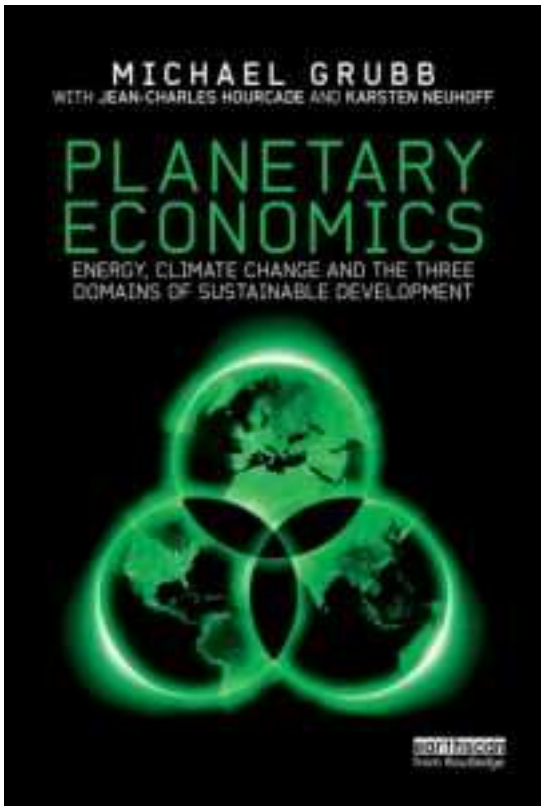
UCL Institute for Sustainable Resources

Planetary Economics

Energy, Climate Change and the Three Domains of Sustainable Development



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Senior Advisor, Sustainable Energy Policy, Ofgem

Editor-in-Chief, *Climate Policy* journal

With

Jean-Charles Hourcade and Karsten Neuhoff

Presentation to Global Conference on Environmental Taxation
Copenhagen, 25th September 2014

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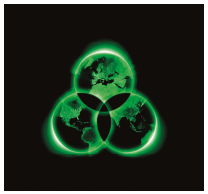
Global Conference on Environmental Taxation (GCET15)
"Environmental taxation and emissions trading in an era of climate change"
- Copenhagen, Denmark, 24-26 September 2014.

Keynote talk, "Time to take Stock: Changing the role and narrative on carbon pricing"

- On aims & evidence
- The Three Domains and Three Pillars of Policy
- Pillar II conclusions
- A Three Domains perspective on carbon pricing
- On slaying some sacred cows

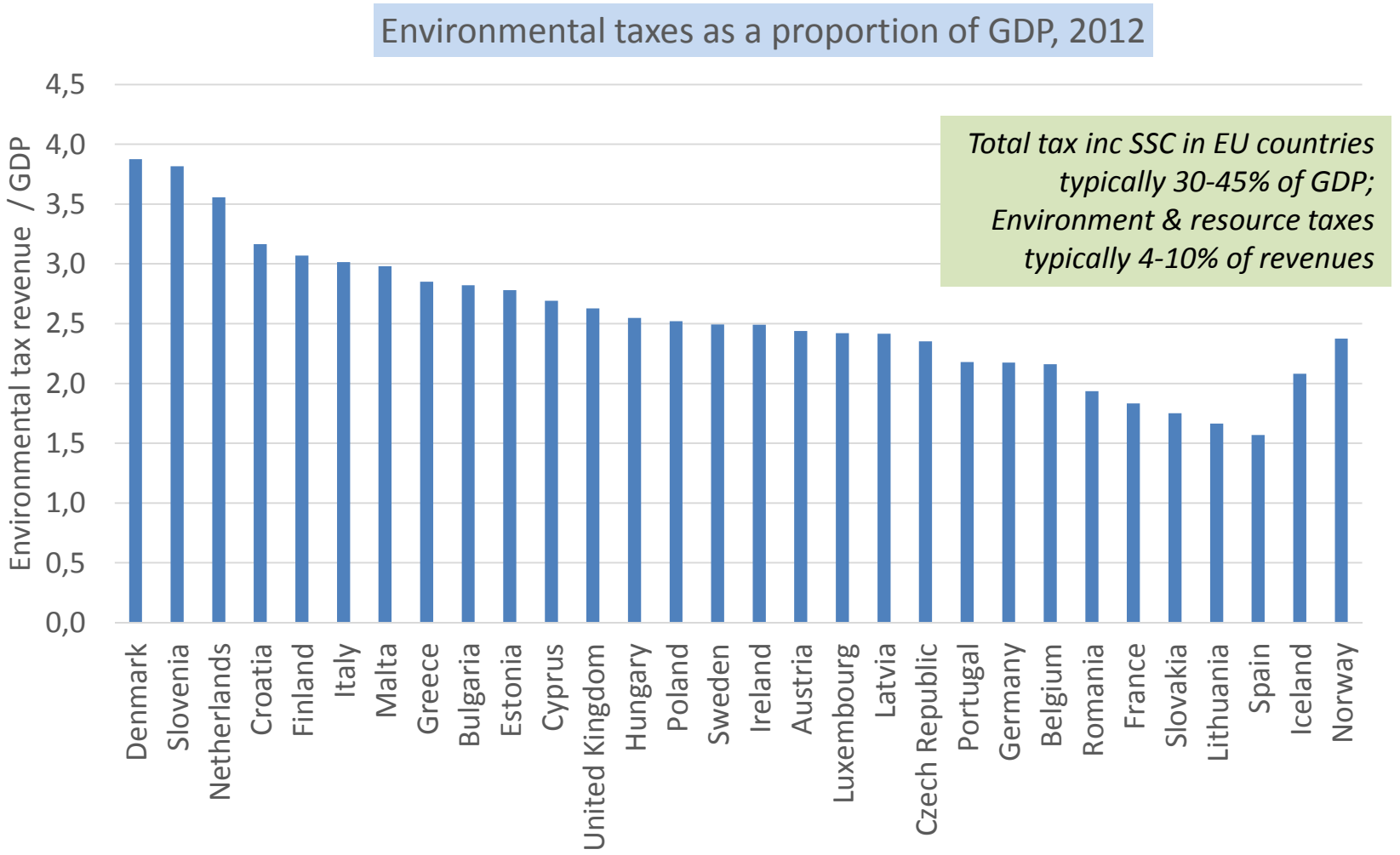


Two fundamental questions

- What are we here for?
  - Internal, career, or influence motivations

- What evidence do we look at to evaluate our impact?
  - Own evaluation of our own messages and analysis?
    - Environment, Revenues & double dividend ..
  - News on progress and bright spots?
    - Always signs of hope
  - Empirical data on implementation?

Environmental taxes are a small share of economy in Europe (and elsewhere)



.. And have been in long-term slow decline

Environmental taxes - detailed analysis

From Statistics Explained

Data from October 2012. Most recent data: Further Eurostat information, Main tables and Database.

