

Evidence to House of Commons, Environmental Audit Committee, Inquiry into Personal Carbon Allowances

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Executive Summary

PCA is a promising policy option which could deliver carbon savings in an effective, equitable and certain manner. However, at present there remain many unanswered questions about the practicalities, consequences and social acceptability of the policy. This evidence summarises recent PCA findings by UKERC and others, and identifies key research gaps.

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Dr Tina Fawcett is a Senior Researcher at the Environmental Change Institute, University of Oxford and UK Energy Research Centre (UKERC), and has been researching personal carbon allowances (PCA) for the past five years. As part of the 'Demand Reduction' team at UKERC, she has run a number of PCA research workshops, published academic and popular articles, and is involved in ongoing team research on PCA. She is co-author with Mayer Hillman of *How we can save the planet*, a book which brought PCA to a wider audience. This book has been adapted for a US readership and was recently published as *The suicidal planet: how to prevent global climate catastrophe*.

The likely impact of a personal carbon trading scheme

1. Despite the increasing public and political interest in personal carbon allowances / trading, it is a subject which is currently very much under-researched, with few active individual researchers or groups. In 2006, UKERC held a workshop with researchers and government civil servants from a variety of departments in order to identify research priorities for PCA and other 'competitor' policy instruments (such as carbon taxation) (Bottrill 2006a). A long list of research questions was generated. Included amongst the key research tasks were:
 - Assessing the relative benefits of different policy instruments
 - Investigating the public acceptability of different options
 - Gathering better data on personal carbon profiles
 - Researching the wider strategic policy fit of PCA
 - Understanding the economic rationale for different options

Since this time, the Centre for Sustainable Energy (CSE) have published a 'road map' for research into personal carbon trading (Roberts and Thumim 2006) and DEFRA is currently finalising its own research programme. The overall message is clear: far more research is required into all aspects of PCA. Without this, the policy cannot be properly assessed and many of the key questions about public acceptability, practicality and likely social and economic outcomes cannot be answered.

2. There has been some partial research on the variations of carbon emissions within the UK population. A key study demonstrated that emissions rise with income, but that there is also huge variation of emissions within each income decile (Ekins and Dresner 2004). They also looked at the distributional impacts of PCA compared with various carbon taxation proposals, and demonstrated that PCA would be more progressive than taxation, i.e. fewer people in the lowest income groups would be worse off. However, this analysis did not include people's carbon emissions from aviation, and of necessity used

proxy expenditure data to estimate carbon emissions in different income deciles. Recent work carried out by a UKERC researcher, calculated the carbon emissions from all personal travel of several hundred Oxfordshire households (Brand 2006), including travel by private vehicles, public transport and domestic/international air. Emissions from household energy use were not included in this study. Two key results stood out, the first was that air travel dominated emissions at 70% of the average individual's travel emissions. This is considerably higher than shown in national statistics, and may be explained by a combination of factors including accounting methods, calculation methodologies, and the easy access of Oxfordshire residents to international airports. Secondly, the data showed huge variations in personal emissions. The top tenth of emitters were responsible for 43% of total sample emissions, while the lowest tenth were responsible for just 1%. The highest 10% of emitters were flying five times more than the average person in the sample. There was also a significant link of CO₂ emissions levels with income, in particular for travel by car, air and rail. Other significant factors included age (or position in the family lifecycle), economic activity, car availability and household size and structure (Brand, 2007). This indicates that PCA will have very different effects on different people, depending on their current carbon emissions, and of course their willingness and capacity to change. While both these sets of research are very valuable, until a large-scale, representative carbon audit of individuals, covering household energy use, personal transport and aviation, has been undertaken in the UK, many questions about who would be affected by PCA are unanswerable.

