Tyndall Centre for Climate Change Research

UKERC

4CMR Foreseeing Mitigation

Department of Land Economy

Cambridge Centre for Climate Change Mitigation Research

University of Cambridge

4CMR and Cambridge Energy Forum
Workshop, May 16, 2008

Policies for reducing personal carbon: introduction

Terry Barker
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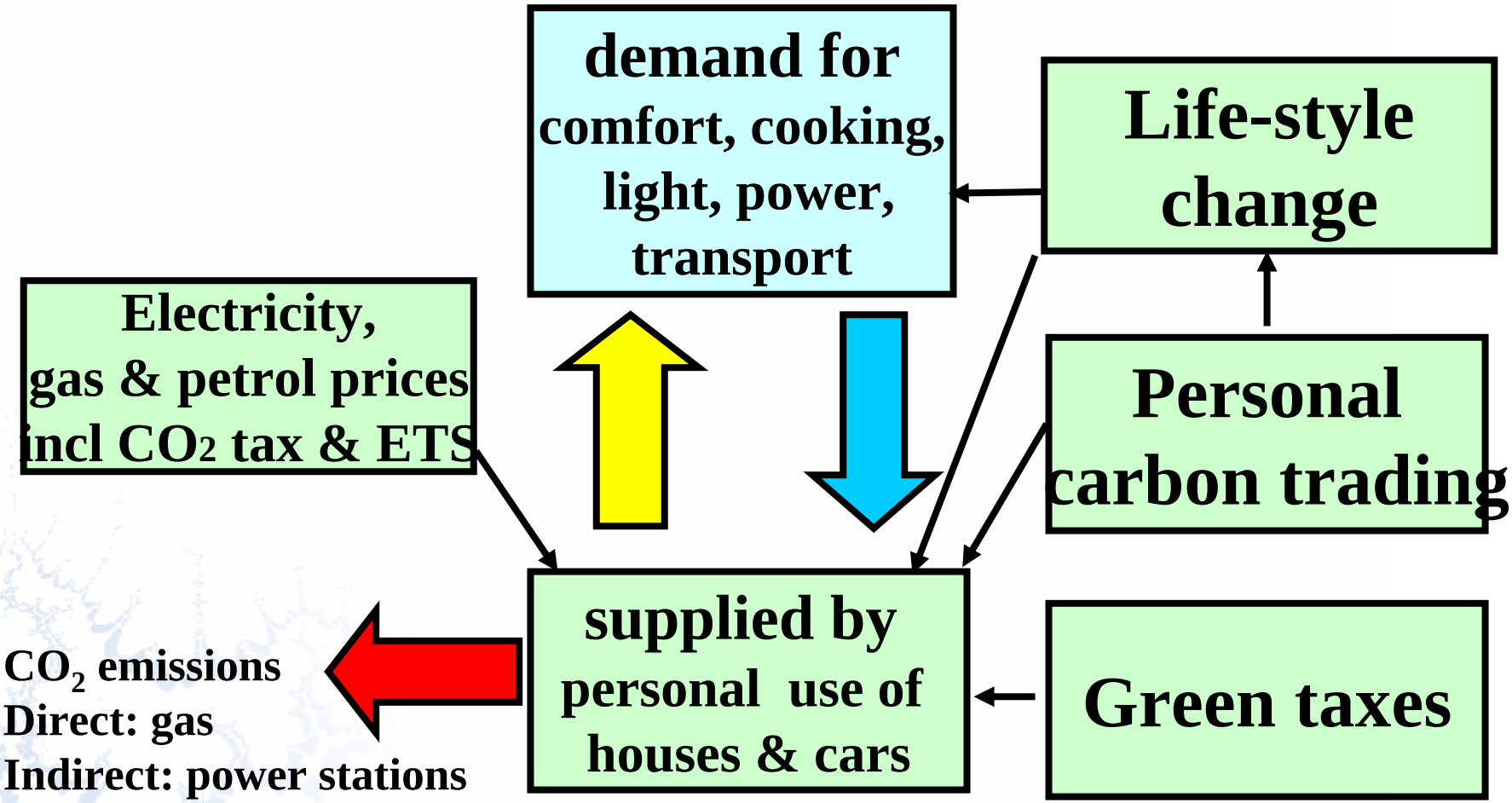
May 2008