This article presents the latest developments of four different types of environmental taxes (energy, transport, pollution and resource taxes) in the European Union (EU). The EU-27 raised around EUR 292 billion from environmental taxes corresponding to 2.4 % of gross domestic product (GDP) and 6.2 % of taxes and social contributions (TSC) in 2010.

As a percentage of TSC, the trend of environmental taxes has been downward throughout the period 1995 to 2008 with environmental tax revenue dropping by 1 percentage point of TSC to 5.95 % in 2008.

Figure 1: Environmental tax revenue by type, EU-27,1995-2010 (million EUR and % TSC) - Source: Eurostat (env_ac_tax) (http://ec.europa.eu/eurostat/product?code=env_ac_tax&language=en&mode=view)

Various interpretations are possible, of course ..

Carbon Hopes? News and selection bias risk in carbon-related pricing

Bright spots	…. and the Dark
• [Portugal Commission] • Scandinavia, British Colombia, California .. • Korean ETS survival, Chinese pilots • World Bank survey of carbon pricing • 'Business leaders'	• … 2015 fantasies • Waxman-Markey • The French carbon tax • .. And EU ETS reality • Japan • Australian repeal • Canadian woes • G77 realities?? • 'Business opposers'

Two quotes

"There appears to be a nearly inverse relationship between those policies that policy analysts tend to endorse as holding the greatest promise .. and political feasibility .."

- Rabe 2008, 106

As cited in Grubb et al.,
Planetary Economics, Chapter 6: 'Pricing pollution: of Truth and Taxes'

'Carbon pricing is political suicide'

- Stephan Dion,

former Canadian Environment Minister
and (briefly) leader of the Liberal Party
Comment after losing the General Election to Stephen Harper

One definition of the art of taxation

‘Plucking feathers from the goose
with the minimum of squawking’

It looks like relevant consumers & resource owners can squawk very effectively, whether the proposition is viewed as ‘taxing bads’ or as sources of revenue (or both)

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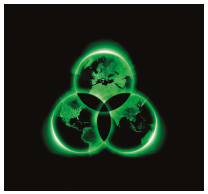
- Integrated packages and interdisciplinarity