3. If PCA were to be introduced, it would not be a stand-alone policy. It would simply form the umbrella mechanism within which a wide range of other policies would operate (Hillman and Fawcett 2004). Product policy using the full range of market transformation tools (regulations, incentives, information, voluntary agreements etc.) would still be needed to encourage more efficient lights and appliances into the market. New and existing housing energy efficiency and carbon emissions standards would continue to be tightened. Greater take-up of household-level renewable technologies would be supported. Transport and planning policy would need to find more effective ways of encouraging the use of lower carbon modes and, eventually, lower mobility lifestyles. Not only would these policies enable and encourage people to live lower carbon lives, they could also be used more comprehensively in advance of PCA to broaden the low carbon options available.
4. It is hard to know what circumstances would make the introduction of PCA politically and socially possible. They are likely to include the following: convincing evidence on how PCA would work, who would be affected, what it would cost; demonstrations that people can adapt to and live well under a PCA scheme, via voluntary and research trials; understanding of the benefits of PCA compared with the alternatives (e.g. taxation); identification of the many 'winners' under PCA (of which there are certain to be more of than 'losers'); even greater public and political concern for and action on climate change.

Operational feasibility

5. The most detailed research on institutional and operational systems, administration and the likely cost of personal carbon trading schemes has been carried out by David Fleming and the Tyndall Centre researchers (e.g. Anderson and Starkey 2004). UKERC researchers have not done substantial work on these topics.
6. We are currently completing a study into the feasibility of carrying out a PCA pilot – funded by the Esmee Fairbairn Trust and UKERC. The study has sought to incorporate a wide range of expert opinion, by having an advisory group which includes members from the Tyndall Centre, CSE, DEFRA and two environmental consultancies, running two consultative workshops and undertaking individual meetings with many academics and other experts. The final report is due to be published by the end of the summer. During the course of the study we have identified difficulties in replicating a real PCA scheme within a pilot. For example, inclusion within a pilot could not be made mandatory for participants and the infrastructure, information and trading systems that would be in place in a real PCA would not be present in a pilot. For these sorts of reasons, our research is now focussing on designing PCA 'trials', rather than a pilot, where as many key aspects of PCA as possible are tested with participants over the course of a year. There is no doubt that running worthwhile trials of PCA is a

complex and demanding research task. Nevertheless, we believe well-designed trials can offer unique qualitative and quantitative data on: social acceptability of PCA (based on peoples' experience of living with the concept for a year); the effectiveness of PCA in motivating attitudinal and behavioural change; testing the detailed rules of PCA; discovering unexpected reactions to PCA, and; better understanding the complex consequences of this policy change. The final report will make the case for PCA trials in detail and will provide guidance on how trials should be designed and managed, and what they might cost.

Variations between different proposed models

7. UKERC is researching a model of PCA which would cover all the direct energy used by individuals within their household and for personal travel. This would account for around half of the carbon emissions from energy use in the UK (where international air travel is included, and a multiplying factor used to calculate carbon equivalent emissions). Every time a person paid an energy bill, filled up the car with petrol or bought a flight, they would have to surrender carbon 'credits' from their account, or pay the additional cost of buying carbon credits at the market price. The PCA scheme does not include the other half of emissions within the economy, which are generated by organisations. Clearly there would need to be a parallel carbon capping and reduction system for the other half of the economy.
8. PCA includes more emissions in the personal allowance than DTQ (domestic tradable quotas, the other major variation on personal carbon trading). In particular DTQ does not propose to include air travel or public transport. Apart from this difference in boundaries, the two schemes are very similar in their principles and details of how individuals would be involved. Air travel is included in PCA for the same reason as other personal travel: individuals can choose whether, how often and how far they fly, and they should bear the carbon responsibility of their choices. In practice, because air travel is predominantly used by richer people, including air travel within a PCA adds makes the policy more progressive. By counting air travel, there is a greater difference between poorer groups, with on average lower emissions, and richer groups, with higher emissions (Fawcett 2005).
9. Although in principle PCA would include emissions from public transport, there are practical reasons for excluding public transport from the scheme, at least in the early years of introduction. The key arguments for not including public transport initially are:
 - surface public transport comprises only a small percentage of individuals' total emissions;
 - inclusion of public transport could easily double or treble the total number of carbon credit transactions per year, while only affecting a small proportion of personal emissions;
 - it reduces the need for costly infrastructure on public transport;
 - it would provide additional motivation for individuals to switch away from private to public transport;
 - it could put more onus on transport operators to reduce their fleet emissions (as the organisations would be responsible for all their operational emissions);
 - it is difficult to accurately calculate the emissions associated with an individual's travel on different public transport modes due to fuel choices, occupancy and distance travelled (Bottrill 2006b).
10. The PCA scheme is based on the principle that all adults get an equal allowance of carbon. But what about children? There are essentially three options: children get no allowance, children get a partial allowance, or children get a full allowance. While there may be some arguments in principle about the rights of children, most of the concerns about children's allowances are focussed on the social and distributional effects of allowance allocation. Preliminary research by UKERC, which has included a number of workshops with teenagers, suggests that a partial allowance for children, which is allocated to their parents (as in the case of child benefit), would be the most socially acceptable option. However, much more research remains to be done on this topic. Further research is planned later in 2007.

