

Political feasibility and the role of institutions (or simply: 'the undetermined taxman')

**Bekkjarvik Climate Workshop, June,
2009**

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What is the difference between ignorance and indifference?

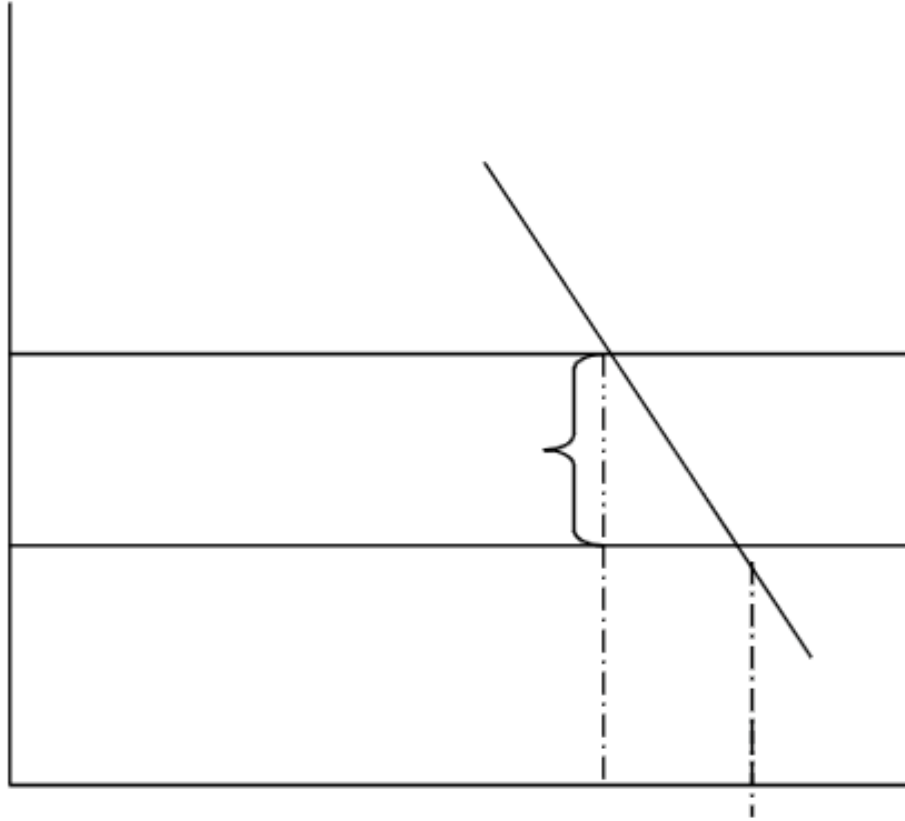
(I'll argue that our traditional position, allegiance to the polluter pays principle, can be salvaged only by a combination of ignorance and indifference)

(did anyone discover I tricked you here?)

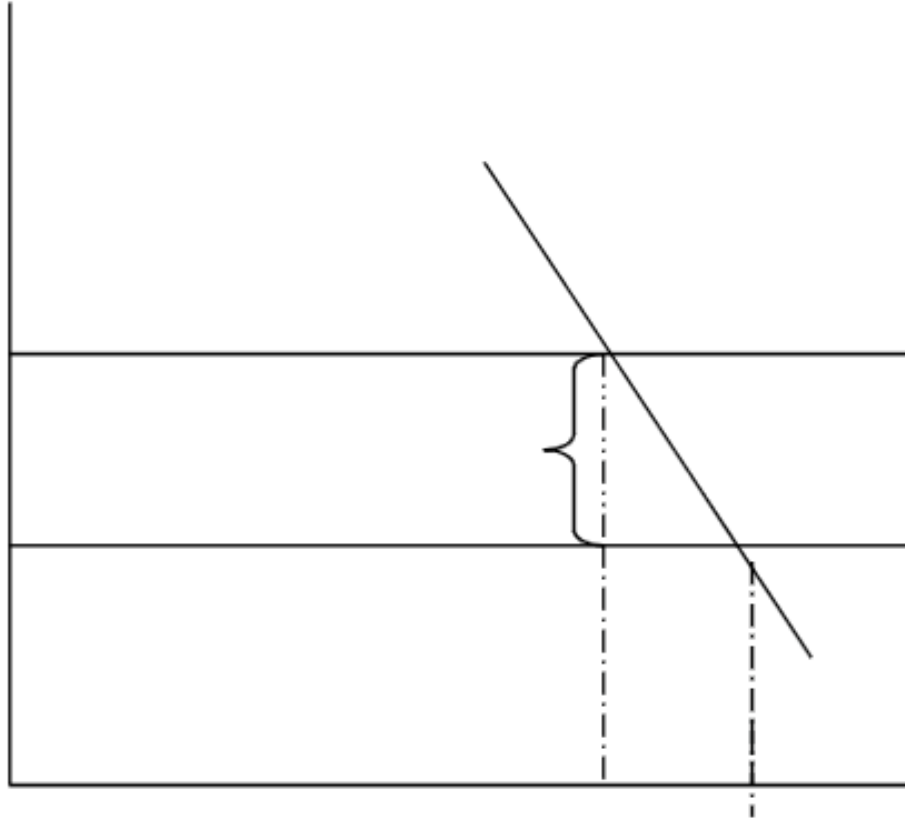
Economics:

