

# Kyoto for commuters

Offset schemes are a small but potentially useful addition to the carbon balance sheet.

Climate change, as we are now experiencing it, is predominantly the result of the lifestyles to which people living in the industrialized world have grown accustomed. One increasingly popular response to it is carbon offsetting, a practice that allows people to compensate for the impact of their activities by supporting climate-friendly projects in distant corners of the world. It is a promising approach — even if some of its early manifestations are being dangerously oversold (see page 976).

Some of the more popular carbon offsetting schemes allow consumers to buy credits on an emerging, but unregulated, voluntary emissions market, to compensate for carbon-emitting behaviour such as air travel, commuting or home heating. Outfits such as the CarbonNeutral Company in London or Atmosfair in Bonn will sell such credits for a few euros, or tens of euros. The money will ultimately be used, they say, to reduce carbon emissions in regions of the world where it is inexpensive to do so: for example, households in India or Peru might switch to using their own locally produced biofuels for cooking.

Industrial companies and organizers of large events, such as the 2006 World Cup, are also able to buy credits for larger-scale energy projects to offset their emissions in the same way.

The principle of carbon offsetting makes sense because it makes no difference to the atmosphere where carbon emissions are reduced, as long as they happen. It has rapidly become quite fashionable in some countries, notably Britain and Germany, where an improbable alliance of green groups, travel agencies and corporations have rallied behind it. Global concern about climate change, it would appear, is creating a new breed of responsible consumer, whose participation may serve to reduce global pollution and poverty.

So much goodwill at once is arousing some suspicion. But the idea should not be dismissed out of hand. At its best, voluntary carbon offsetting is an elegant way of mixing capitalism and sentiment in the fight against global warming.

The voluntary market has many problems, however, and not every offset project will deliver the emissions cuts promised. More transparency and better regulation would make offsetting schemes more attractive to those who remain sceptical of their value. The United

Nations Climate Secretariat, which oversees mandatory emissions trading under the Kyoto Protocol, and national bodies such as the UK Financial Services Authority, need to work together on the accreditation of schemes that participate in the emerging, voluntary market, and the regulation of the way they are sold to consumers. Yet it is important that the accreditation is not so heavy-handed that it kills off the small, inexpensive projects that need to materialize if carbon offsetting is to work.

Until such accreditation is in place, the idea should not be oversold. The cuts that can be achieved in this way in poor nations are somewhat limited in scope, and encouraging them should not be seen as a substitute for the political action needed to reduce emissions in industrialized countries. Consumption, mobility, global tourism and many other aspects of modern life are going to have to change if global warming is to be confronted effectively.

Unwillingness to acknowledge that existing lifestyle choices may be incompatible with the need to confront the problem is a theme that comes up repeatedly in climate debates. After all, it is not just George W. Bush, Tony Blair and Angela Merkel who are failing to adequately address the issue. Consumers of goods and services that depend on the burning of fossil fuels also have a role to play.

There is obviously a danger that the procurement of credits on such a scheme may induce self-satisfaction, complacency and perhaps even extravagance on the part of a few individuals. However, this effect is small compared with the general raising of public consciousness on the issue of global warming that is encouraged by the high profile of the offsetting plans.

Carbon offsetting is becoming popular as individuals and businesses begin to recognize this. Whether they are acting for ethical reasons, or simply in response to the preferences of investors, customers and employees, the final effect remains beneficial — provided that the low-carbon projects that get a boost as a result are properly devised, implemented and monitored. ■

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## Peer review and fraud

Two assessments of the refereeing process highlight challenges for journals.

It would be misguided indeed for *Nature* to have any competitor's sense of Schadenfreude over *Science*'s experiences with two papers on human embryonic stem cells by Woo Suk Hwang and his colleagues. It is possible that we at *Nature* would have published

the papers had they been submitted to us instead.

The external review committee, which included *Nature*'s US executive editor Linda Miller, earlier this month endorsed the general level of care exercised by *Science*. It also stated that, cumulatively, concerns raised during the refereeing processes should have been pursued more sceptically. Hindsight is always 20/20, however, and it is not at all clear that the questions were sufficiently pressing that any journal would have pursued them, given the degree of trust that is required between authors and editors.

It is precisely this degree of trust that the review panel goes on to

challenge. Given the fact that cases of fraud demonstrably make it through refereeing processes, and given the importance of public trust in science, it proposes that journals apply additional scrutiny and risk assessment to papers that are likely to have a significant public impact, such as those with direct implications for policy, public health or climate change. The additional scrutiny recommended by the panel includes greater attention to raw data and a clarification of the contributions of each co-author.

