The Oil Drum: Australia & New Zealand
DISCUSSIONS ABOUT ENERGY AND OUR FUTURE

Introducing A New Currency: The Carbon

Posted by Big Gav on June 27, 2008 - 10:44pm in The Oil Drum: Australia/New Zealand
Topic: Economics/Finance
Tags: carbon, currency, global warming [list all tags]

This is a guest post from kiashu.

I have decided to create a new currency, the **Carbon**. You can spend it and earn it, but cannot exchange it between people, because it's a transaction between you and the Earth. The symbol for the carbon currency is **¢**. In earlier times, currencies were physical commodities, or their value was tied to them. For example, the British Pound was called a "pound" because it was set as equivalent to a pound of silver, and around an ounce of gold. This made it easy to know what you could get for a pound, and what it was really worth. So I have set **¢1.00 as worth 1.00kg of carbon dioxide equivalent in greenhouse terms**. 1kg methane, for example is worth about ¢23, since it has a greater effect on the climate than does carbon dioxide.

Climate change, our bankruptcy

The reason to express it as a currency is that with money we have a simple idea which everyone can grasp: you cannot spend more than you earn. If you get into debt and can never pay it back, you're in trouble. Likewise, if we emit more greenhouse gases than the Earth can absorb, we get into trouble; if we spend more Carbons than we earn, we get into debt. Some people find it difficult to grasp the idea of climate change because, they say, the pollutants we humans produce are so small compared to the whole system, how can they have an effect? Well, imagine that in a town of 1,000 people every single household spent just a few percent more than they earned - every year for a century. That town would be in trouble, right?

We have been spending more than we earn. When you do that with money eventually you get declared bankrupt and the court writes off your debts. That's possible with debts in dollars, but not debts in Carbons Instead of bankruptcy we get climate change. The debt just grows and makes our lives more miserable and difficult. Our spending is greater than our income.

Carbon incomes

But what is our "income" with Carbons? As I see it, our income is the amount we can emit without causing global warming, according to the scenarios in the IPCC 2007 report. I described my reasoning here, that to keep global warming to a reasonable level we need to reduce global emissions by 50-85% - we need to reduce how much we add to our carbon debt by 50-85%. Current world emissions are each year about 49Gt CO_{2e} - **spending ¢49 *trillion***.

A 50% reduction would be to ¢24.5 trillion, an 85% reduction to ¢7.35 trillion. But this spending must be spread amongst 6.67 billion people today, and a top population of about 9 billion in 2050. So that gives us ¢1,100-¢3,700 of spending we can do each year for each person. I've also noted that of all our emissions, all our spending of Carbons, about half are things we can control directly

in our daily lives - how we get our electricity and how much of it we use, how we transport ourselves, what we eat and so on. This gives us a range of **¢550-¢1,850 of spending** we can each do.

To be prudent it seems wise to choose the lower figure, but set against this is the fact that the IPCC-reviwed scenarios all assumed *gradual* reductions up till 2050. They expect us to take forty years or more to change. But of course, many changes are things we in our households can do very quickly, or within a few years at most. We don't need forty years to find a house closer to work or work closer to home so we can walk there, five years would be plenty. We don't need forty years to eat only 12kg of meat a year instead of 120kg. We don't need forty years to turn the heater off and put on a jumper.

Now, greenhouse emissions are also like a debt in that if you can pay it off earlier, you pay less overall. Just as paying an extra $1,000 off a mortgage today is better than paying off $2,000 extra in $100 lots over 20 years, if we could get the world to reduce by 50% overnight and then not change at all for forty years, that'd actually be better than reducing by 85% by 2050, 2% a year. Less greenhouse gases would be emitted overall. Given that, in the ¢550-¢1,850 range of spending, it seems reasonable to pick one in the middle, a nice round ¢1,200 a year. Thus the one tonne CO_{2e} lifestyle, which we might rename the ¢1,000 lifestyle. The example was a ¢1,447 lifestyle, but the example person earned $600 through planting trees.

It's easiest to think of "allowed spending" as "income". It isn't *really*, but it's easiest to think of it that way. We get ¢1,200.

¢1,200 a year to spend

So, each of us gets ¢1,200 to spend each year, or ¢100 monthly. If we spend more than we earn, we get into debt, and if debts are not repaid there's trouble.