11. The key characteristic of PCA is that it is a carbon capping and reduction policy mechanism which offers equity and certainty. It enforces a carbon cap and reduces it year-on-year. Voluntary initiatives would not do this and are not comparable with PCA. The policy which is usually suggested as an alternative to PCA would be increased carbon taxation on household and transport fuels. This takes the alternative approach of regulating by price instead of by quantity. UKERC has held a major debate about taxation versus capping and trading systems, both upstream and downstream (Keay-Bright and Fawcett 2005). Without re-running all the arguments for different policy options, the key arguments in favour of PCA include its effectiveness, equity, distributional impacts and certainty of delivering savings. An alternative cap and trading policy covering household energy use would be a carbon cap at energy supplier level, based on their number of customers. This is being discussed as the possible successor to the current Energy Efficiency Commitment. Indeed, this idea was proposed by the Environmental Change Institute several years ago under the title 'AUCH' – average utility carbon per household (Fawcett, Lane et al 2000).

Public acceptability and involvement

12. There has been little research into the public acceptability of PCA. A small number of focus groups was run in 2005 in order to explore people's reactions to PCA in comparison with carbon taxation (Low 2005). The aim was to begin to determine whether, and in what circumstances, individual members of the public find the proposal acceptable. The three broad attitudes to PCA which emerged were a lack of enthusiasm for either PCA or a carbon tax, a preference for a carbon tax over PCA and enthusiasm for PCA. The key factors affecting participants' attitudes to PCAs were their beliefs about the relative importance of the role of the state and the rights of the individual, and their opinions on the equity, practicality, environmental effectiveness and negative aspects of the PCAs scheme. This research revealed useful insights which should be further explored. However, public acceptability is not something which remains fixed over time, it is highly context specific. The way in which alternatives are presented to people will influence their responses. Future research needs to be sensitive to the complexities of the concept of 'public acceptability' and how it can be measured or judged.
13. There has been practical demonstration of public support for the idea of PCA, in the form of a quickly growing network of 'CRAGs' – Carbon Rationing Action Groups (www.carbonrationing.org.uk). The principles adopted by CRAGs are identical to those that inform PCA. The network was founded in early 2006, and now comprises 35 groups throughout the UK and beyond. There is also an increasing number of other community initiatives throughout the country which are promoting low carbon living. While these communities may not specifically support PCA as a mechanism, they demonstrate the broadening interest in taking action at a personal and community level to reduce carbon emissions.
14. As mentioned earlier, until much better carbon emissions profile data allied with demographic and social characteristics is available, it will be difficult to make substantial progress into which groups would win and lose under PCA (beyond the initial research already carried out).

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