We at *Nature*, like the editors at *Science*, accept that this challenge has to be addressed, and we have accepted their invitation to deal with such matters collaboratively. The key is to raise editors' and referees' practical awareness of the risk of deception. A conscious risk assessment, in which the likelihood of deception is explicitly analysed, is much easier said than done. An elementary checklist of risk factors can readily be introduced. But it would, for example, be quite inappropriate to single out papers from Seoul National University, or on human embryonic stem cells, and apply higher thresholds of proof to them.

On the other hand, we do already seek to ensure that major claims are backed by rigorous data and argument. Nevertheless, the sad fact is that high-profile and problematic papers have occasionally slipped through the net, and we accept that this underlines the need for enhanced attention by editors.

*Nature* and the Nature research journals already encourage the specification of authors' contributions to papers, and the uptake of this by authors has increased greatly in the past year — a fact that is welcomed by some funding agencies. We now intend to conduct a survey to help us decide whether to make this practice

compulsory, and we would welcome readers' feedback.

It is an interesting question whether a more open peer-review process might have led to the detection of Hwang's fraud. At present, however, the level of interest in open peer review is too small to hope for such an outcome. That, at least, is the implication of *Nature's* trial of open peer review, the results of which can be found in an online debate on the subject ([www.nature.com/nature/peerreview/debate/nature05535.html](http://www.nature.com/nature/peerreview/debate/nature05535.html)).

In the trial, the papers selected for traditional peer review were, in a parallel option offered to authors, hosted for public comment. In the event, 5% of authors took up this option. Although most authors found at least some value in the comments they received, they were small in number, and editors did not think they contributed significantly to their decisions.

This was not a controlled experiment, so in no sense does it disprove the hypothesis that open peer review could one day become accepted practice. But this experience, along with informal discussions with researchers, suggests that most of them are too busy, and lack sufficient career incentive, to venture onto a venue such as *Nature's* website and post public, critical assessments of their peers' work.

Another form of peer review emerges after publication, when work is replicated — or not. If this kind of discussion is to make it into the open, rather than be confined to gossip at conferences, it requires a forum where peers are able to comment on individual papers, with minimal editorial intervention. Would commenting on *Nature* papers be more widely adopted by researchers after they have been formally published than before? We intend to introduce this function next year, and find out. ■

## Days of Futures past

It's a time of change for *Nature's* venture into speculative fiction.

This week features the last in the series of 'Futures', *Nature's* occasional excursion into speculative fiction (as science fiction, or SF, is sometimes known). Since 1999, *Nature* has published no fewer than 156 such journeys into things to come, ranging from the serious to the whimsical, all of which (hopefully) provided some entertainment.

And that's the key — SF is meant to amuse in the present. The most memorable SF works do this by projecting our present concerns onto the greater canvas of uncertainty that is the preserve of that part of history that hasn't happened yet. Or, to put it more succinctly, "it is difficult to make predictions, especially about the future", a sentiment usually attributed to baseball star Yogi Berra. That it might sometimes be found attached to Sam Goldwyn, Woody Allen or even Niels Bohr demonstrates its fundamental soundness — and also, perhaps, that the past is as unreliable as the future.

Addressing this very issue, one visionary bucked the trend in the grandest fashion, writing in 1902 that "the time is drawing near when it will be possible to suggest a systematic exploration of the future". This is a bold statement indeed, but one that makes more sense if it

is recognized that science is a necessarily predictive endeavour. As if to prove his point, the writer went on to outline a startling version of statistical mechanics in which the behaviour of large numbers of humans could be predicted, presaging Isaac Asimov's future science of psychohistory (in his 'Foundation' novels) by half a century.

Later still, the writer notes that "the question what is to come after man is the most persistently fascinating and the most insoluble question in the whole world", touching, even if coincidentally, on the theme of post-humanity that animates much current SF, itself a reaction to cloning and genetic manipulation.

Who was this visionary? It was none other than H. G. Wells, writing in these very pages (*Nature* 65, 326–331; 1902). From this we can derive some comfort that 'Futures' in *Nature* has indeed a venerable past.

And even now, we haven't quite come to the end of eternity. An anthology of the best of Futures is planned, and the column itself will continue, for a while, in our sister publication *Nature Physics*. So for a little longer, at least, we can share the emotions of Wells' Time Traveller (in his 1895 novel *The Time Machine*), who "merged at last into a kind of hysterical exhilaration... with a kind of madness growing upon me, I flung myself into futurity". ■

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