- Classical: distribution and efficiency *jointly* determined
- Neoclassical: tricks allowing separation of distribution and efficiency: benevolent planner, costless transfers, efficient negotiations, Hicksian compensation
- Modern micro-theory: asymmetric information => tradeoff between efficiency and distribution
- Institutional economics: A government successfully or optimally constrained from expropriation?

Neoclassical: Externality: quota & tx equivalent



Full Polluter Pays Principle (FPPP)



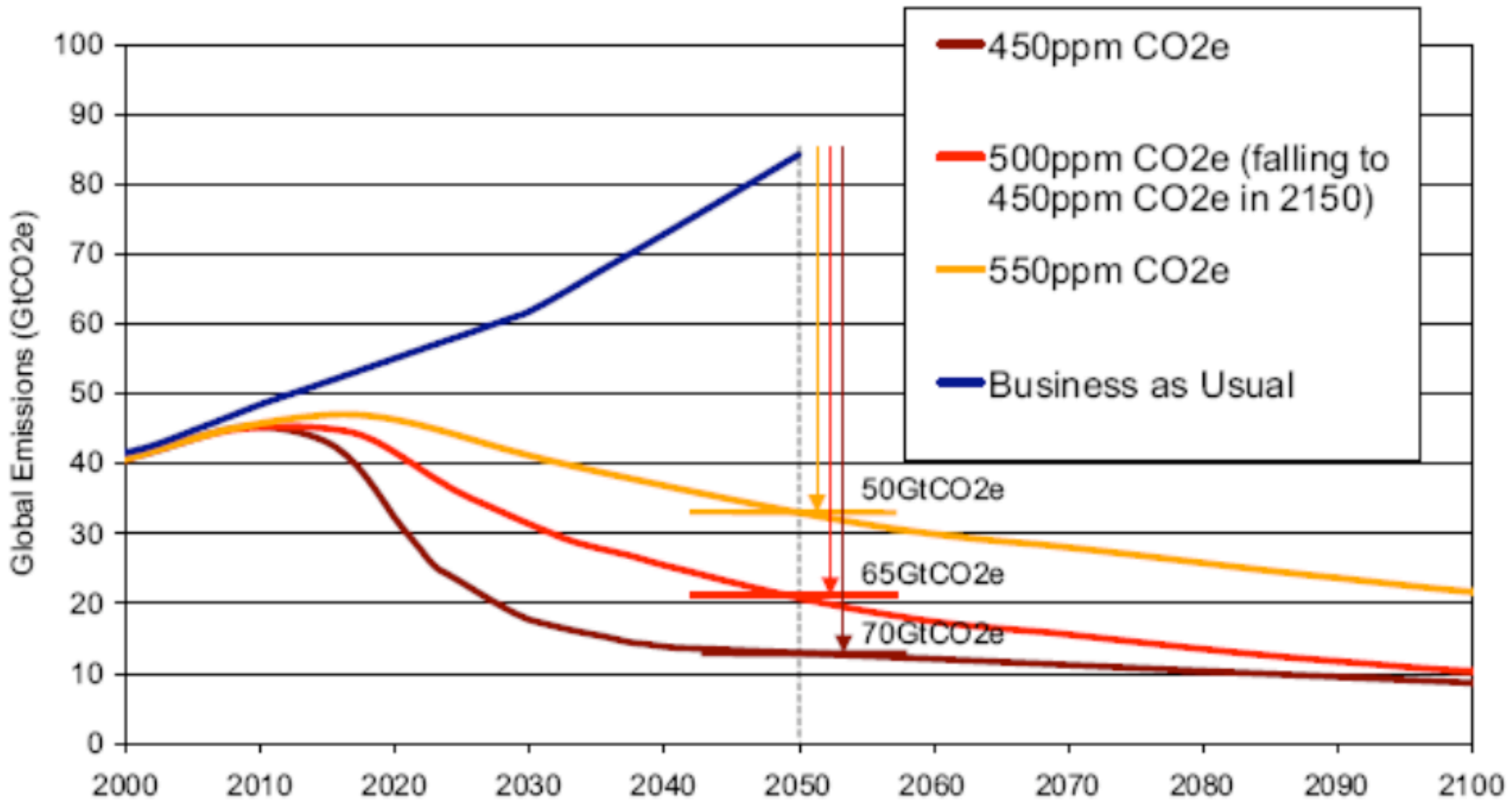
Appraisal and political feasibility

- Who gains, who loses
- Who influences policy, how
- How do combinations of policy instruments come about
- Focus on *transition*

Nature's game: surprize!

- Horse manure in London: from 'no problem' to 'fix it'
- Acid rain in Europe (or North Eastern US); from 'no problem' to 'fix it'
- Lead in gasoline: From 'no problem' to 'fix it'
- Carbon dioxide emissions: From 'no problem' to 'fix it'

In the long run: Zero emission vision!