What are some things we can buy for ¢100? About nine gallons of diesel, 76kWh of electricity from coal, a quarter of a laptop computer, the right to produce a couple of bins of waste going to landfill, ten big beef steaks - any *one* of those things causes about 100kg of carbon dioxide equivalent emissions, and so costs us ¢100. But ¢100 *also* buys us a cross-continental trip on a train, 2,000kWh of electricity from wind turbines, three times our bodyweight in fresh fruit and vegies or grains, and so on. The Carbon thus turns out to be just like the dollar, it can be spent *well* or *badly*. I can spend $50 on a single meal, or $100 to feed myself for a month, $100 to fix the leak in the roof or $3,000 to ignore it and then replace everything damaged after the flooding, $10,000 on cigarettes then $20,000 on operations for lung cancer or $0 on not smoking.

"That's not much, can we earn more?"

Yes, by planting trees. That's it. Forget the carbon offset schemes, I've said before. Most of those are based on paying other people to reduce emissions. We seem to imagine that greenhouse gas emissions are different to other forms of pollution. Imagine that you live downstream from a gold mine spewing arsenic into the river, and imagine they pay another gold mine not let arsenic out of their tailing ponds. How's your river now? Still poisoned? Why do we expect that greenhouse gases are any different? Helping my friend budget and reduce *his* mortgage does not help *me* with *my* debts - they're still there. Likewise, with greenhouse gas emissions.

The Earth has a natural cycle which takes up carbon dioxide. Trees are part of that. Oceans are the biggest part, but there's not much we can do about them, let's focus on trees. Across the world, deforestation is a major problem. Trees and their lack is why children in Haiti are eating mud, but people in the Dominican Republic across the border are eating well, or why South Korean children are all taller than their parents but North Koreans are shorter than their parents

and lost a tenth of their population to famine in the 1990s. They cut down their trees. About a fifth of greenhouse gas emissions are attributed to deforestation.

Each tree you plant will in its lifetime absorb between half and two tonnes of carbon dioxide, it varies a lot between species and local climate. Realistically, we can't be sure that the trees we plant will last, especially if we live in some urban area where we might move house every few years, maybe the local council will cut it down to extend the road or whoever owns the house after us will decide the stress of raking leaves is just unbearable. And trees do get sick and die. So I say that planting a tree earns you ¢150, provided you're around to care for it. If you pay some company to do it, or plant it somewhere miles from home where any idiot could knock it over, it's only worth half as much, you have to plant two trees for it to count as much as one you plant yourself and care for.

Also, if you have a garden or containers where you harvest fruit and vegetables, the whole process takes a bit of carbon out of the air and into the soil. So each 1kg you harvest is worth ¢0.25 of income.

Aside from that, it's all spending we do.

"Sounds like book-keeping's involved"
Luckily these days we have spreadsheet programs which makes it all easier. I've prepared one which you can use (see below). There are some notes about it which you can read in the file itself. Various figures used are not accurate for every place in the world, they represent an average, some may really be higher or lower for your particular place. Over the course of a year with a normal mix of spending, you can expect that it'll be overall accurate to within +/- 10%. The exact figure is not really important, what's important with the Kohle as with dollars is that over time your spending should go down and your income go up, and that if you cannot get out of debt, you should at least reduce how much you're adding to your debt.

The other reason to express it all in currency terms is that we get a different impression of things based on how we measure them. If I say that "our greenhouse gas emissions are half the national average" that sounds pretty good. If I say, "we emitted 6.25 tonnes of carbon dioxide each last year" that doesn't sound so good. And if I say, "we emitted 5.05 tonnes more carbon dioxide than the Earth can handle" or "we increased our debt by ¢5,050 each last year, about ¢15,000 for the whole household," that sounds worse still. But the statements all have the same actual emissions behind them.

I want to present it in a way that people can easily grasp - income vs spending, they should balance - and in a way that encourages less emissions. This will, by the way, also mean less use of fossil fuels - which given they'll likely peak in world production soon and then drop off, is a good thing - and also more equitable distribution of resources and the right to waste, which is also good.

My carbon account in FY2008/9
This year I will begin keeping a carbon account using that spreadsheet. My aims will be to,

1. Keep the best account I can of all the things which contribute to our household carbon emissions, and,
2. Have each month with less carbon spent than the last - even if just by ¢1.00.
3. The *medium-term* goal (2 years) is to balance my carbon budget, spending no more than I earn
4. The *long-term* goal (5 years) is to *earn* as much as an average household spends - to be

absorbing not emitting carbon

This sort of thing is hard to do on your own. The first one is essential, I can't do the rest without it. You can't change where you're going if you don't know where you are! So it'd help if some people would join me just in that first one. I'm not asking anyone to reduce their carbon spending or set any kind of goals, just to keep track of it, and with me, publish the results after each month.

You can find the Carbon Account here [42kb .xls, *go to that link, click on File --> Export --> xls and then you can download it to your hard drive*]

The Carbon Account Challenge: can *you* balance your books?

Any takers?

Cross posted from GWAG.