



**Nicholas Howarth,**  
*Oxford University*

## An Introduction to Carbon Markets

By

Nicholas Howarth  
School of Geography and Environment  
and Christ Church  
Oxford University



Nicholas Howarth,  
*Oxford University*

## Why create a market for pollution?

At first glance, people concerned about the environment might greet the idea to use markets to *protect* the environment with a degree of scepticism? After all, isn't it the market and the economic system that have created our environmental problems in the first place - polluting waterways, the atmosphere, driving deforestation and the overexploitation of the oceans, causing species decline? Wouldn't it be simpler to just ban the polluting activity?

The market, is much more than acts of buying and selling, it defines the interrelated systems of human interaction by which we organise our lives and the things we value. If the environment has been damaged it is not to markets, but to our own system of values that we must look to apportion blame.

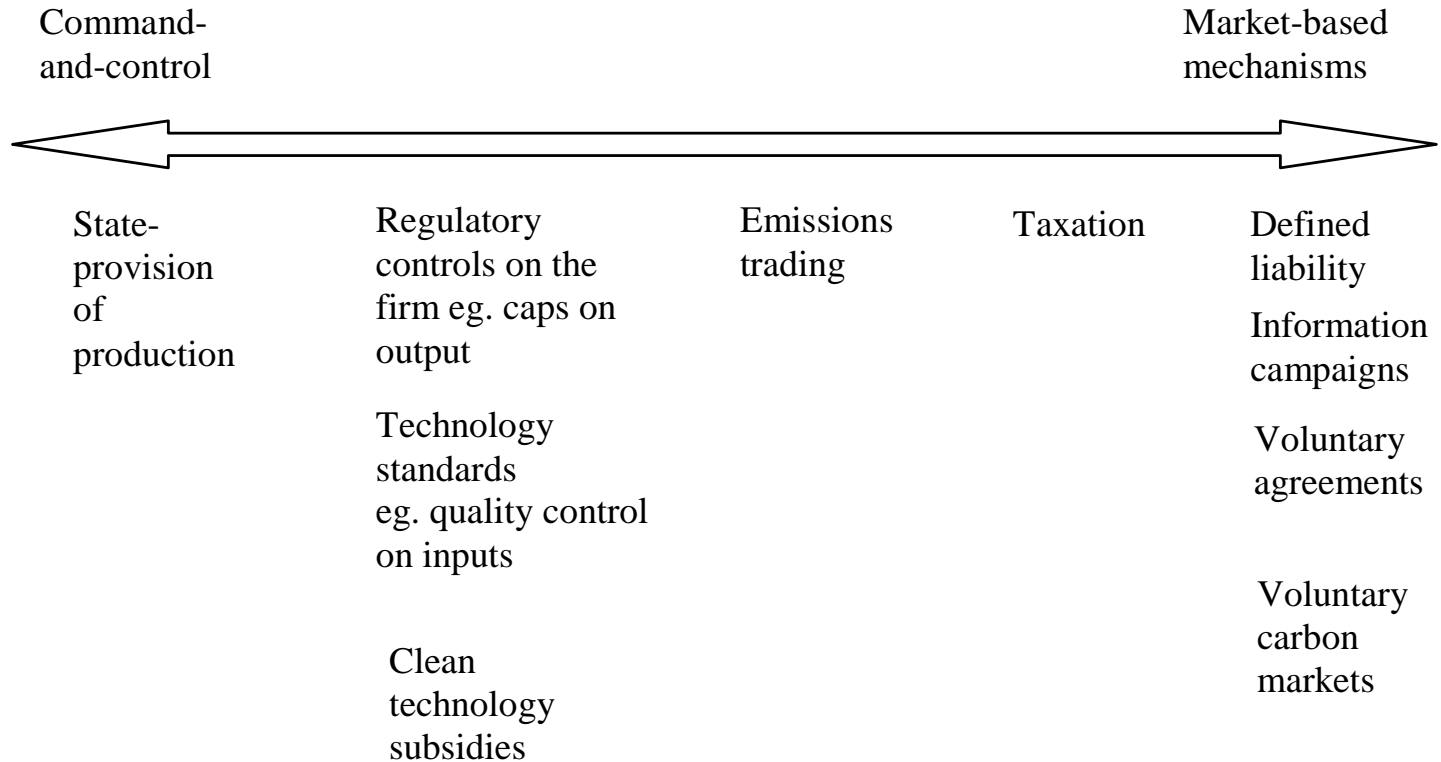
Carbon markets seek to realign the existing market system away from causing a climate crisis and offer a chance for business to be the champions of good environmental practice – harnessing positive incentives rather than just wielding the regulatory stick.