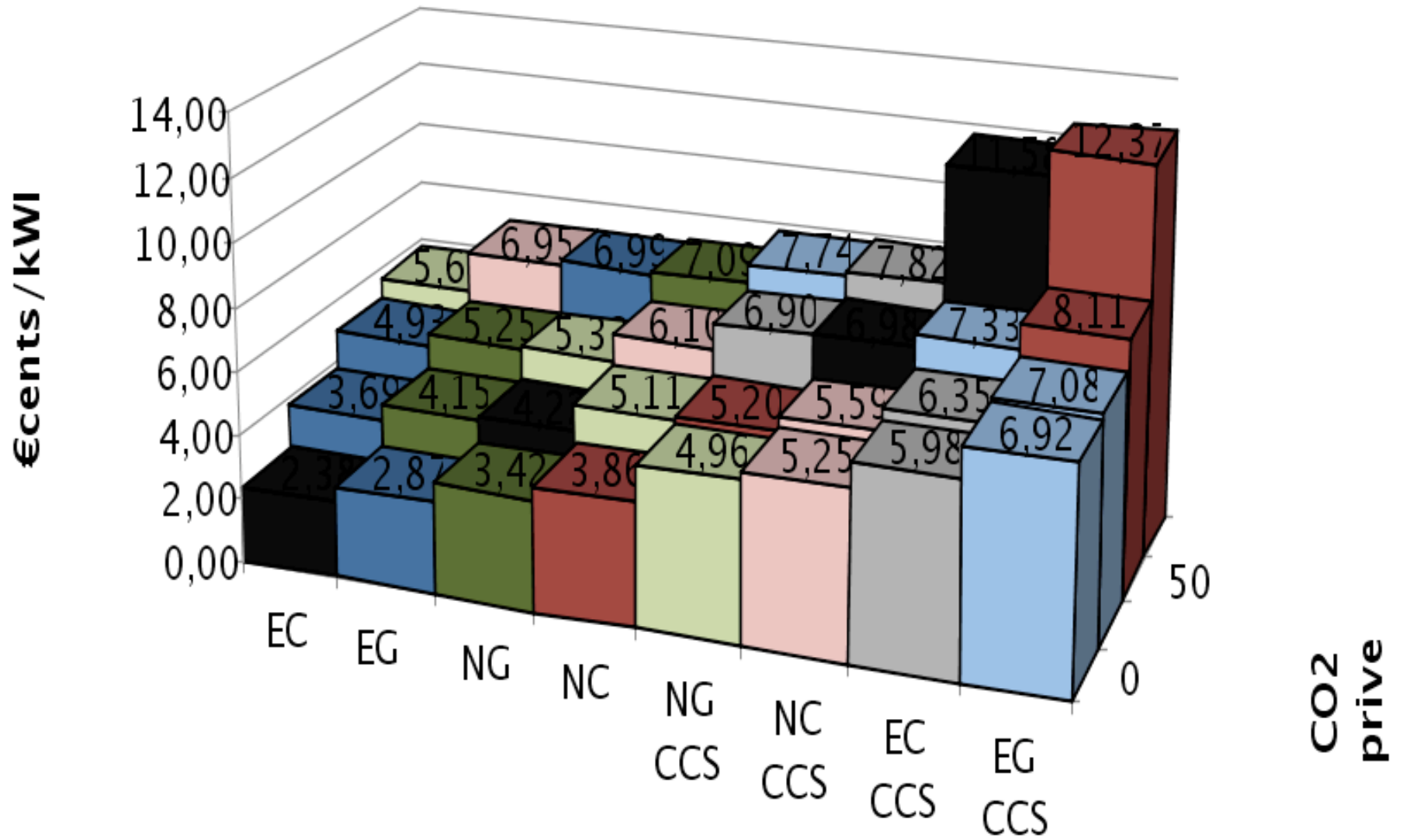


Electricity generation:

1. Long lived assets
2. Greenhouse gases: Some plants 'polluting', others not
3. Costly emission reductions:
 - Obsolescence
 - New capacity (and costlier)
 - Capacity utilization
 - (Political costs)
4. Limited trade (in and out of Europe, say), limited substitution possibilities



