



Highly Commended

# Science Writing

## Year 5-6

### Emily Pike

Immanuel Lutheran School  
Gawler



# Clean Tech

## By Emily Pike

### What is clean tech?

Clean tech (or clean technology) is a way of using technology in a sustainable way that minimises impact on the environment.

In some cases clean tech can also be called clean energy. Some examples of clean tech are electric cars, wind and solar energy and water powered machines. These all use nature in different ways to create energy that can power appliances and machines.



Image 1: Wind turbines create energy by the wind causing the blades to spin around.

### Why is clean energy better than 'dirty' energy?

Fossil fuels are considered dirty energy because they release greenhouse gases into the atmosphere, which are one of earth's main atmosphere destruction reasons. One example is nitrogen oxide (also known as NO on the periodic table) which causes smog and possible acid rain. For this reason fossil fuels are much more destructive to the environment than clean energy. Nuclear energy doesn't create greenhouse gases but is sometimes considered 'dirty' as it creates radioactive waste which can take thousands of years to decay.



Image 2: Water powered machines like Mr Trash Wheel, use solar power provided from solar panels on his back to power a water wheel to help him pick up trash.

In fact according to scientists, if we don't stop climate change by 2050, 40% of Antarctica's ice may have melted causing problems around the world for both humans and animals. If all the ice melts, sea levels could rise 70 metres causing major problems, as most coastal cities could be flooded and/or completely covered with water turning them into seamounts, which are under water islands or cities that once were covered in sunlight and people. Some examples of seaside places in South Australia that may get submerged by 2050 are West Lakes, Semaphore South, Glanville and Port Adelaide.



Image 3: Solar panels collect the sun's rays and turn them into electricity for us to use everyday.

It is not just Antarctica in danger, ice all over the planet is in jeopardy. Arctic animals like polar bears, can swim long distances but disappearing ice makes it very hard for polar bears to find habitats to hunt, mate and reproduce.



Image 4: Polar bear in its arctic habitat which may be affected by global warming.

## Now for a story on an electric car....

In my town I interviewed a resident who bought an electric car 2 ½ years ago. They explained that owning an electric car saved money because they did not have to buy petrol. At their home they have 8 Solar panels that generate 9 kilo Watts on an average sunny day that they then use to charge their car for driving. They said because they use electricity and not petrol it is more sustainable and is more environmentally friendly than petrol. “The only bad thing”, they explained, “is that once the battery in the car stops working, it may be hard to recycle”.

Over time scientists are experimenting with ways to recycle batteries. We need to find a way because when a battery goes to landfill it releases problematic toxins (lead, mercury etc.) that harm the air and atmosphere. Scientists say that by 2030 with a bit more knowledge we may be able to recycle electric car batteries in larger amounts.

## What can we do to turn our world more ‘clean’ and less ‘dirty’ at home?

One thing that you can do at home to improve your clean tech/energy is to get solar panels on your roof. Solar panels collect the sun's rays and turn them into energy to use anywhere that electricity is required in your home.

Another example of clean tech that you can have at home is a small wind turbine. The wind turns the blades which creates energy that can power your home.

Last of all there is a slightly more expensive option..... an electric car! You can plug your EV charging cable into a normal power socket and if you have solar panels, charging the car is free - as long as you generate enough electricity.

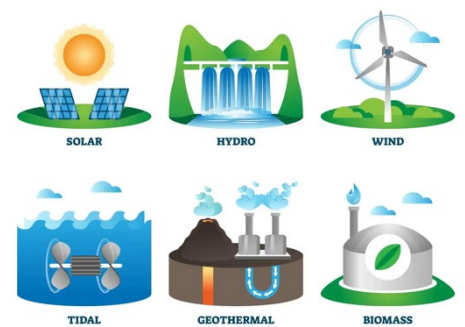


Image 5: Renewable energy types.

## Now about a big trash collector.....

In Baltimore's inner harbour in the United States, there is a trash collector with a big wide face and is powered by solar panels on its back. This trash collector has been named Mr. Trash Wheel and It cleans up the rubbish floating around in the harbour. He works with Professor Trash Wheel and together they pick up all of the trash in the harbour. It works by the solar panel generating electricity from the sun's rays and using it to power a water wheel, which collects the rubbish as it moves around the harbour. The rubbish is then falls onto the conveyor belt that then puts it in a storage compartment. They were installed in May 2014 and by 2017 they had together picked up 453,592kg of Trash.



Image 6: Mr. Trash Collector.

Scientists are investigating if it is possible for more places around the world to have trash collectors. It will be expensive and will take time to setup but it will help reduce the world's pollution in the long run. It will also help save many land and marine animals and possibly humans who drink or swim in the water.



Image 7: Professor Trash Wheel

## The future of clean technology

From large electric vehicles to tiny electric batteries, wind turbines and trash collectors, clean technology is making our world more sustainable. Into the future we may see whole cities only powered by clean energy, or a reduction in pollution and greenhouse gases. No matter what comes, we need to be more sustainable or a liveable world will no longer exist!

### Thanks to....

My Mum and Dad for giving me advice,

My coordinator Mr. Cochrane for proof reading my work and

Local resident and EV owner David for letting me interview them in their own time.