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There is no silver bullet policy to solve the  
Climate crisis...

But there is silver buck shot





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The economic theory of externalities has helped shape our approach to policy choice.....

When society values something more highly than the sum of the amount that the individual or company value it, economists call this an *externality* (i.e. the value is external to the decisions made by the individual agent).

These can be positive, as in the case of energy supply (security of having reliable access to energy), or negative as in the case of using fossil fuels (it causes greenhouse gas pollution).

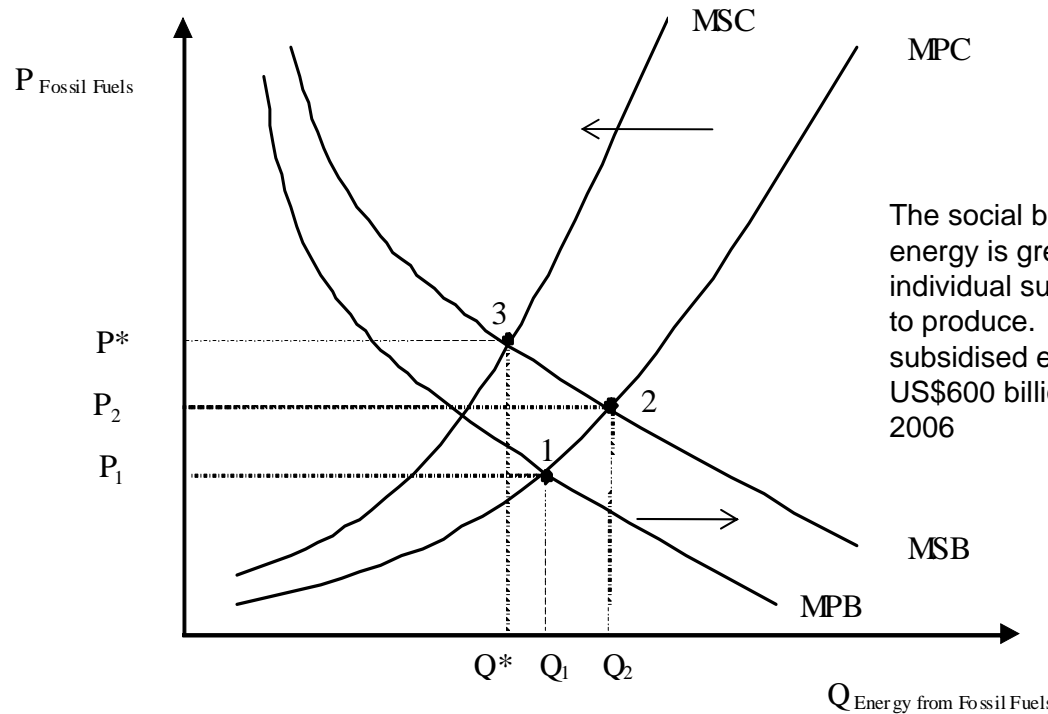
This means the 'free market' will not provide the optimal amount of the good or service.... There is a *market failure*.



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**Figure 2**

The social cost of GHG pollution is not faced by individual producers but born by society at large



The social benefit of having secure energy is greater than what individual suppliers are prepared to produce. This means we have subsidised energy. Worldwide: US\$600 billion to fossil fuels in 2006

P = Price  
Q = Quantity  
MPB = Marginal Private Benefit  
MSB = Marginal Social Benefit

MPC = Marginal Private Cost  
MSC = Marginal Social Cost  
Point 1 = 'Free market' equilibrium  
Point 2 = Where we are now  
Point 3 = Where we want to be

We can reduce subsidies  $P_2$  to  $P_1$   
We can raise taxes  $P_2$  to  $P^*$   
We can do both  $P_1$  to  $P^*$   
We can fix a physical limit on fossil fuels at  $Q^*$  with an ETS



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Note that the socially desirable, or optimal, level of pollution is positive. This means that society is prepared, in this case, to tolerate some pollution in exchange for the benefits of the energy provided.

