

# Personal Carbon Trading

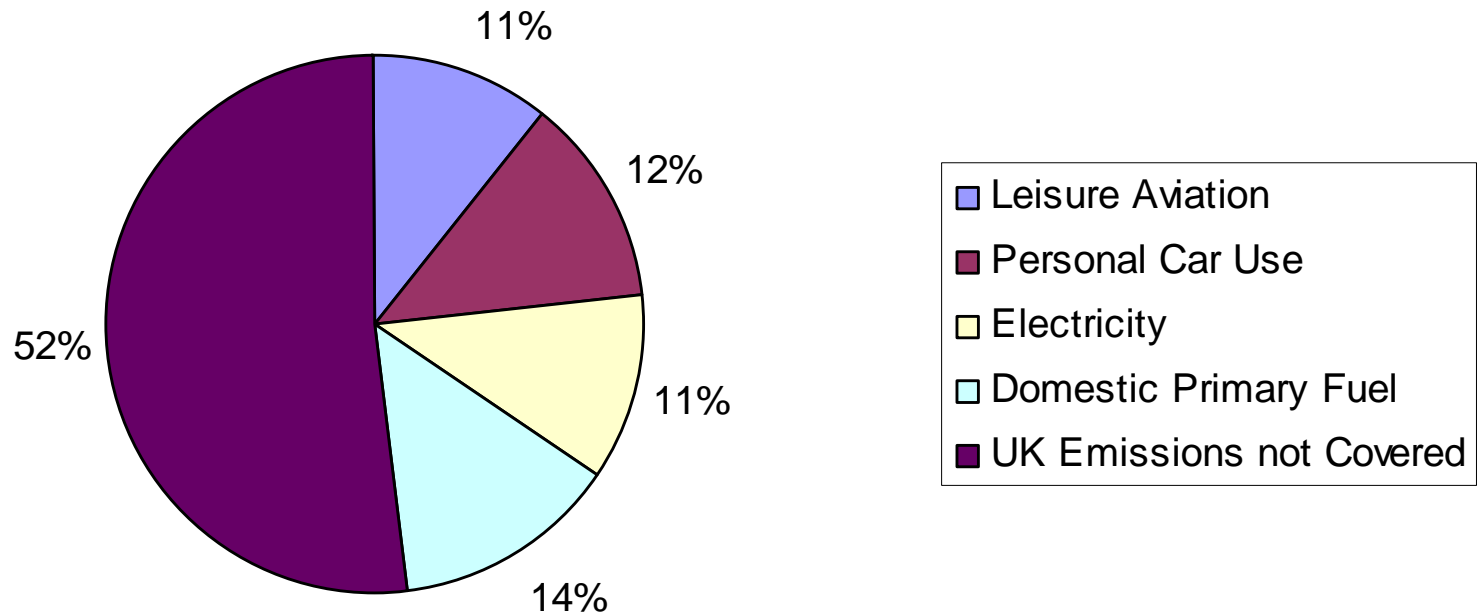


# Personal Carbon Trading

- Why consider personal carbon trading?
- How would personal carbon trading help?
- Is it likely to be cost-effective?
- Personal carbon trading myths.