Marginal costs at various CO2 prices - baseline



Stakeholders:

- electricity producers
- households and services and other users
- electricity intensive industries
- (other energy and emission intensive industries)

An electricity producer: profit function

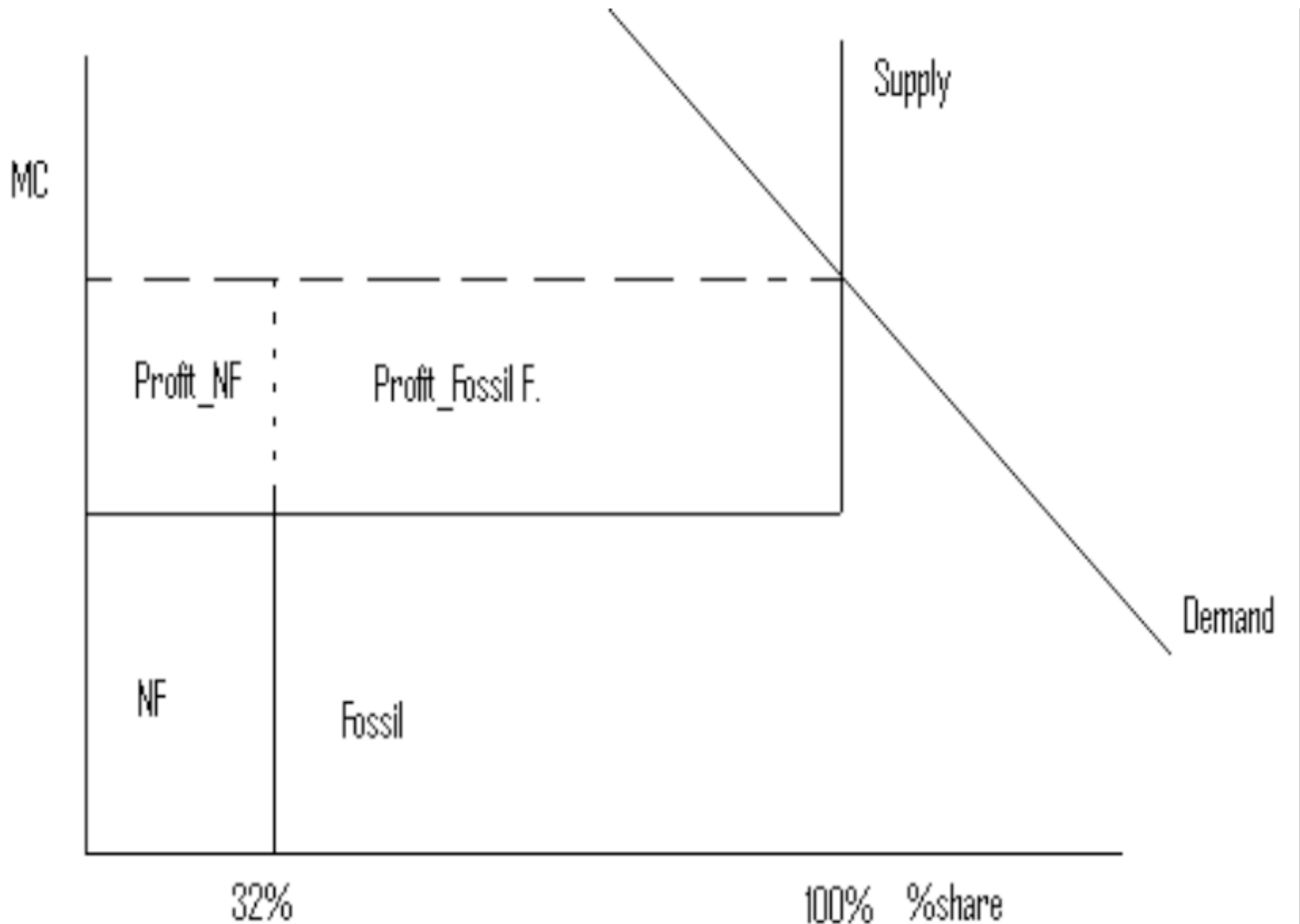
$$\pi^h(p_e, w, t_g) = \pi^h(p_e(t_g), w, t_g) =$$