Three Domains – an Economic Interpretation

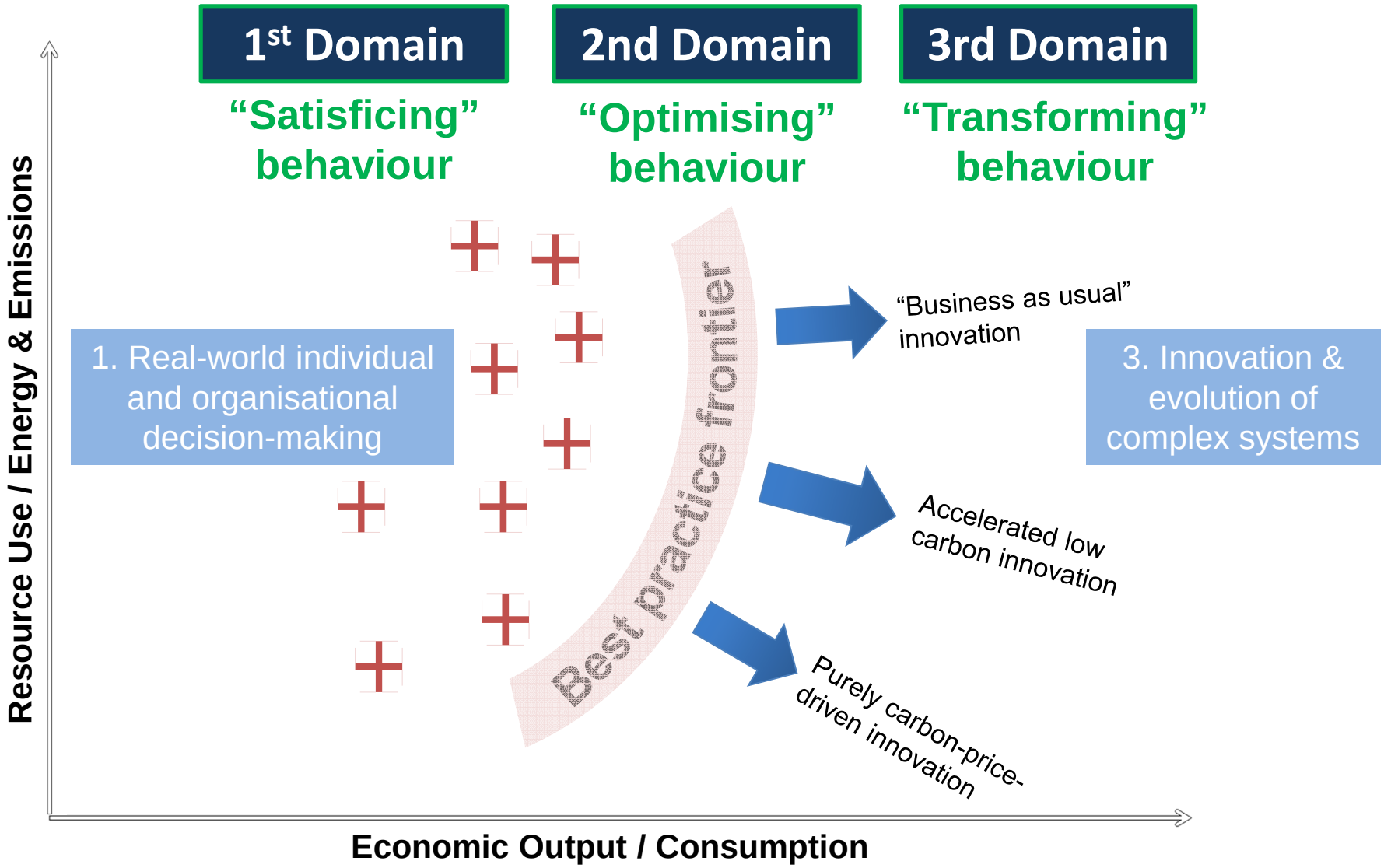
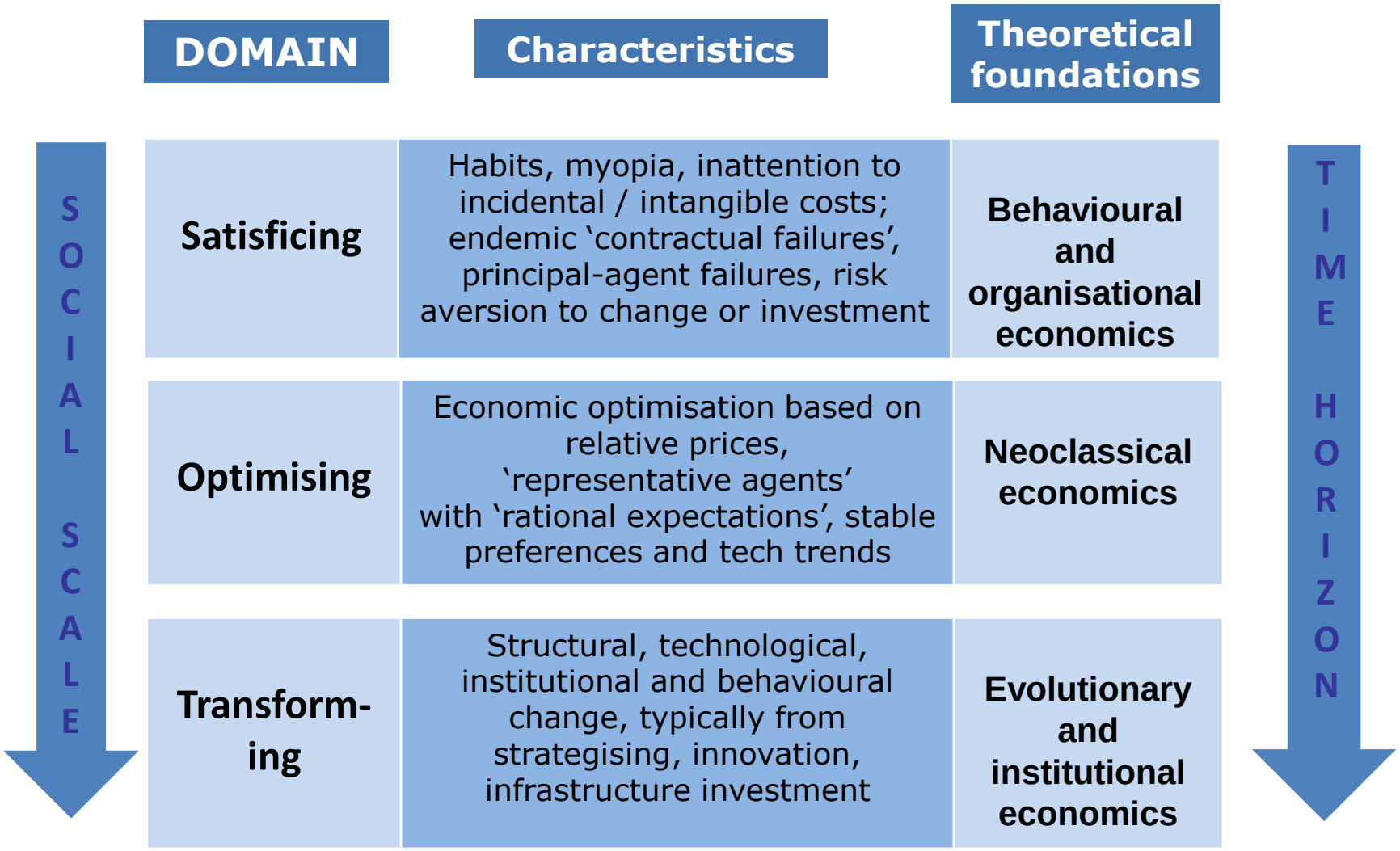
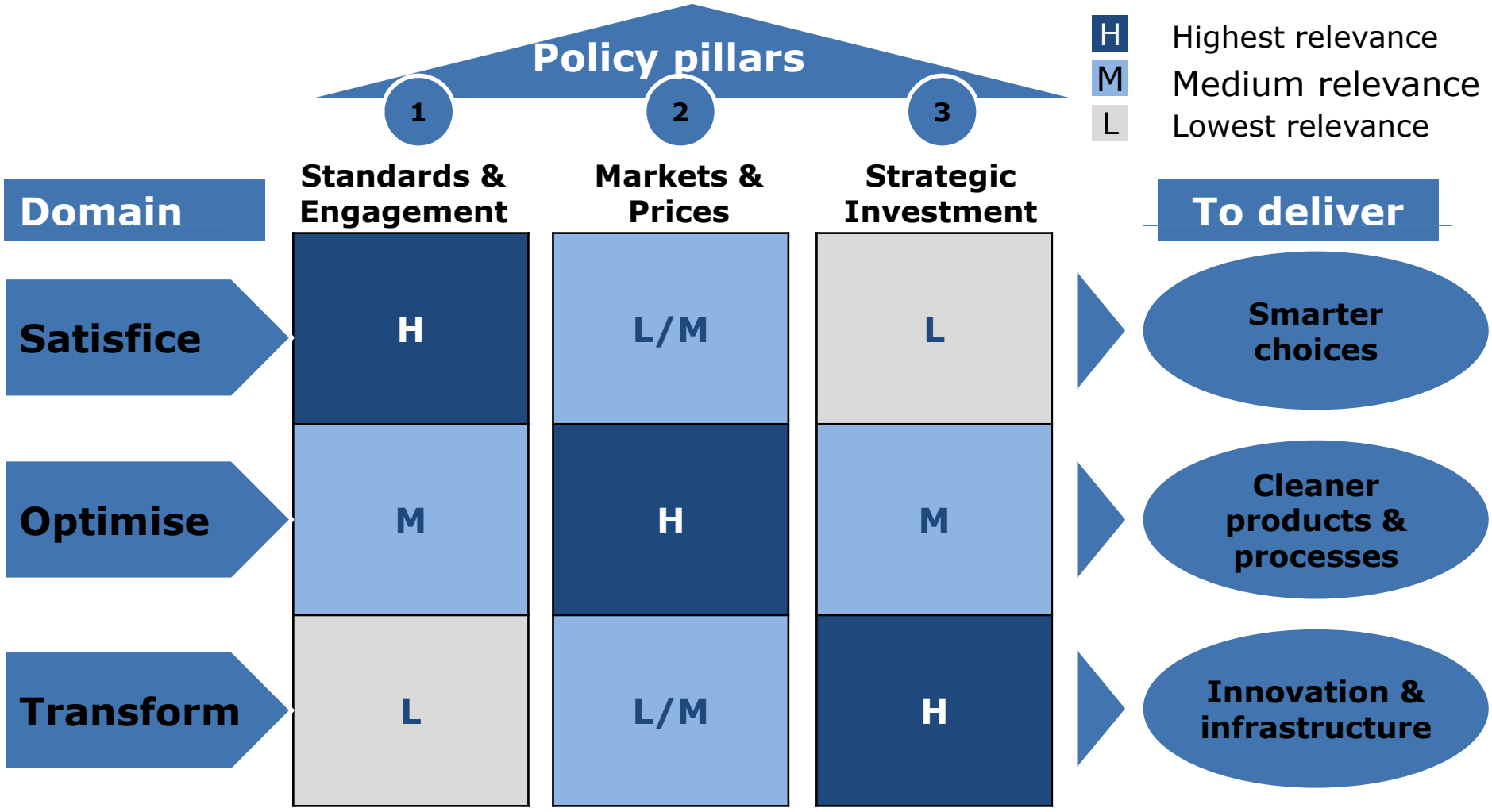