# Personal Carbon Trading

## 2013 COVERAGE OF PCT



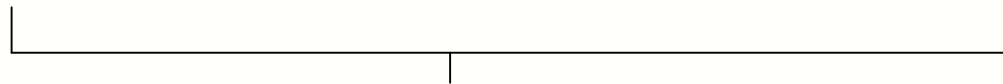
# Personal Carbon Trading

## Why consider Personal Carbon Trading?

- Emissions = carbon intensity of energy \* energy demand

- Energy demand =

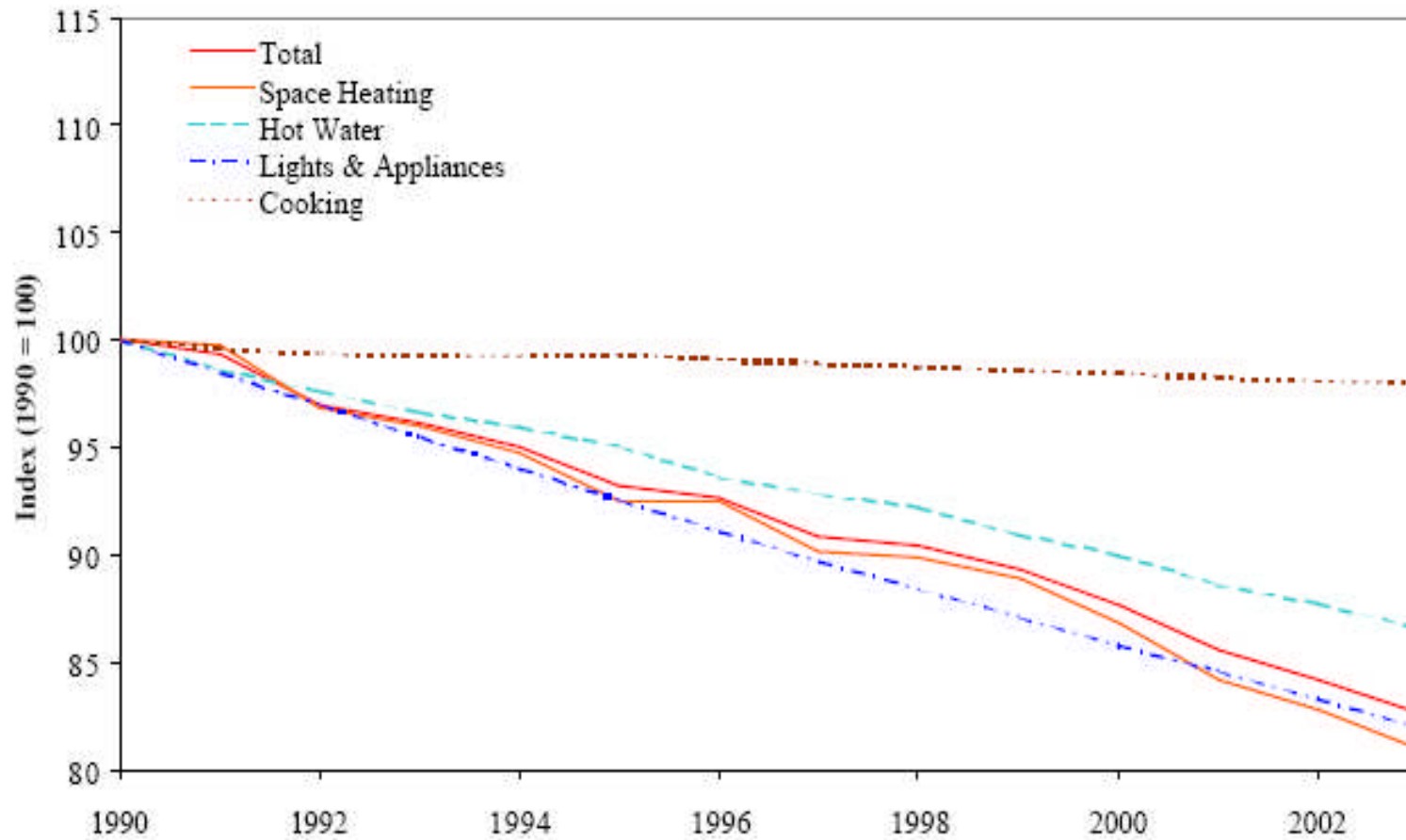
energy used/no. of energy services \* no. of energy services



Energy efficiency (gets smaller  
as efficiency increases)

