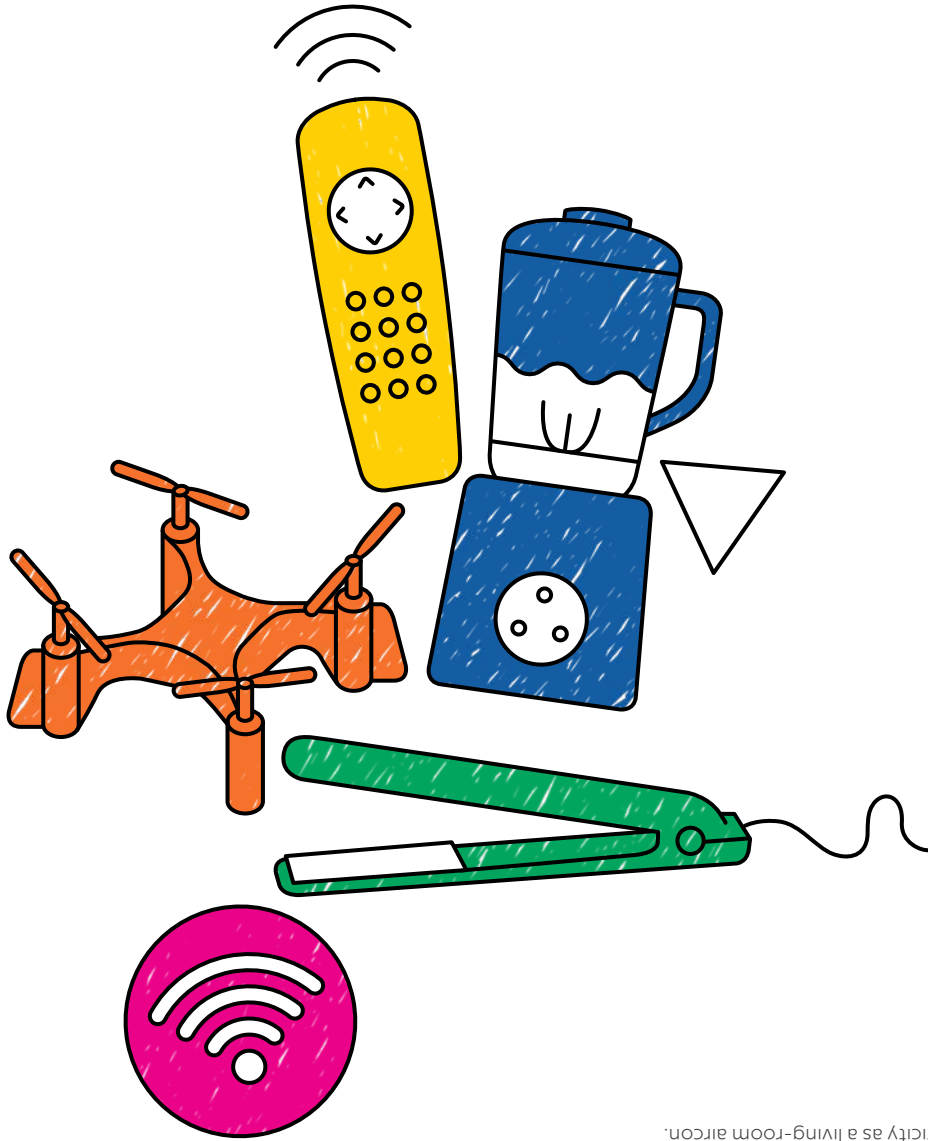
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8. **WHAT SERVICES DOES JACANA ENERGY PROVIDE ITS CUSTOMERS WITH?**

- ☐ Maintains poles and wires used to transport electricity
- ☐ Sells electricity products, billing, collects payments, customer support
- ☐ Generates electricity

ANSWERS:

1. The Watt
2. Sun, wind, tides
3. 24°C to 27°C
4. True, because by spending less time under the shower, you will need less electricity to heat up the water
5. The aircon – In fact, it would take 8-10 fans turned on full speed to use as much electricity as a living-room aircon.
6. Helps customers compare how much electricity a product uses compared to another.
7. LED globes
8. Sells electricity products, billing, collects payments, customer support.





Useful contacts

Billing and general enquiries

1800 JACANA (1800 522 262)

Network faults and outages

1800 245 092

(24hrs – Power and Water Corporation)

Life threatening emergencies

000 or 1800 245 090

(24 hrs/7 days)

Interpreter service

131 450

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