



Pedal Power Measured in Oil

Posted by [Phil Hart](#) on April 1, 2009 - 9:45am in [The Oil Drum: Australia/New Zealand](#)

Topic: [Demand/Consumption](#)

Tags: [bicycling](#), [micro-generation](#) [[list all tags](#)]

I was part of a team 'Greenfleet and Friends' that pedalled four bicycles for an hour to help generate electricity to power the 'Earth Hour' concert in Melbourne. This is a great event to raise awareness of how much energy we use (waste), but thinking about the energy we generated on the bikes in terms of its petrol/gasoline equivalence is pretty confronting.



[Using Bikes to Power Melbourne's Earth Hour Concert](#)

The Melbourne Earth Hour Concert is Australia's signature Earth Hour event for 2009! This concert is unique in Australian history because it will be people powered by the Future Spark Team Challenge.

To power this amazing concert, we are holding the City Switch Future Spark Team Challenge! The power will be achieved by YOU riding bikes on a trailer that are hooked up to custom made electricity generators. So basically by pedalling on some bikes you will create clean energy which will be used to power the concert.



Every team entered gets 4 bikes for one hour. Your team gets to pedal to generate as much electricity as possible. Each team can have between 4 and 10 people so you can change if you get tired. Teams can see exactly how much power they have contributed on the screen monitors and your team will appear on the honour roll and leaders board.

By pedalling four bicycles for an hour on Friday 27th March, my team of Greenfleet and Friends generated 463Wh (Watt-hours), contributing towards the 50,000Wh needed to power the Earth Hour concert held in Melbourne on Saturday 28th March. Greenfleet's performance was well above average, but not quite in the same league as several teams that generated over 600Wh.

You can see all the team stats on the Future Spark website: power.futurespark.com.au

Now considering that a litre of petrol stores 10kWh (10,000 Wh) of energy, one hour spent pedalling four bicycles generates about as much energy as is stored in just three tablespoons of petrol (gasoline)! Looking at it another way, each bike was generating energy at the rate of about one small drip of oil per minute.

Those fairly confronting statistics should teach us two important lessons:

- Crude oil and refined products like petrol/gasoline are incredibly energy rich fuels. We should place a much greater value on them, and not just because of the CO₂ emissions they generate.
- Cycling is a supremely efficient means of transport. Reducing oil and energy use means adapting to a range of much smaller and lighter vehicles, whether they are electric vehicles or human powered, or a bit of both.

Well over a hundred teams spent a week pedalling over a dozen bikes to generate 50kWh (kilo Watt-hours) for the Earth Hour concert. Five litres (~1.3 gallons) of fossil fuel stores the same amount of energy, an amount most people would burn in their cars almost every day without thinking about it.

*[See comment from Engineer Poet: Because an engine is only around 30% efficient, it would actually require about $3 * 5 = 15$ litres (4 gallons) to yield 50kWh in terms of work output, as opposed to the 50kWh of stored chemical energy in the five litres.]*

So next time you're filling up your car, take a moment to think about the fantastic amount of



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