$$p_e(t_g) f^h(x^h(p_e(t_g), w, t_g)) - \sum_j w_j x_j(p_e(t_g), w, t_g) - t_g g^h(x(p_e(t_g), w, t_g))$$

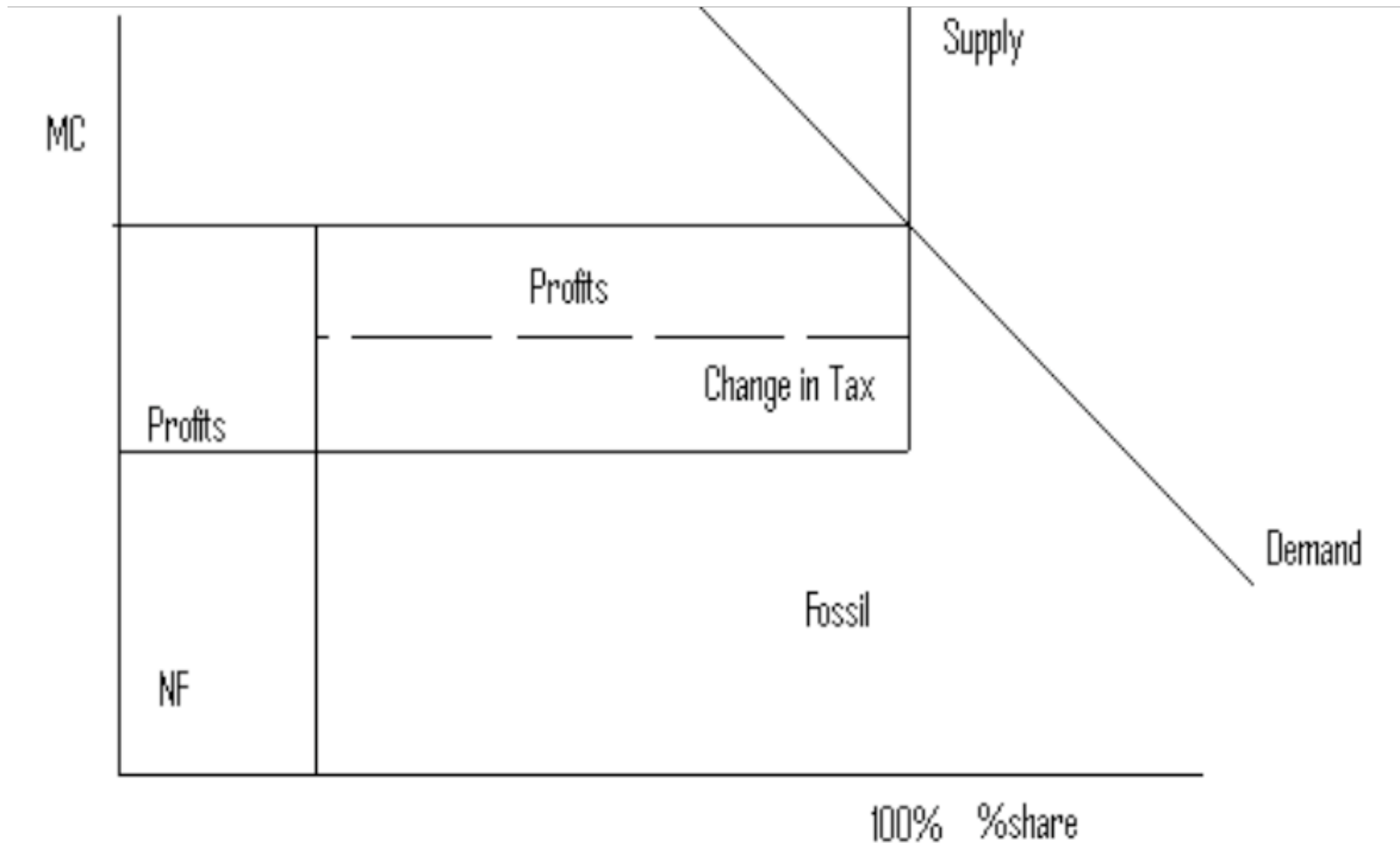
$$\frac{\partial \pi^h}{\partial t_g} = y_e^h \frac{\partial p_e}{\partial t_g} - g^h$$