# Personal Carbon Trading

## Energy used/no. of energy services

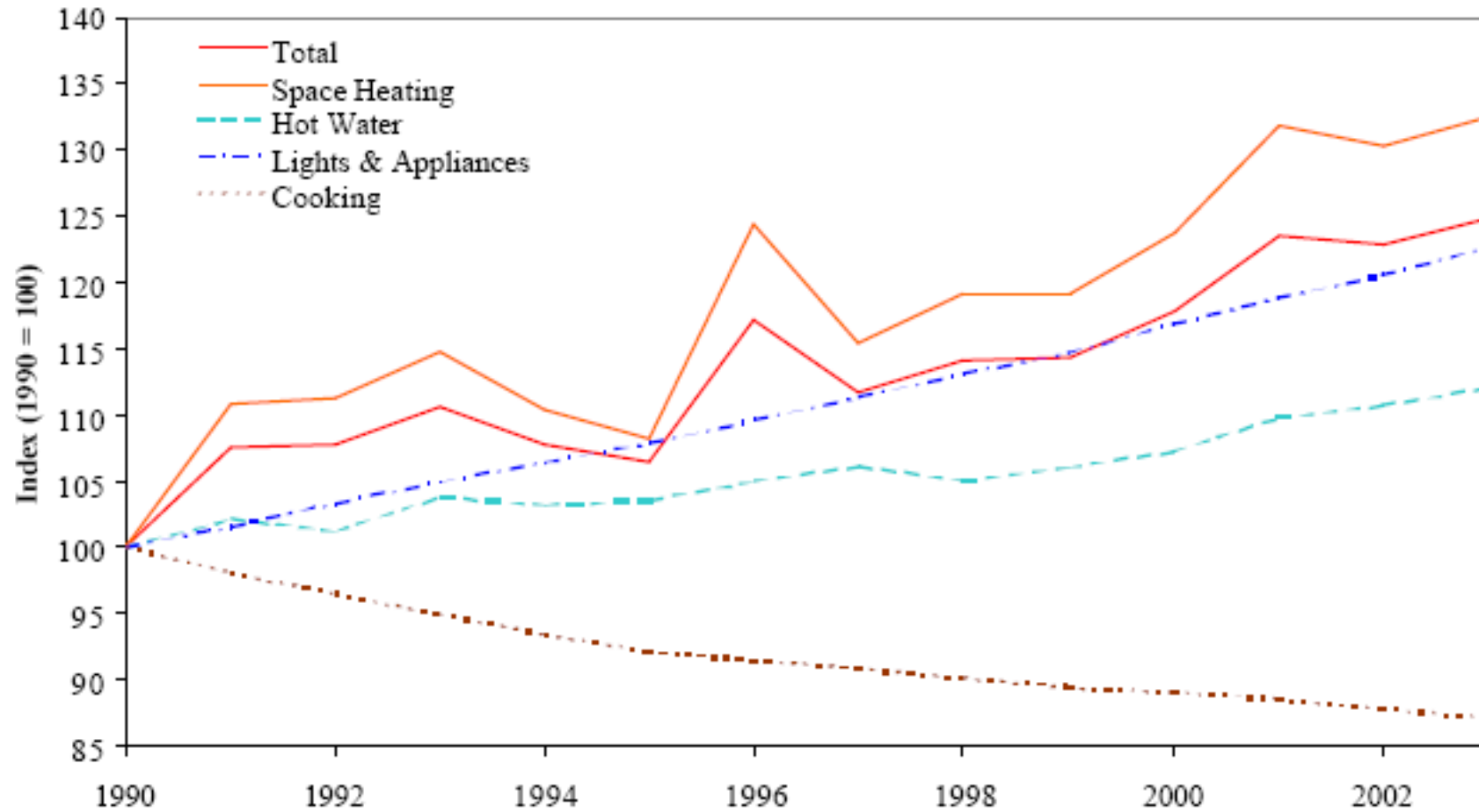


# Personal Carbon Trading

- Energy efficiency policy has delivered and is expected to continue to deliver.
- Examples are: building regulations, new mandatory agreements with car manufacturers, supplier obligations.

# Personal Carbon Trading

## Energy Service demand



# Personal Carbon Trading

- UK total energy demand 204.5 MtOe in 1980
- UK total energy demand 232.1 MtOe in 2006
- Average annual growth of 0.5% despite improvements in energy efficiency.
- While policy may be delivering on energy efficiency, it is not clear that policy is reducing energy service demand where it would be cost-effective to do so.



# Personal Carbon Trading

- Limit to emissions reductions that can be realistically achieved by lowering the carbon intensity of energy.
- Not clear that there is significant cost-effective energy efficiency potential that will be unexploited by current strategy.
- Ambitious emissions reduction targets will be hard to achieve with unchecked growth in demand for energy services.
- Could PCT be effective at reducing demand for energy services?