However, this need not be the case.

The optimal level of pollution would be zero when the MSC curve was above all points on the MSB curve. This would become the case in the event that costs of climate change become larger and more immediate than currently understood along with the need for deeper emission cuts.

But the real world is much, much more complex (eg. OPEC, natural monopoly, development goals, R&D, competition policy....)

There is an 'orgy' of market failure in energy markets



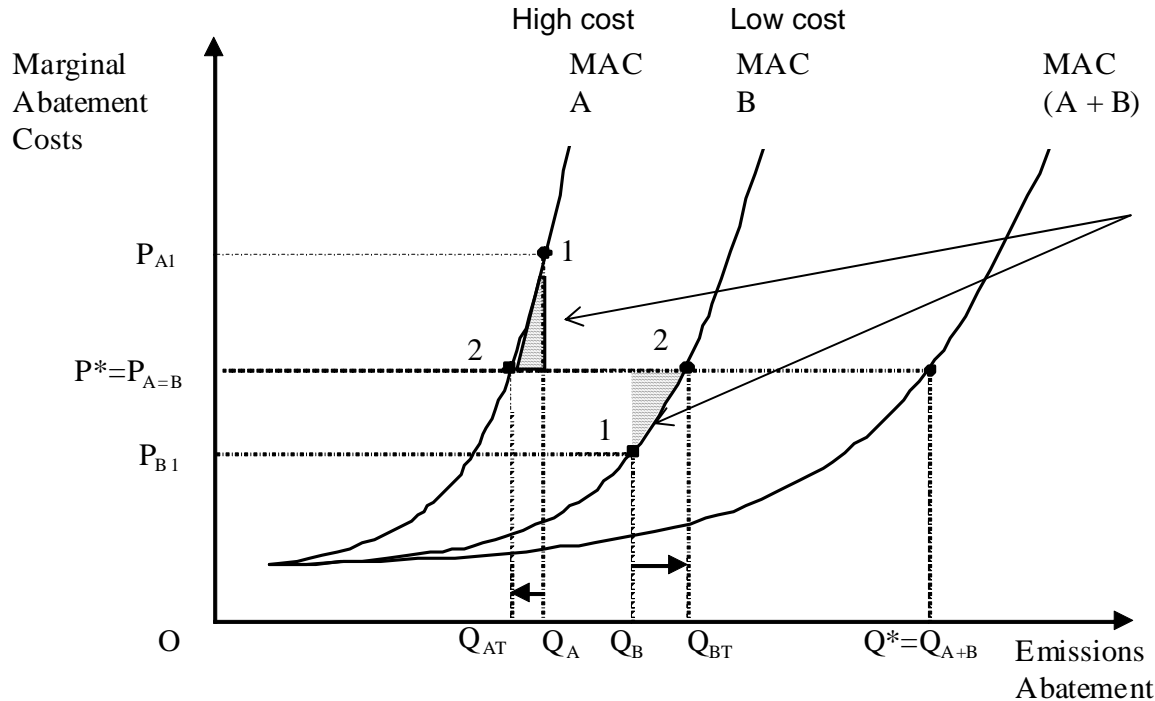
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# How does emissions trading work?

Figure 3  
Two agent ETS model

If a firm or country's costs of abatement are different then there are benefits to trading emissions permits

Costs of abatement are also different across technologies and sectors



'welfare gain' to society from trading ie. It costs less to achieve the same volume of emission reduction

Emissions trading rewards low-cost abatement, supporting innovative and cheap emissions savings