$$\frac{\partial \pi^h / p_e y_e^h}{\partial t_g / t_g} = \xi_{pe,tg} - \frac{t_g}{p_e} \frac{g^h}{y_e^h}$$

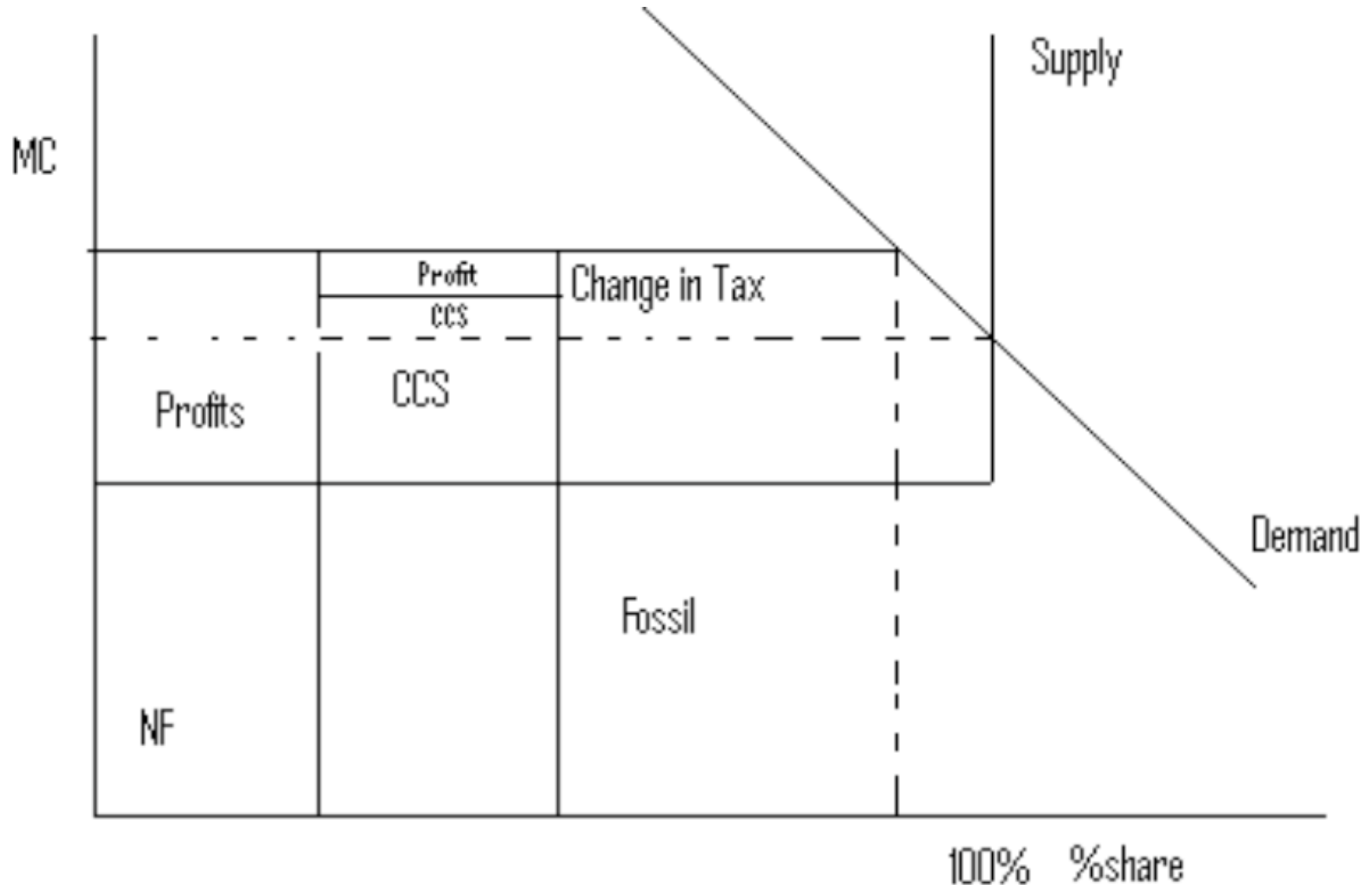
NHH Political feasibility: A focus on current assets



