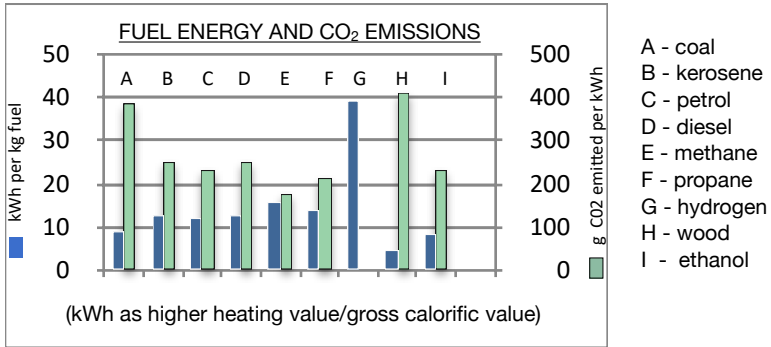


## THE VALLEY'S GETTING COOLER?



As we head into Autumn, it's a good time of year to think about our energy use. For domestic use in the valley, this is probably either oil (kerosene) or LPG (propane) plus electricity from the grid or solar panels. The bar chart above shows a couple of interesting parameters - how much energy (kilowatt-hours, kWh) we get from 1 kg of fuel and the CO<sub>2</sub> emissions from 1 kWh of fuel. For the latter, a useful reference is the level from grid electricity - this is now about 225g per kWh at the point of use, which contrasts with 500g per kWh in 2008.

The biggest CO<sub>2</sub> emitters (per unit mass) are the solid fuels, coal and wood, although the latter is often counted as zero as it's a renewable material, albeit over quite long timescales for most trees (this is a big topic and would take another page to go into fully). Natural gas (methane) is usually the fossil fuel of choice (if you can get it). One way of looking at methane (CH<sub>4</sub>) is as a halfway house to using hydrogen as 50% of its energy comes from the hydrogen component, although this only accounts for 25% of its mass. All other hydrocarbons have higher CO<sub>2</sub> emissions than methane (as they contain less hydrogen) and kerosene is the worst. Ethanol is incorporated in standard petrol (10% in the E10 grade), but its CO<sub>2</sub> emissions are discounted if, as normal, it's produced biologically (as bio-ethanol).

We've probably all got heat pumps (HPs) at home in the form of fridge-freezers, but, along with quite a few others in the valley before me, I've just installed one for heating, in my case an air-source HP using propane (a hydrocarbon) as the working fluid/gas. Containing less than 1 kg propane in a sealed system, this is so much more efficient than burning the stuff (LPG) in a conventional boiler, even including the grid electricity to turn the HP's fan and compress the gas. Having said that, I do also have two cylinders of LPG to fuel the hobs on the Range cooker, but this use is relatively small.

And the title of this piece - it has to be caused by all the energy being sucked out of the local atmosphere by all these heat pumps?

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