Fig. 2 -3 b Resource trade-offs with the other two domains

Three Domains of decision-making involve different processes with different theoretical foundations, operating at different scales



Solutions need to harness corresponding policy pillars based on the Three Domains, to transform energy systems



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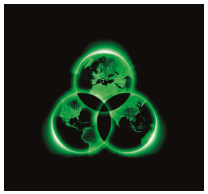


Carbon pricing has environmental benefits on both supply and demand side – but problems for the corresponding producers and consumers, & in between

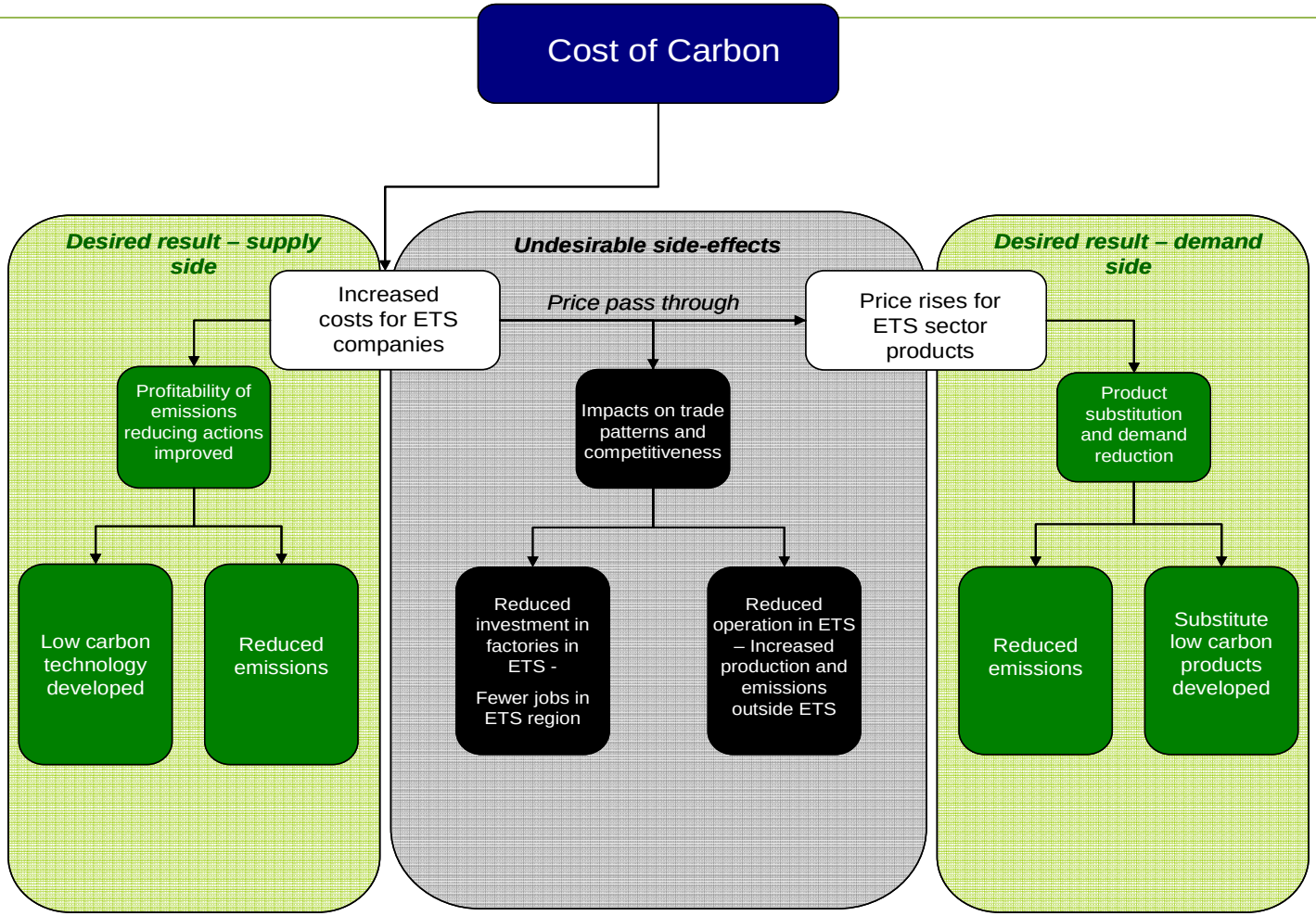


Figure 8-2 Desirable and undesirable effects of carbon prices
Source: Adapted from Carbon Trust (2010)

