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CLIMATE CHANGE. HAS THE ECONOMICS LOST CONTACT WITH THE PHYSICS ?

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PERITO MORENO GLACIER

CLIMATE CHANGE. THE PERFECT STORM

- Costs are “externalities”; we cannot, in the absence of well designed policy interventions, assume markets will provide the solutions.
- Genuine uncertainty over costs, ie the economic and social consequences.
- Very long time lags, of decades, promote institutional inertia, lack of urgency
- **Cumulative and possibly irreversible nature of CO2 and climate consequences**

- Lack of political consensus/ acceptance even on climate science fundamentals.
- A fully global problem; remedial action in everyone’s collective interest but no-one’s individual interest. Action effective only if collective **and** global.
- Many vested commercial and national interests; coal and oil industries and resource dependent economies. Different national perspectives; since not everyone an obvious loser in short or even medium term.
- Inter-generational. Long term political perspectives. An oxymoron?

- Finally, how well do existing political institutions at all levels, and democratic or otherwise, cope with this combination?

TWO KEY ELEMENTS OF THE SCIENCE

- It is the atmospheric concentration of CO_2 that matters, not the current level of emissions; ie the key is stocks not flows.

- As a first approximation, CO_2 emissions can be seen as purely cumulative. Although CO_2 is re-absorbed each year as part of the carbon cycle, **incremental** emissions are cumulative.