# Personal Carbon Trading

- What is PCT?
- Several different flavours.
- In common that individuals will be required to surrender allowances when purchasing energy (and in some cases flight tickets).
- Individuals given free allocation of allowances on an equal per capita basis. Government controls overall number of allowances
- Individuals can trade allowances.

# Personal Carbon Trading

- How would Personal Carbon Trading influence behaviour?
- Price signal
- Visibility

# Personal Carbon Trading

- Price signal – opportunity cost or direct cost for additional allowances.
- Could be delivered by other policy options more simply – tax or upstream trading.
- Price signal alone could not justify introduction of personal carbon trading.
- Likely to be a limit to how large a price signal would be acceptable – safety valve.

# Personal Carbon Trading

- Increases the visibility of personal carbon emissions:
  - 1. Indirect feedback**
  - 2. Feedback on overall ‘carbon footprint’**
  - 3. ‘stop and think’ moment**
- This raised visibility is the unique selling point of personal carbon trading. Would be expected to encourage individuals to reflect on their level of emissions and consider ways to reduce them that are cost-effective.

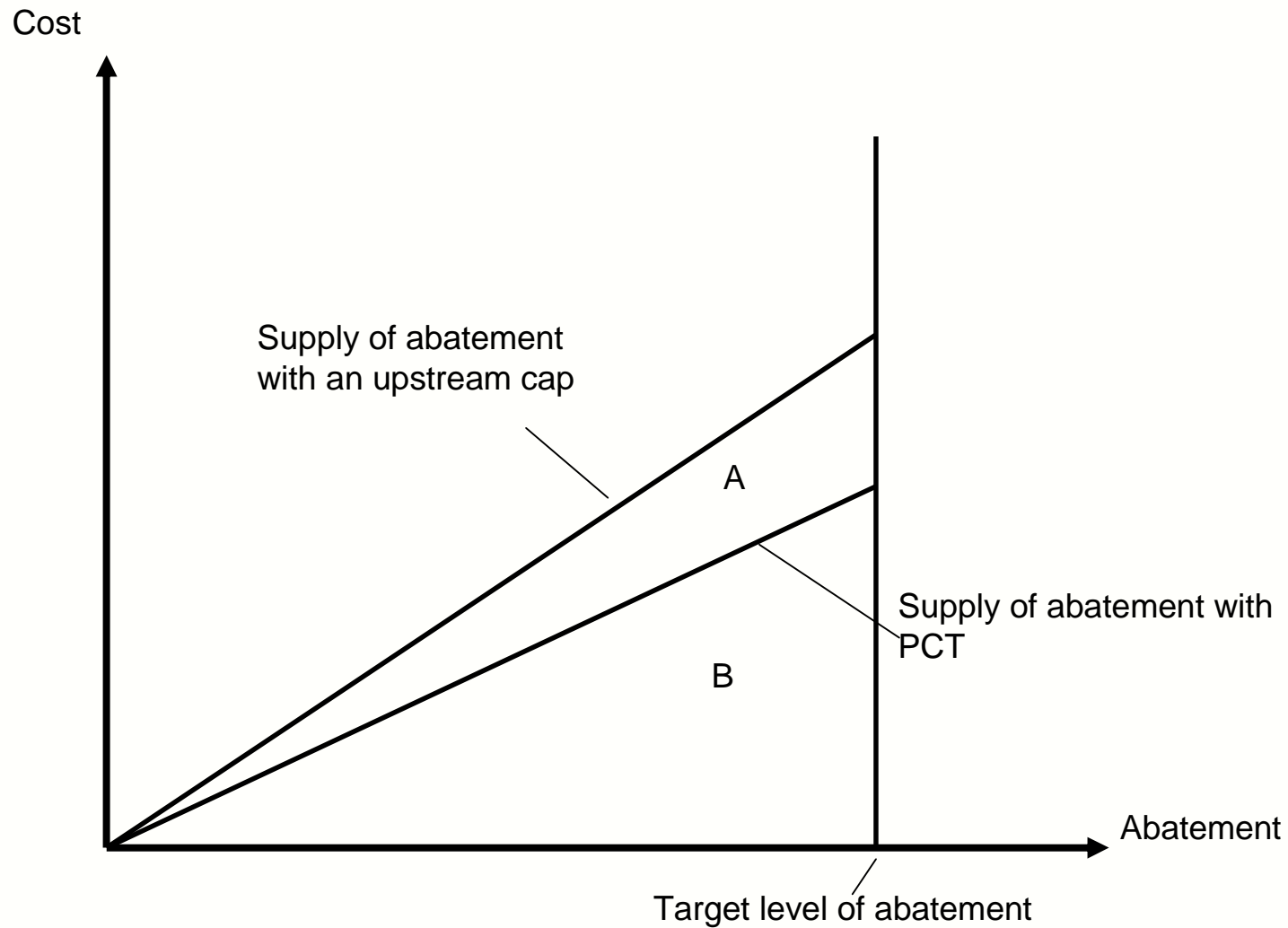
# Personal Carbon Trading

- The additional costs of implementing a personal carbon trading scheme, over and above an upstream trading scheme buys raised visibility – in order to know whether this is a good purchase need to consider the quality of the visibility delivered

# Personal Carbon Trading

- How much of the visibility will be additional?  
Better billing, metering, labelling, real-time dashboard displays.  
Cheap alternative regulations.
- Will feedback on overall carbon footprint be comprehensive and accurate?

# Personal Carbon Trading





# Personal Carbon Trading

- Case for Personal Carbon Trading would depend on whether the additional cost of personal carbon trading in comparison to upstream trading could be justified by the impact of the visibility **alone**.
- How much would the visibility alone reduce the cost of achieving target abatement? How should additional abatement 'unlocked' by personal carbon trading be valued?