Who's hit?
In industry – c. half a dozen primary commodity sectors

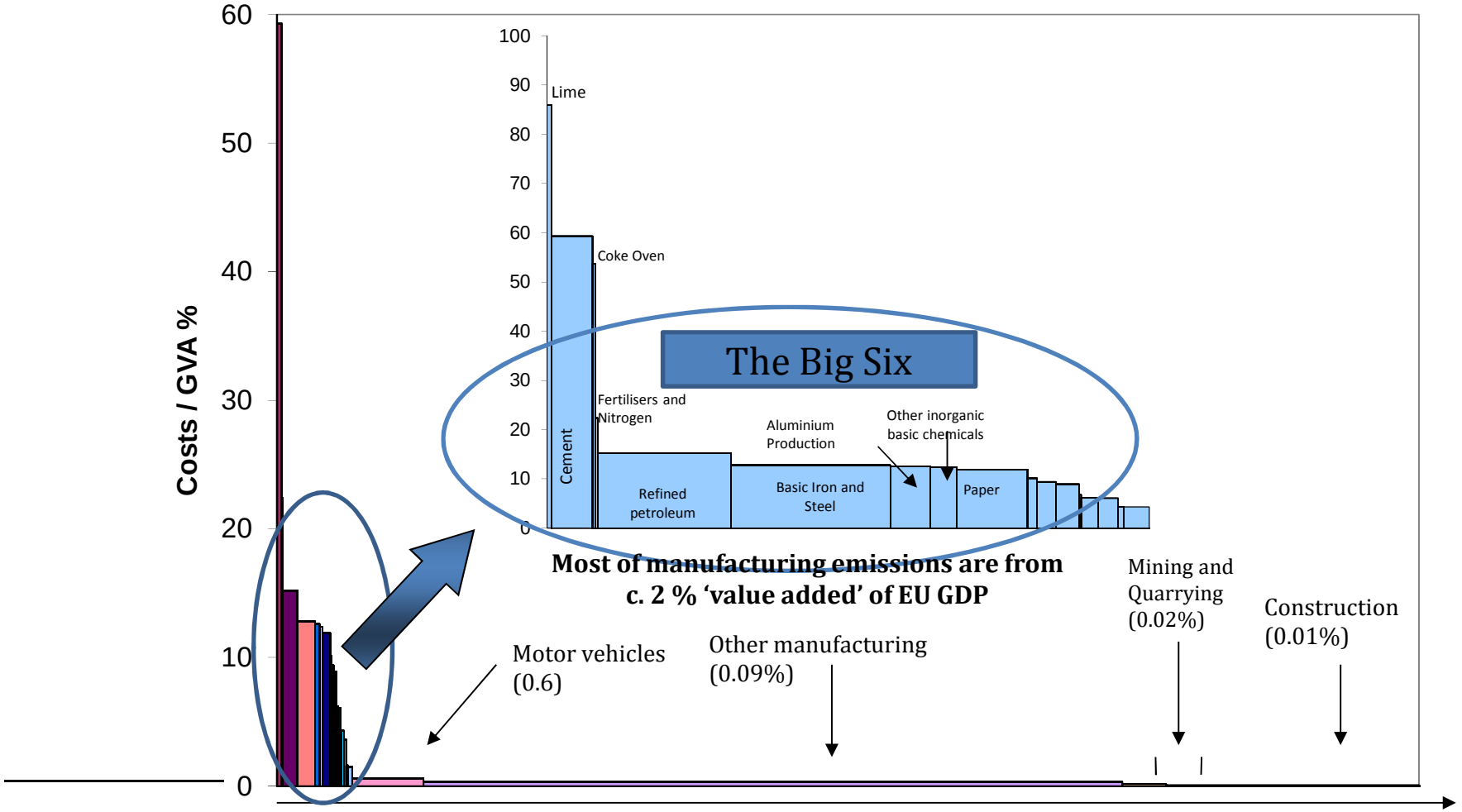
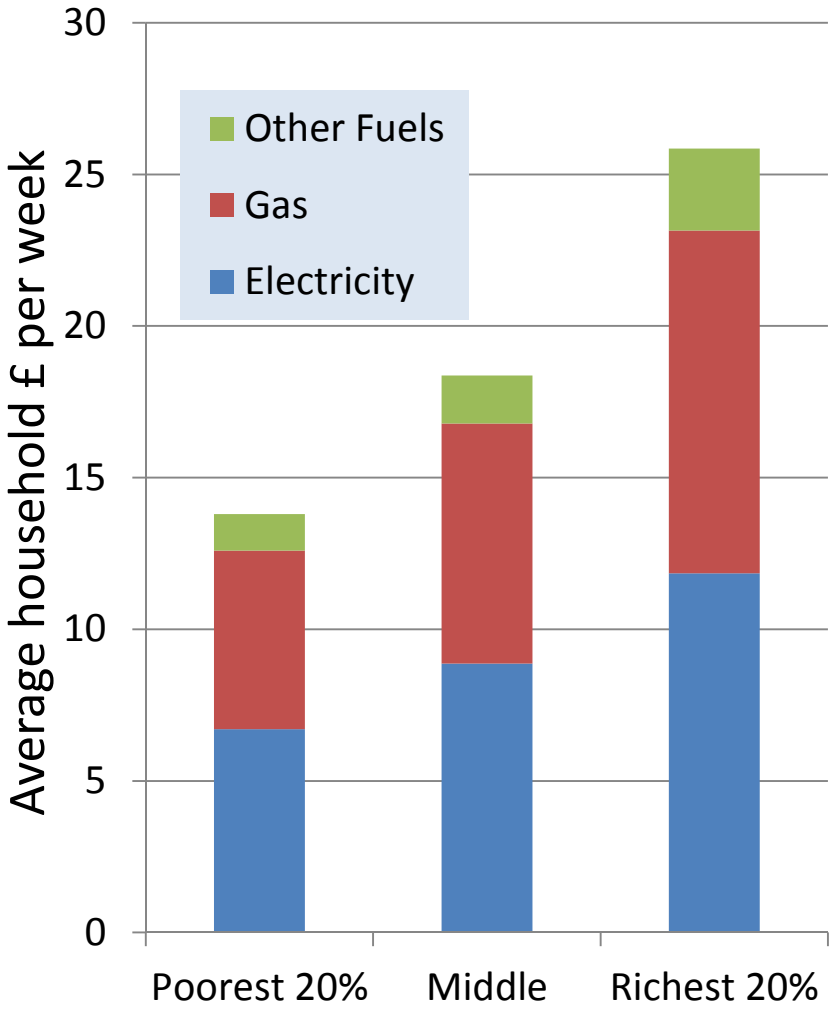


Figure 8-4 Impact of carbon pricing on EU industry sectors and their share of the EU economy

Downstream the direct impacts are ‘all losers’ and regressive: ‘bills constancy’ hinges on the other Pillars