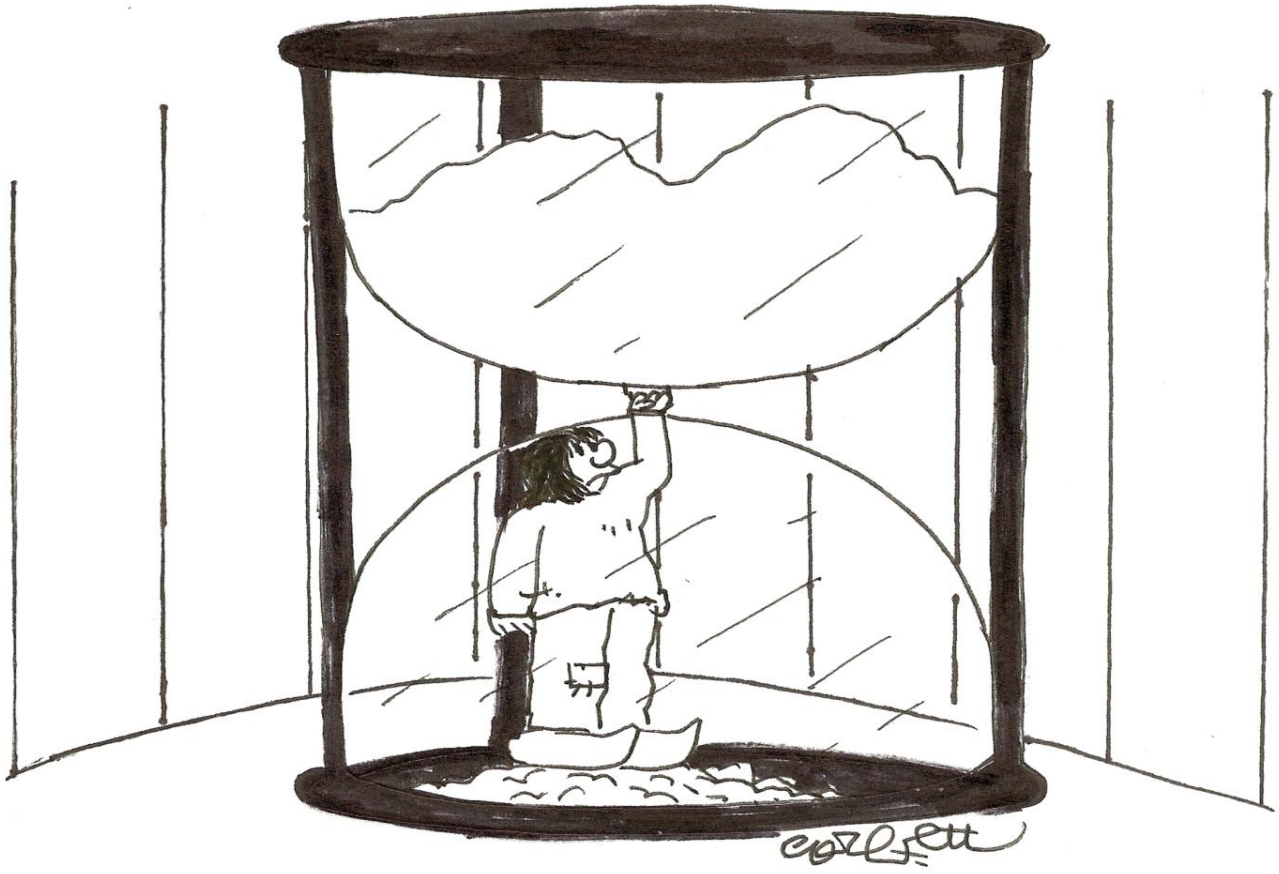
AN IMPORTANT CHOICE

Do I let go now or in ten years time ?

A POLICY CONUNDRUM

- *Suppose I have a large store containing thousands of tonnes of CO2, held under pressure in large corroding metal vessels. Technical experts have advised me that there is no means of permanently sealing the vessels, other than at prohibitive cost, but that I can at some modest expense treat the seals of the vessels in a way that will prolong their expected life from 6 months to 20 years, at which point there will be a slow leakage into the atmosphere, perhaps over a 10 year period. What should I do, given an objective of minimising adverse climate impact? Release now or delay ?*

THE EMISSIONS/ CLIMATE DILEMNA



I'm a bit worried. My arm is getting tired , but if it gets much deeper I won't be able to move.

RELEASE IT NOW !

- *As carbon concentration in the atmosphere rises towards the long-term level implied by the stabilisation target, **the damage at the margin caused by further emissions – the social cost of carbon – will inevitably increase**. .... the appropriate price of carbon will rise over time. ... both the public and the private sector will need to take a view on the likely future path of the price of carbon when taking investment decisions regarding long-lived capital.*

  Better Regulation Commission 2007

- Getting rid of it now will make it easier to meet future targets for annual emissions.

THE MARKET APPEARS TO AGREE

- the traded price of CO2 permits has slumped to around € 10 a tonne or less in the current recession;

- proposed carbon floor prices indicate at least c. €35 - €50 a tonne to promote low carbon power generation.

- So we might assume that policy points to a steeply rising carbon price, as caps progressively tighten.

MARKET INCENTIVES

I'm not getting paid for this you know.

ADVANTAGES OF DELAY

- Adverse outcomes are lesser and later. Front end loading of reductions could postpone concentration milestones by decades.
- Current emissions do damage now **and** in ten years time.
- Lower emissions also create option value, both in mitigation and adaptation.
- Measures of social value, eg DECC/ Treasury, even with a relatively low 3.5% discount rate, attach a higher value to saving current emissions. (based on and confirmed by integrated assessment modelling).
- **Hence we should attach higher values to near term reductions in CO_2 emissions**

