



FACT SHEET

Tidal energy

What is tidal energy?

Tidal energy is a form of water energy. The masses of the moon and the Sun pull on the Earth's water surface (because of the force of gravity) and cause a moving bulge in the water, which is expressed as varying sea levels, in some places changing by several metres once or twice a day. Other ocean based resources include wave energy and thermal energy; thermal energy depends on ocean temperature varying with depth, and there are limited technologies and trials for extracting this energy, so it will not be further discussed here.

How is it used?

Electric power can be generated using tidal energy. As the tide rises and falls it can turn turbines in barrages places across estuaries with strong tides. Alternatively, the risen tide can be trapped behind a dam, and released to generate electricity on demand during low-tide periods. However, these days people tend to use turbines that stand by themselves in the moving water, as dams and barrages can damage the environment too much

Challenge

There are only a few favourable sites for tidal schemes throughout the world. The only potential for tidal power in Australia is along the north-west coast, near the Kimberleys in Western Australia, and in Bass Strait near Tasmania. Tidal energy could be useful in these particular regions. However, there is not enough tidal energy to supply a significant proportion of Australia's electricity.

Source: CSIRO CarbonKids Curriculum Unit, Sustainable Energy for All, pages 25-32

Acknowledgements

The Future Sparks educational materials project is being undertaken by CSIRO Education for Green Cross Australia.

These educational resources are designed to introduce teachers and students to Australia's use of 'clean energy' as one of the carbon dioxide mitigation options available for achieving significant reductions in atmospheric carbon dioxide emissions. Whilst not an exhaustive educational resource, it is intended to raise the awareness of school-aged students about our changing climate, clean energy practices and applications and the other alternative energy technologies that reduce greenhouse gas emissions.

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The materials in this educational resource have been developed by Angela Colliver from CSIRO Education.

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