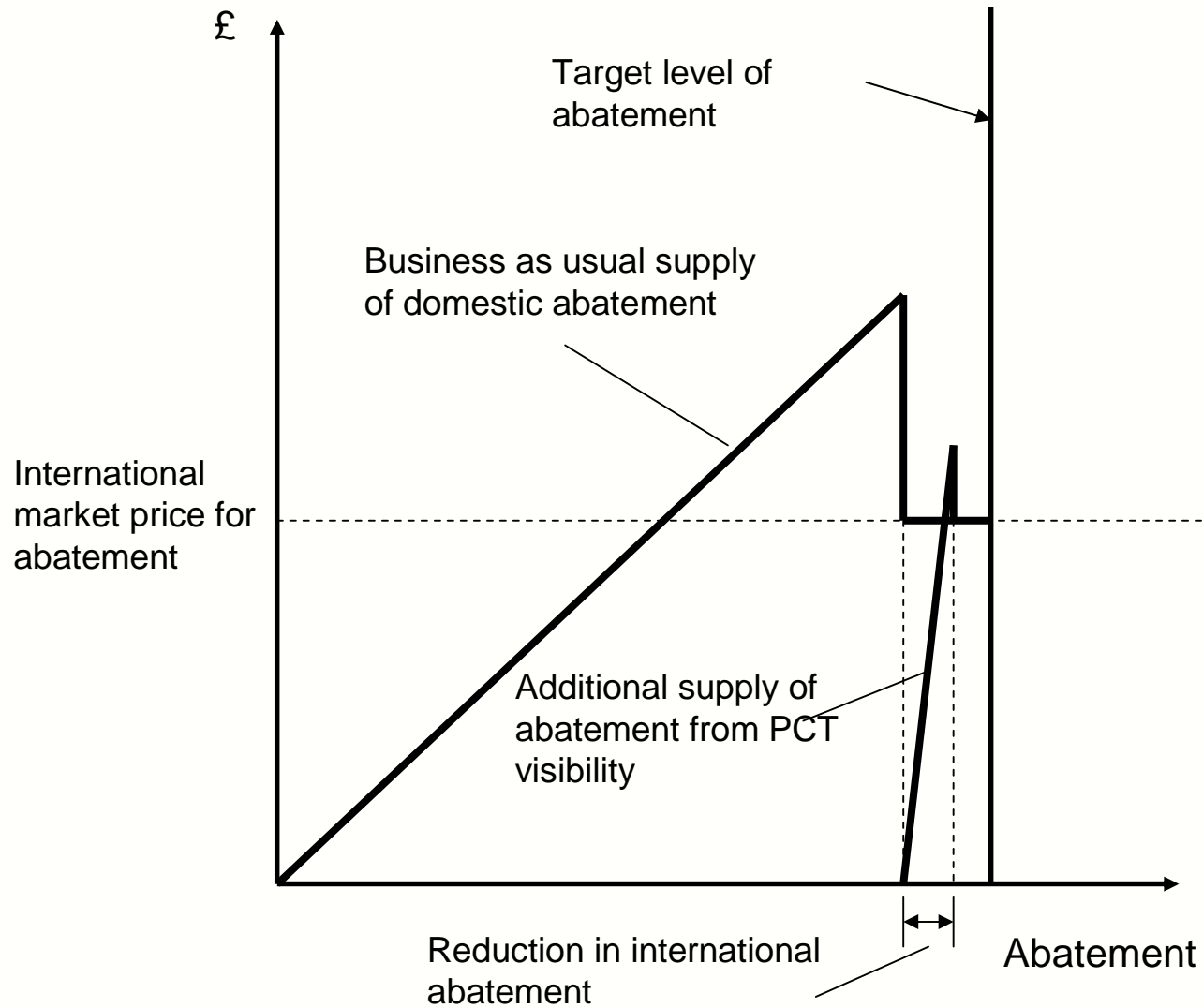
# Personal Carbon Trading

- Little evidence available for effectiveness of visibility.
- Darby (2006) evidence that indirect feedback reduces consumption of energy by 0-10% in the household.
- Due to limited additional visibility, a range of 0-5% is considered.
- This is 0 – 11.85MtCO<sub>2</sub> in 2013

# Personal Carbon Trading

- How to value?
- Depends if consider marginal abatement option to be international credits.
- Depends on assumptions about resource costs of additional abatement.

# Personal Carbon Trading



# Personal Carbon Trading

- If assume average zero resource costs for additional abatement, international flexibility and that the cost of international credits approaches the Shadow price of carbon....
- Benefits from visibility alone = £0 - £343million in 2013