Green policies for people: taxes and permits



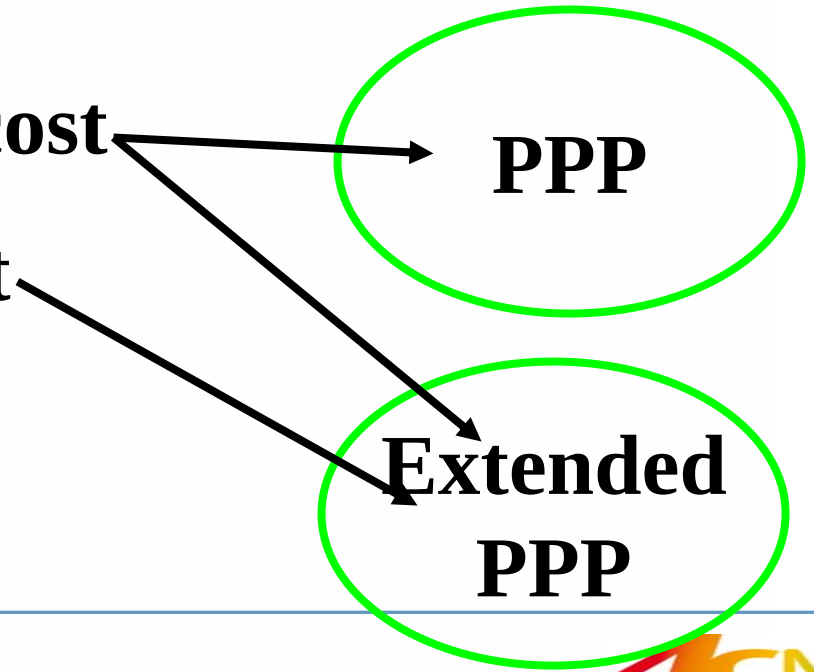
Criteria to assess policy solutions

- Effectiveness
  - does the instrument achieve the appropriate result? Where? When?
- Efficiency
  - is the result achieved cost-effectively? Costs of implementation, transactions, information, and action
- Equity
  - who benefits and pays (people, countries, industries) and when (future generations?)
  - the Polluter Pays Principle

Climate change as a damaging externality in burning fossil fuels

The Polluter's Pay Principle (PPP): The generator of pollution should pay for the cost of the pollution.

- **the abatement cost**
- **the damage cost**



Taxes versus permits

- taxes are routine and response can be delayed
- excise duties are already largely in place
- tax rates uniformly affect products
- outcomes on target emissions are uncertain
- revenues go to government

- permits are innovative and require corporate responses
- any permit scheme would be untested
- permits apply to groups of energy users e.g. by region
- targets can be met with more certainty
- revenues from permit sales can go to business

Overview

1430 - 1500	**Personal Carbon Trading: an overview** Dr Richard Starkey – Tyndall Centre, University of Manchester
1500 - 1530	**Systemic Fiscal Reform** Dr Adrian Wrigley – University of Cambridge
1530 - 1550	**Reducing Personal Carbon Footprints: a UK-US Comparison** Prof Doug Crawford Brown – University of North Carolina
1620 - 1655	**Panel session and Questions**
Chair:	Dr Terry Barker – 4CMR, University of Cambridge
Panelists:	Dr Richard Starkey –University of Manchester Dr Adrian Wrigley – University of Cambridge Prof Doug Crawford-Brown – University of North Carolina at Chapel Hill
1655 - 1700	**Concluding remarks** Dr Terry Barker – 4CMR, University of Cambridge
1700 - 1800	**Reception**

Intervention instruments

Voluntary agreements, moral suasion, good practice

Command-and-control (C&C) instruments:

- **Legal emission requirements**
- **Performance & design standards**

Market-based instruments:

- **R&D spending & incentives**
- **taxes and subsidies**
- **tradable emission permits**

Examples of green taxes

- EC carbon/energy tax
- EC additional taxes on energy products
- UK road fuel duty escalator
- UK Climate Change Levy
- UK landfill tax
- UK aggregates tax proposal
- NL small emitters' carbon tax

Problems for green taxes

- Existing taxes are mainly on inputs (e.g. oil and labour) and outputs (e.g. VAT), not emissions
- emission taxes may require new information, monitoring and enforcement
- if input tax (e.g. fossil fuel taxes) used, then substitute inputs may benefit (e.g. nuclear)

Tradable emission permits

- The regulator creates a market and issues permits
- Two ways of distributing them:
  - grandfathering (freely allocated to firms)
  - auctioning (raises revenue for government)
- Assumptions for efficiency:
  - perfect competition in permit market
  - full information
  - no transactions costs
- Issues: PPP? Like a tax? International?

How market-based policies make other policies more effective

- They may offset the rebound effect (e.g. from raising energy efficiency)
- The effectiveness of regulation can be strengthened by the use of permits/taxes
- Negotiated voluntary agreements become more effective if backed up a credible threat of alternative policies (e.g. UK Climate Change Levy agreements)

Advantages of market instruments over C&C

- they use the price mechanism, so they reach into every decision involving costs and prices
- they give a persistent, pervasive and long-term signal for cost-effective mitigation
- they encourage new technologies and new ways of organising production
- they can raise revenues to offset burdensome taxes and compensate losers

EU international emission-permit trading scheme (ETS)

- Covers CO_2 from large combustion plants in MSs in “energy sectors”
- In 2 phases 2005-7 and 2008-2012
- Penalty prices: phase 1 euro40/tCO_2 (146/tC); phase 2 euro100/tCO_2 (260/tC) 100% free allocation in phase 1, so strong incentive for industries to cooperate; up to 10% auctioned in phase 2 & MS receive the revenues
- Proposed links with Kyoto mechanisms in phase 2
- Can be extended to more sources, more gases

The effects of recycling revenues: the double dividend

- **in CGE modelling, if it is assumed that the economy is at an initial optimum, then a carbon tax with lump-sum recycling will reduce welfare by definition**
- The revenue-raising GHG mitigation policy has a potential benefit as an opportunity for reform of the tax system & many EU studies find that recycling leads to increases in GDP
  - **however, the EU emissions trading system is not economy-wide and is not a full auction system.**
- In EIA US study using revenues to reduce employers' social security contributions, the 4.2% GDP cost by 2010 falls to 1.9%
  - **the permit revenues give the option for improving the tax system, but this may not be taken and the revenues may be wasted.**