DELAYING THE INEVITABLE IS BETTER THAN NOTHING

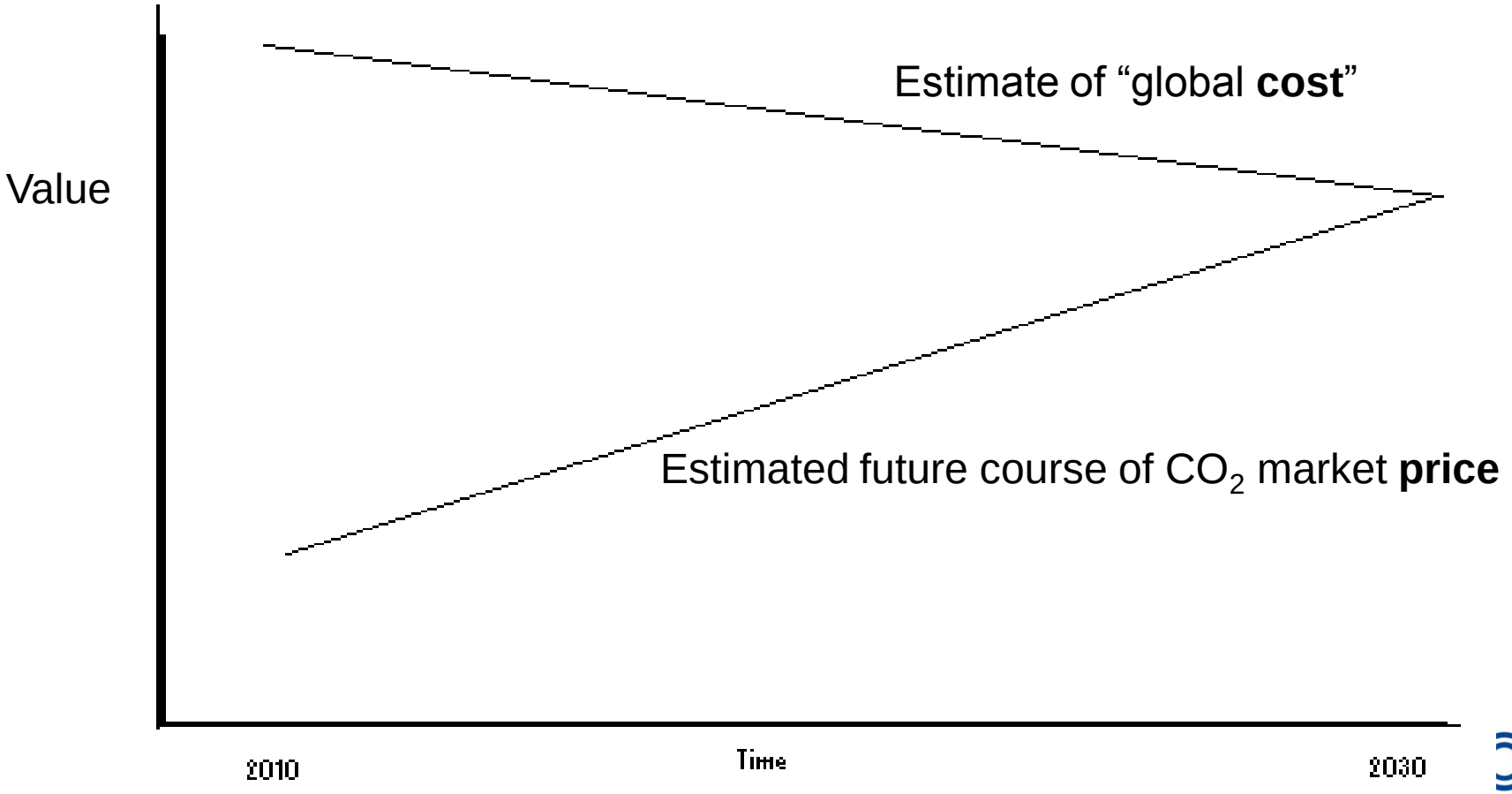
Maybe something will turn up to get me out of this.
And I still have one hand free to write that novel.

SO HOW DOES THIS PARADOX ARISE?

- Putting a higher value on current emissions clearly makes sense as a global policy, but ...
- in national or regional (EU) policy terms there is a serious asymmetry – the benefits are large but global (and locally quite small), but the costs are local and perceived as quite large.
- UK government attempts to accommodate the paradox by recommending different values in “traded” ETS and in “non-traded” sectors

COMPARING ESTIMATED SOCIAL COST AND MARKET PRICE VALUATIONS OF FUTURE EMISSIONS

Valuations of CO_2 emissions discounted to 2012



CONCLUSIONS

- CO2 targets need to be cumulative, ie stock not flow related, to align with the real mitigation objectives.
- The time profile of emission reduction has a big impact on the date at which given concentrations are attained.
- High option value attaches to early action, **not** to inaction. [General rule is avoid irreversibilities.]
- Caution on use of CO_2 market signals as basis for policy or strategic choices. Getting it wrong may distort decision making.