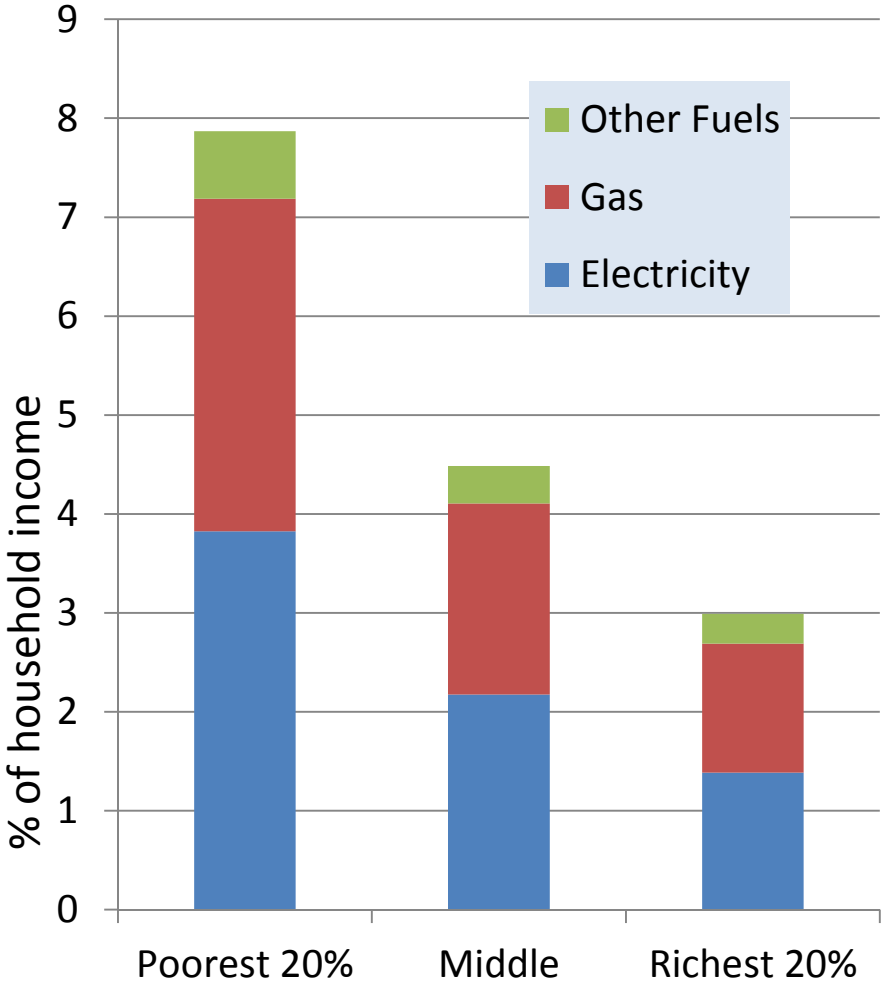


Figure 8-7 Household expenditure on energy UK 2008

Fragile design and Murphy's law have rendered EU ETS useless for either revenue or investment planning

Evolution of the EU CO_2 (spot) price

(a)

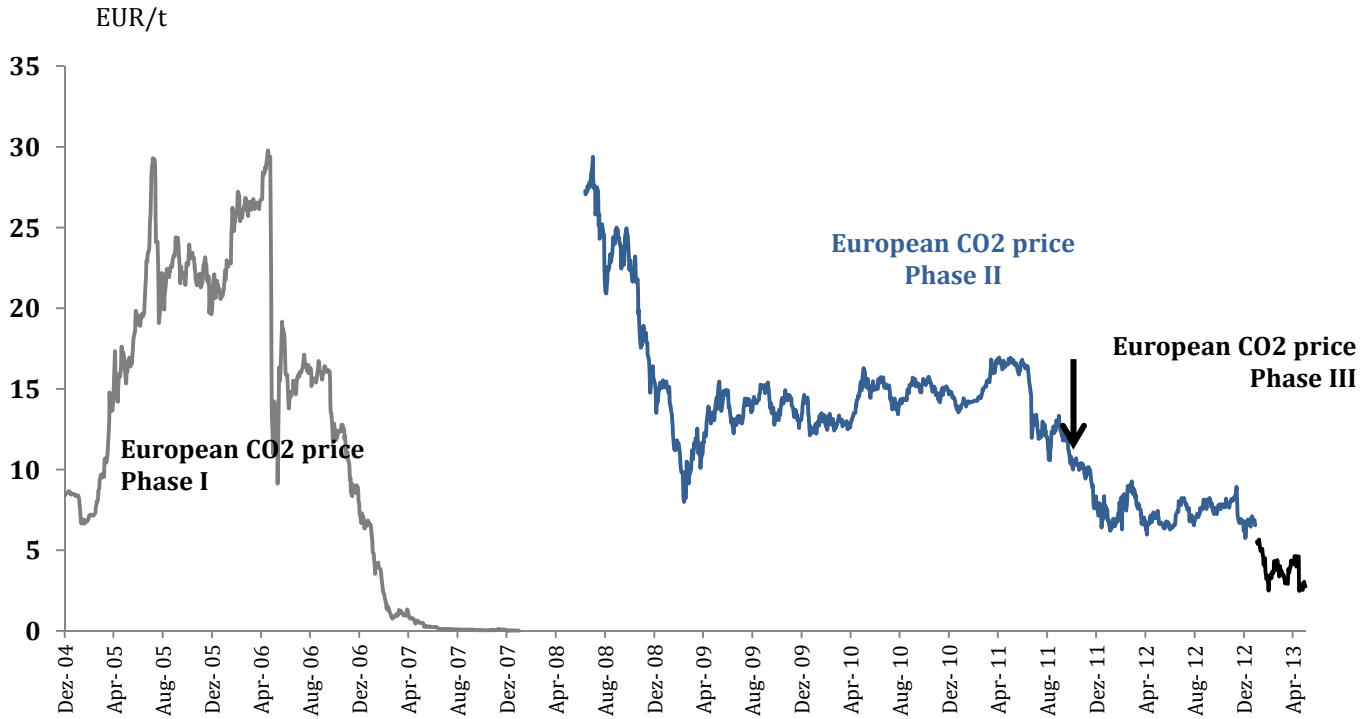


Fig.7.2 Evolution of European carbon and international offset prices
Data Source: European Climate Exchange

Some have blamed this on the success of Pillar I and III policies .. !

Price stabilisation mechanisms are essential for credibility – and also for revenue *utilisation* and linkages to other domains