*778 Words*

## Images bibliography

Image 1: <https://education.nationalgeographic.org/resource/wind-energy/>

Image 2: <https://www.nationalgeographic.com/science/article/mr-trash-wheels-professor-trash-wheels-baltimore-harbor-ocean-trash-pickup>

Image 3: <https://www.nationalgeographic.com/environment/article/activists-fear-biodiversity-threat-from-renewable-energy>

Image 4: <https://www.livescience.com/why-no-polar-bears-antarctica>

Image 5: <https://www.inspirecleanenergy.com/blog/clean-energy-101/types-of-renewable-energy-sources>

Image 6:

[https://en.wikipedia.org/wiki/Mr.\\_Trash\\_Wheel#:~:text=a%20conveyor%20belt.-,Mr.,controlled%20remotely%20on%20the%20Internet.](https://en.wikipedia.org/wiki/Mr._Trash_Wheel#:~:text=a%20conveyor%20belt.-,Mr.,controlled%20remotely%20on%20the%20Internet.)

Image 7: <https://www.baltimoremagazine.com/section/community/field-notes-professor-trash-wheel-lake-roland-and-the-bees-needs/>



# Bibliography

<https://education.nationalgeographic.org/resource/wind-energy/>

<https://www.nationalgeographic.com/science/article/mr-trash-wheels-professor-trash-wheels-baltimore-harbor-ocean-trash-pickup>

<https://www.nationalgeographic.com/environment/article/activists-fear-biodiversity-threat-from-renewable-energy>

<https://www.epa.gov/nutrientpollution/sources-and-solutions-fossil-fuels#:~:text=When%20fossil%20fuels%20are%20burned,referred%20to%20as%20nitrogen%20oxides.>

[https://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKewianO358aD\\_AhWK-jgGHdaMDB4QFnoECAGQAw&url=https%3A%2F%2Fwww.amnh.org%2Fexplore%2Fology%2Fearth%2Fask-a-scientist-about-our-environment%2Fwill-the-world-ever-be-all-under-water%23%3A~%3Atext%3DBut%2520our%2520coastlines%2520would%2520be%2Cland%2520area%2520would%2520shrink%2520significantly.&usg=AOvVaw2UGkmtq3xA9xZCluwXhiku](https://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKewianO358aD_AhWK-jgGHdaMDB4QFnoECAGQAw&url=https%3A%2F%2Fwww.amnh.org%2Fexplore%2Fology%2Fearth%2Fask-a-scientist-about-our-environment%2Fwill-the-world-ever-be-all-under-water%23%3A~%3Atext%3DBut%2520our%2520coastlines%2520would%2520be%2Cland%2520area%2520would%2520shrink%2520significantly.&usg=AOvVaw2UGkmtq3xA9xZCluwXhiku)

<https://www.nationalgrid.com/stories/energy-explained/what-are-different-types-renewable-energy#:~:text=Fossil%20fuels%2C%20such%20as%20coal,of%20non%2Drenewable%20energy%20sources.>

[https://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKewjP7qLM8KD\\_AhVfzTgGHV1YAZMQFnoECAsQAw&url=https%3A%2F%2Fwww.aljazeera.com%2Fnews%2F2023%2F3%2F30%2Frapidly-melting-antarctic-ice-could-affect-oceans-for-centuries%23%3A~%3Atext%3DScientists%2520warn%2520deep%2520ocean%2520water%2Ccirculation%2520crucial%2520for%2520planetary%2520systems.&usg=AOvVaw36qSGasf5Xf35xaZY-vIQw](https://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKewjP7qLM8KD_AhVfzTgGHV1YAZMQFnoECAsQAw&url=https%3A%2F%2Fwww.aljazeera.com%2Fnews%2F2023%2F3%2F30%2Frapidly-melting-antarctic-ice-could-affect-oceans-for-centuries%23%3A~%3Atext%3DScientists%2520warn%2520deep%2520ocean%2520water%2Ccirculation%2520crucial%2520for%2520planetary%2520systems.&usg=AOvVaw36qSGasf5Xf35xaZY-vIQw)

<https://blogs.adelaide.edu.au/environment/2021/06/17/as-climate-change-worsens-adelaide-will-become-a-50-degree-city/#:~:text=Under%20its%20%E2%80%9Cvery%20high%20greenhouse,the%20planet%20if%20it%20melted.>

[https://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKewjXlf-7s7X\\_AhWMRWwGHTVxBygQFnoECAMQAw&url=https%3A%2F%2Fthewest.com.au%2Fnews%2Ftransport%2Fhalf-of-new-cars-to-be-electric-by-2030-c-9081765%23%3A~%3Atext%3DElectric%2520vehicles%2520would%2520need%2520to%2C1.5C%2520climate%2520change%2520goal.&usg=AOvVaw0S-oxILyEKMhtbakbtsoMY](https://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKewjXlf-7s7X_AhWMRWwGHTVxBygQFnoECAMQAw&url=https%3A%2F%2Fthewest.com.au%2Fnews%2Ftransport%2Fhalf-of-new-cars-to-be-electric-by-2030-c-9081765%23%3A~%3Atext%3DElectric%2520vehicles%2520would%2520need%2520to%2C1.5C%2520climate%2520change%2520goal.&usg=AOvVaw0S-oxILyEKMhtbakbtsoMY)

[https://en.wikipedia.org/wiki/Mr.\\_Trash\\_Wheel#:~:text=a%20conveyor%20belt.-,Mr.,controlled%20remotely%20on%20the%20Internet.](https://en.wikipedia.org/wiki/Mr._Trash_Wheel#:~:text=a%20conveyor%20belt.-,Mr.,controlled%20remotely%20on%20the%20Internet.)

<https://www.science.org/content/article/millions-electric-cars-are-coming-what-happens-all-dead-batteries>