# Personal Carbon Trading

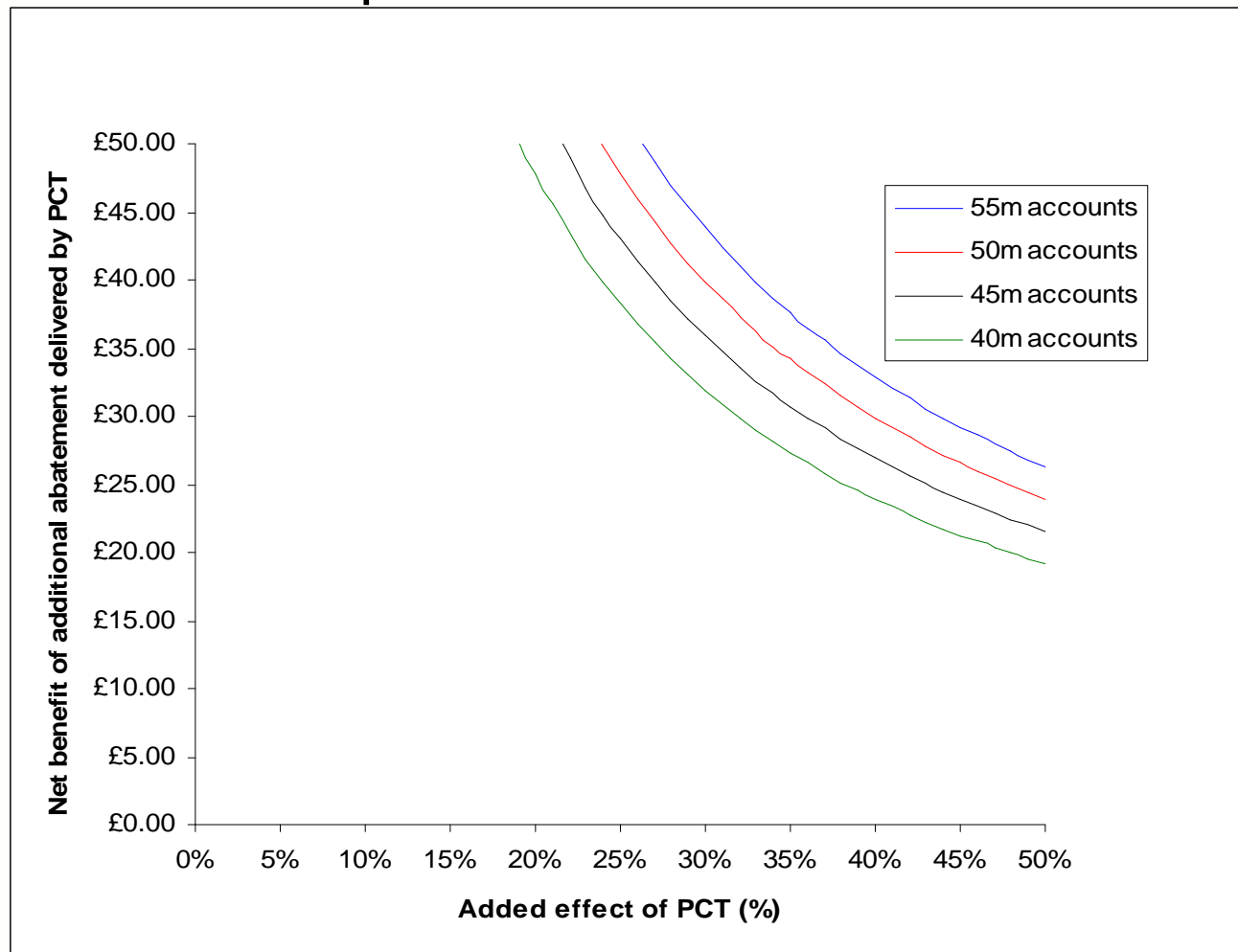
- Assessment of costs:
- Figures from technical feasibility and costs work-stream, carried out by Accenture.
- Set-up costs: £700million - £2billion
- Annual running costs:£1billion - £2 billion
- Also a time burden cost, if 4 hours per participant:  
£1 billion/ year

# Personal Carbon Trading

- Assuming 50 million participants:
- Central case benefit: £3.50
- Central case cost: £52
- Costs are @ 15 times the benefits

# Personal Carbon Trading

## The cost-effective space





# Personal Carbon Trading

- The virtues of the scheme, according to Mr Blair's "green" advisers, the Sustainable Development Commission, are that it would provide a "virtually guaranteed" way of reducing fossil fuel emissions by 60 per cent by 2050. The Telegraph July 2005.

# Personal Carbon Trading

- Guaranteed?
- What about safety-valve?
- To the extent that the visibility does not deliver abatement, will rely on price signal – there will be a politically acceptable limit on this.

# Personal Carbon Trading

- Colin Challen, Labour chairman of the all-party parliamentary group on climate change:  
"It will inevitably have to be introduced so that consumers, along with other sectors, take responsibility for what they do."  
Guardian 19 July 2006

# Personal Carbon Trading

- Inevitable?
- Is trading a mechanism that can deliver ‘responsibility’? Distinction between hard and soft sense of responsibility.
- Trading may be inappropriate due to failure for individuals to trade rationally – the hard sense of responsibility is only one reason why this might not happen.

# Personal Carbon Trading

- “One of the great attractions of PCT is that in principle it could be a highly progressive way of achieving emission reductions, especially when compared to alternatives such as carbon taxes, which would disproportionately affect the least wealthy”. - RSA

# Personal Carbon Trading

- Is transparently 'fair' in distribution of allowances  
BUT
- HUGE extra cost that must be paid for through tax.  
Who will end up paying this?
- 10% of allowances have to be distributed to top 10% in income. Revenue from tax or upstream trading could be redistributed in a more radically progressive way through tax and benefits system.