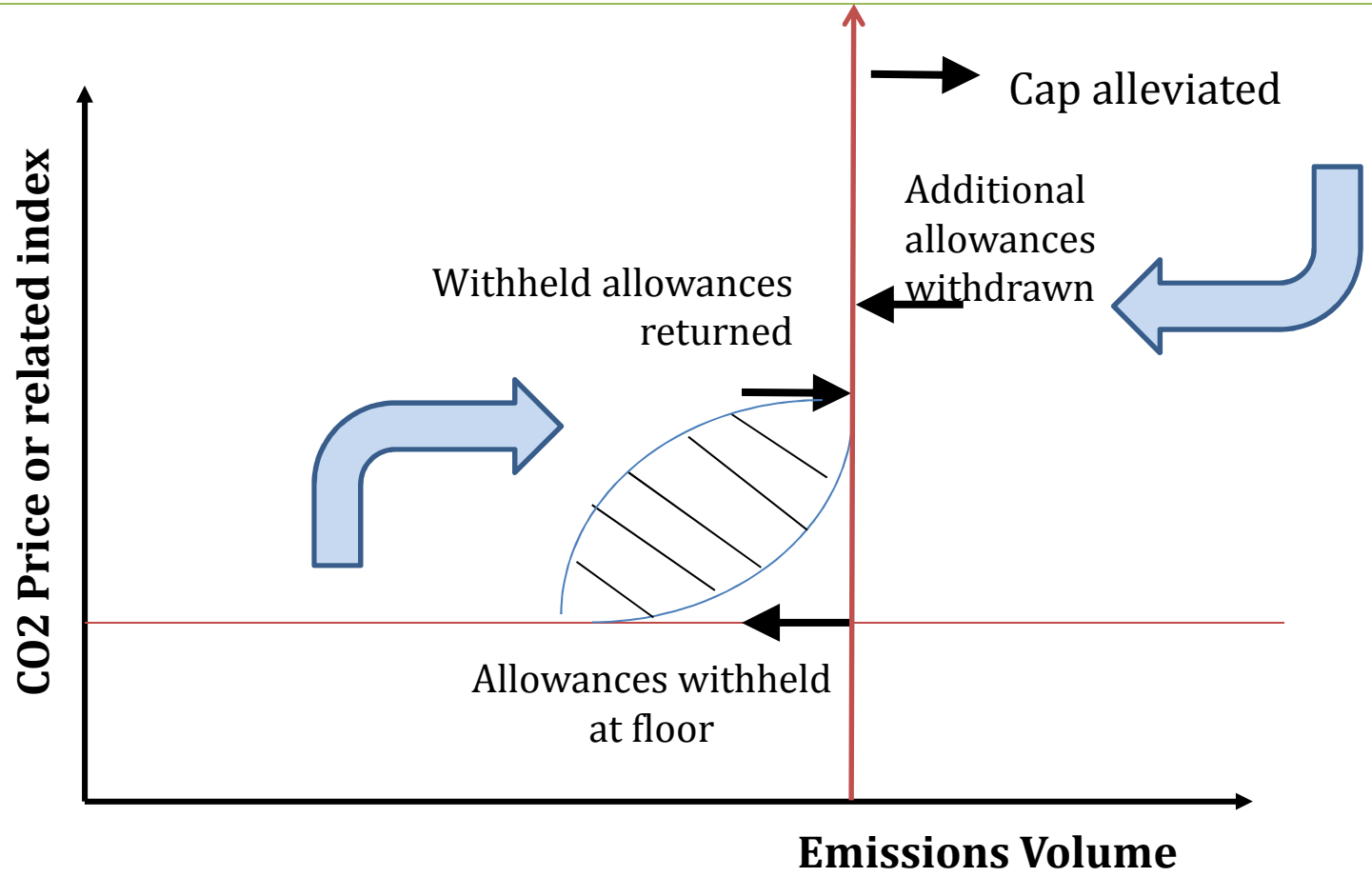


Figure 7-8 Steadying mechanisms for emissions trading systems

Note: The Figure illustrates mechanisms to help emissions cap-and-trade systems deal with deep uncertainties , so as to maintain a reasonable balance of price and quantity objectives. The mechanisms are most simply illustrated with respect to price floors and ceilings, in which case the shaded area indicates the likely region of price and quantity for a system with substantial surplus allowances. However the same principle could apply to other 'threshold' triggers, for example based on the level of cumulative surplus.

Pillar II Conclusions

- Too much ‘looking under the lamppost’
- The *economics* of carbon pricing are as much about design and strategic credibility than level
- The *politics* of carbon pricing are driven by distributional impacts *and the lack of clearly articulated positive narrative* for either industry or consumers
- Links to the other two domains are central to any ‘tangible’ positive narrative, drawing on ‘Bashmakov’s Constant of Energy Expenditure’

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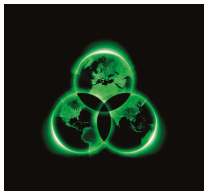
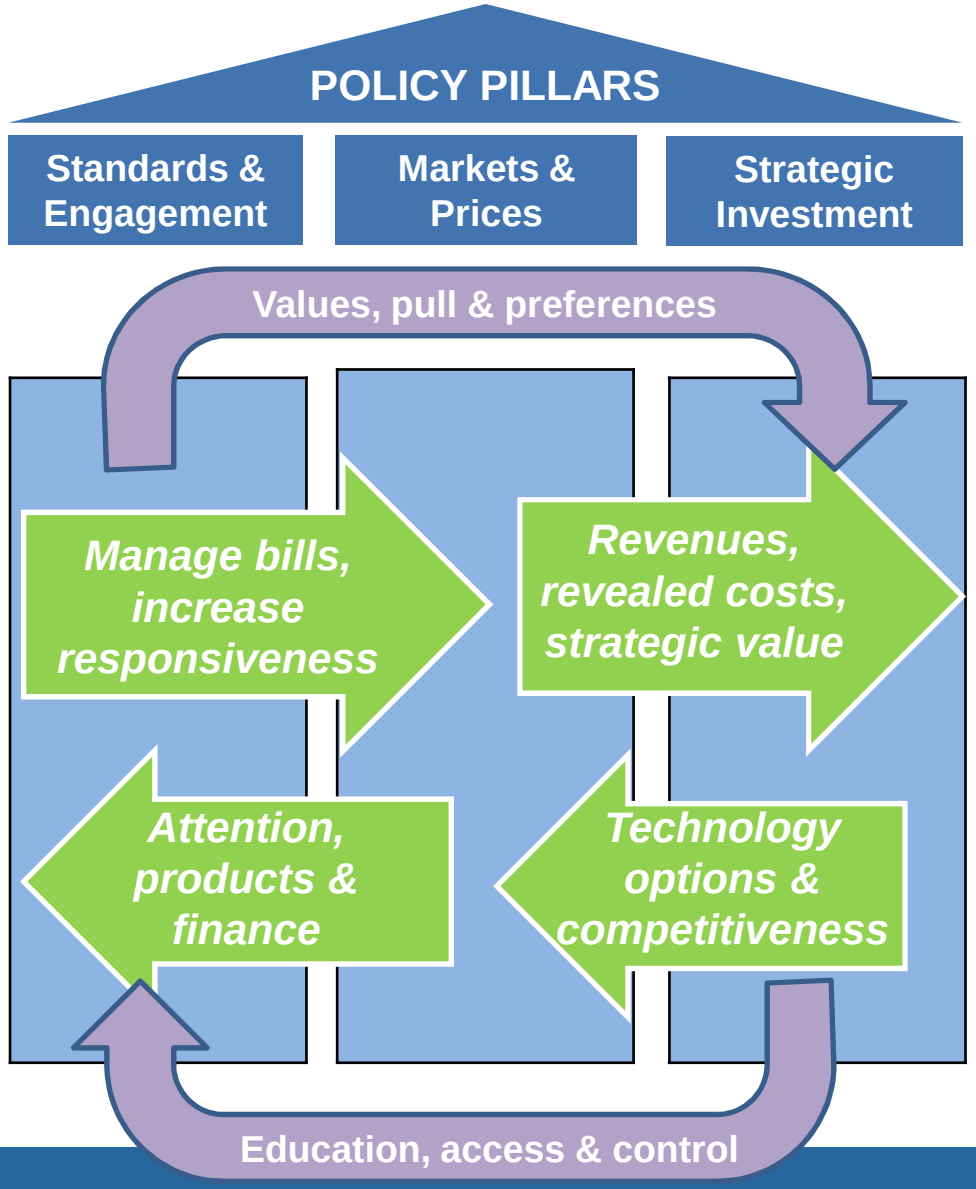


A reconstructed narrative around carbon pricing must include positive interactions between pillars which also separates prices from bills



On slaying some sacred cows

- Environmental pricing is struggling in practice
  - *re-invigorating it requires revision of theory*
- Environmental pricing is not ***the uniquely best*** way
  - *it is the most efficient instrument for one important domain of tackling environmental problems*
- 'Earmarking' has been widespread in practice and should not be taboo in theory
  - revenues have been the theoretical attraction but the practical problem; politics requires turning that around
- Efficiency of tax *vs* trading etc are almost irrelevant
  - *Design, credibility, linkages and narrative are as important as price*

… but just maybe could design a ‘First among Equals?’