MAC = Marginal Abatement Costs

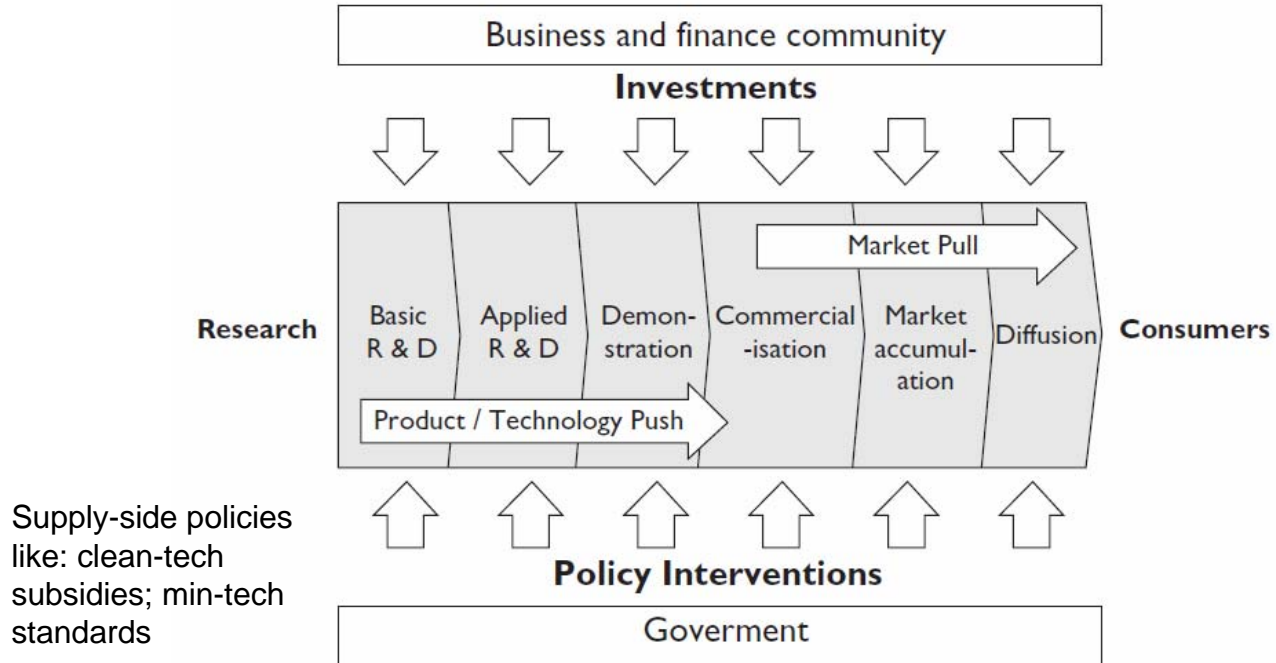


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In practice different policies will be more or less effective at different steps in the innovation chain...

Figure 4

Demand-side policies like carbon pricing



Supply-side policies like: clean-tech subsidies; min-tech standards

Source: Michael Grubb



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*Oxford University*

## Emissions trading underpins the carbon market...

It can take many forms:

- Mandatory cap-and-trade schemes (eg EUETS, Europe)
- Mandatory baseline-and-credit schemes (NSWGGAS)
- Voluntary baseline-and-credit (JVETS, Japan)
- Voluntary carbon offset market

And function at different levels:

- International level  
(trade in AAUs between countries, Kyoto Protocol)
- National level (CPRS, Australia)
- Regional level  
(Midwestern Climate Initiative, US and Canadian states)
- Project level (Clean Development Mechanism, Kyoto Protocol)
- Sector level (REDD+ proposals)



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But not all schemes are equal...

“A tonne is not a tonne, is not a tonne,”  
(of CO<sub>2</sub> equivalent)

- Lack of cooperation between jurisdictions on accounting methodologies
- Very suspicious emissions intensity rules
- Varied use of auctioning
- Some caps are harder than others
- Some types of emission reductions are riskier than others (eg. Forests)
- Big polluters may be x-subsidised by permit auction sales
- Emissions can be ‘ring fenced’  
eg. we only trade anthropogenic emissions
- Potential for carbon leakage eg. HCF23

Critical to have improved coordination of emerging national schemes at Copenhagen: this is what the United Nations does best!



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*Oxford University*

## Final words....

What I hope to emphasise here is that we should check our arguments in support of emissions trading with a degree of humility regarding the diversity of national and sectoral situations and objectives and the scale and scope of the task ahead. Much also depends on implementation that determines the ultimate success or failure of all policies to reduce pollution.

It is the alliance of interests that emissions trading creates across industry and environmentalists, between the rich and the poor - libertarian and statist governments, that may best explain its success; and, more strategically, how it provides a platform for global cooperation and a cleaner, safer world in a way no other policy tool can.