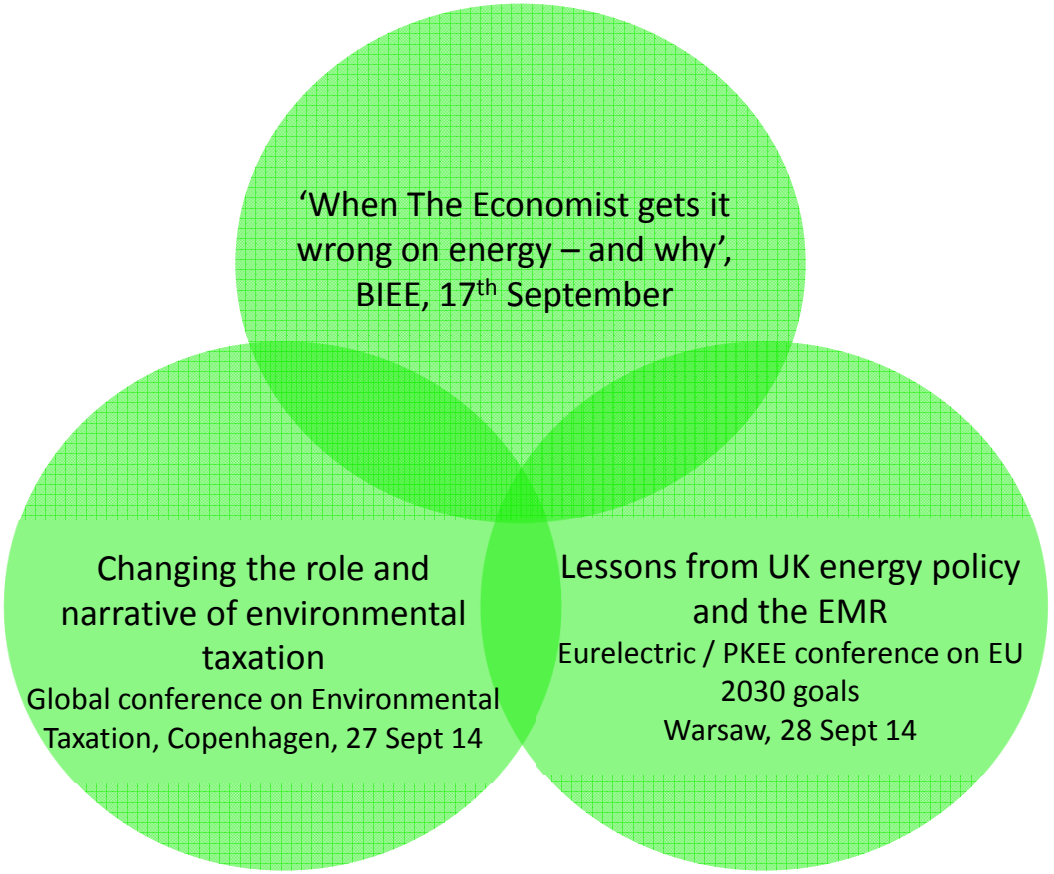
A **rising base** carbon price *could* contribute *across* domains:

1. Attention effects and funding	• rising steadily enables efficiency to keep pace and stop much rise in total bills • efficiency programmes may counter regressive concerns?
2. Rising price differential	• steadily reduce use of coal in power generation without huge asset stranding • help to move renewables over time from transitional subsidies into mainstream market
3. Long term visibility and leverage	• increased investment stability • time and leveraged funding for innovation, infrastructure and tech transfer programmes

Embedding in international agreement could enhance stability and credibility

GETC-15 Keynote talk, "Time to take Stock: Changing the role and narrative on carbon pricing"

- One in series of "Application" talks



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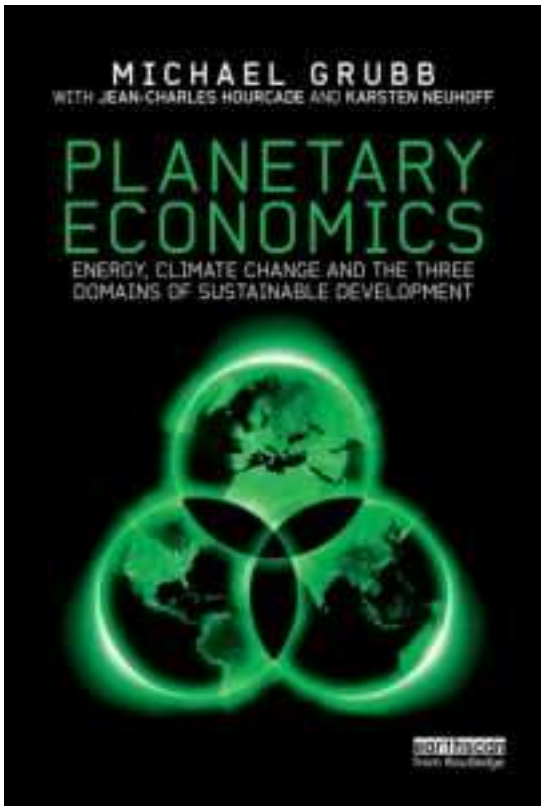

1. **Introduction: Trapped?**
2. **The Three Domains**

Pillar 1

- **Standards and engagement *for* smarter choice**
- 3: Energy and Emissions – Technologies and Systems
- 4: Why so wasteful?
- 5: Tried and Tested – Four Decades of Energy Efficiency Policy

Pillar II

- **Markets and pricing *for* cleaner products and processes**
- 6: Pricing Pollution – of Truth and Taxes
- 7: Cap-and-trade & offsets: from idea to practice
- 8: Who's hit? Handling the distributional impacts of carbon pricing

Pillar III

- **Investment and incentives for innovation and infrastructure**
- 9: Pushing further, pulling deeper
- 10: Transforming systems
- 11: The dark matter of economic growth

12. **Conclusions: Changing Course**

Next academic book lecture: London School of Economics, 6 November 2014

www.climatestrategies.org/events/2014-events/book.html for information and register of related events.