Emission taxes: take profits only

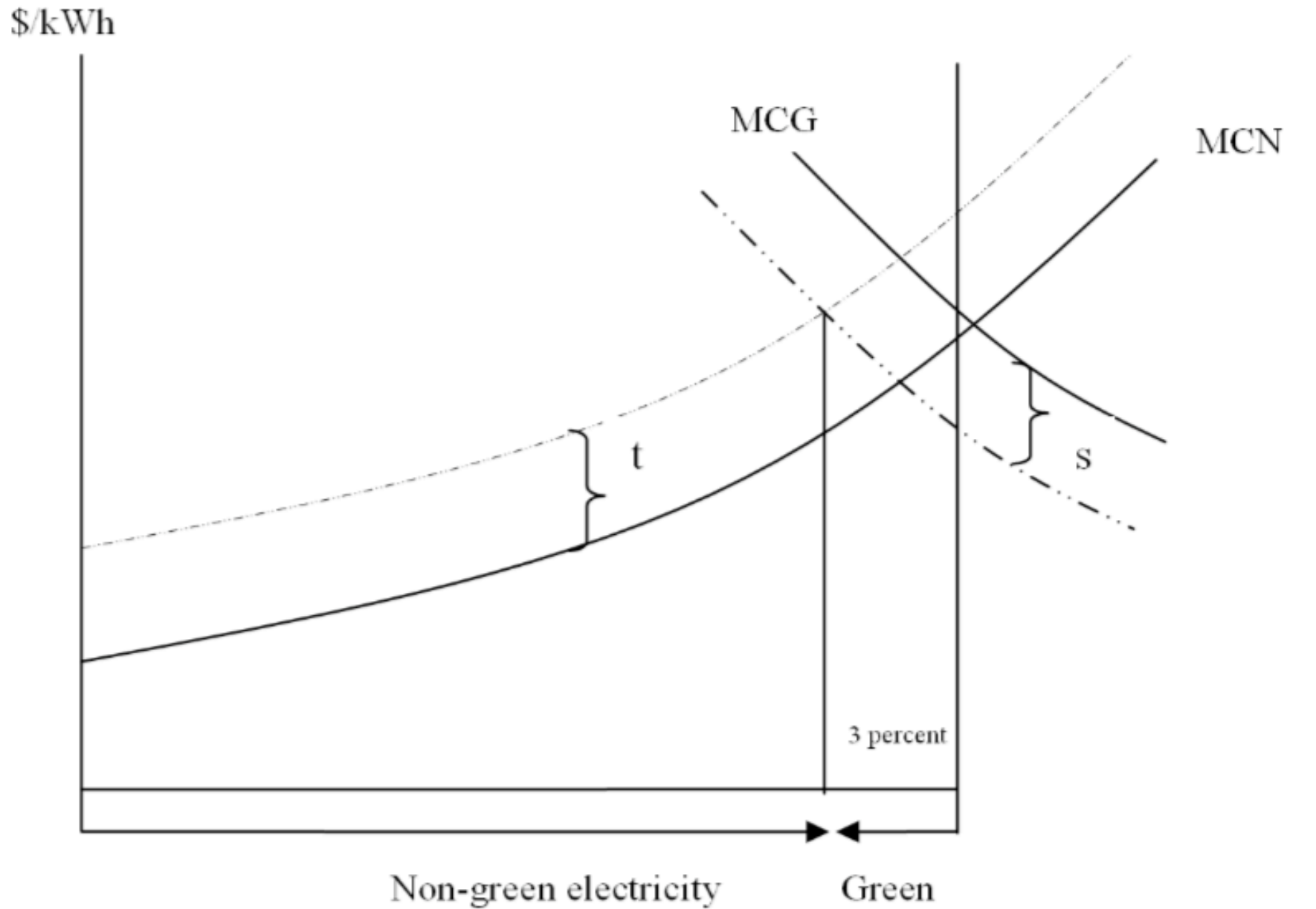


Until they raise prices, and/or induce abatement



**So: huge transfers, before any
environmental transformation of sector...**

- *Political feasibility I: the use of cross-subsidies*
- *Political feasibility II: the distribution of quotas for free*
- *Political feasibility III: energy efficiency programs (and other targeted programs)*
- *Political feasibility IV: far-reaching technological change*



		Cap-and-trade, or emission tax regime	
		No	Yes
Technology, R&D cooperation regime	No	<ul style="list-style-type: none"> - No climate policy 	<p>Pro:</p> <ul style="list-style-type: none"> - Cost effective. <p>Con:</p> <ul style="list-style-type: none"> - Likely to have low participation. - Weak on long term mitigation.
	Yes	<p>Pro:</p> <ul style="list-style-type: none"> - Seeks long term carbon-lean solutions. - Some R&D can be done by country or small coalition - Some climate friendly tech. R&D justified by other objectives: energy security, environment, etc. <p>Con:</p> <ul style="list-style-type: none"> - R&D program alone likely weak on direction, implementation and adoption, since incentives fail 	<p>Pro:</p> <ul style="list-style-type: none"> - R&D strengthens long term dimension of tax- or cap-and-trade system. Technological advances will reduce political resistance to mitigation. Cap-and-trade improves direction and efficiency of R&D. Thereby also broadens participation and deepens emission reductions. <p>Con:</p> <ul style="list-style-type: none"> - Multiple treaties may make for complex negotiations

Policy instruments review:

Qualifying dimensions:

1. Is instrument *neutral* , across abatement opportunities
1. Does instrument make *polluters pay* , FPPP
1. Does instrument stimulate future emission reductions, as much as present (i.e. tech r&d, future periods, etc)?

Instrument review, findings, all cttries

1. Emission trading system (part of economy, allocation, time)
2. Support for renewables: usually cross subsidies
3. Support for energy efficiency: varied, straight subsidies
4. Support for R&D: very low, it seems (judgement call)

Result: a) + b) (and c) implies lower prices for emissions and emission intensive goods (and services: electricity).

We believe a major weakness in today's approach to GHG is too low attention to far-reaching technological change

Free quotas: a price to make change politically acceptable? An acceptable price?

- Literature: Yes: free quotas compensate the regulated population (power producers)
- Buchanan and Tullock, 1975: *the penalty tax ...will be viewed as confiscatory...*
- Literature: in practice (Burtraw et al, 2006, the US): *free allocation of emissions allowances can dramatically overcompensate the electricity industry...*
- Harstad & Eskeland: *gratis threatens tradability result*
- Conclusion: *expectations, and long term*

The *distribution* of costs:

- Depends entirely on instrument choice
- History speaks:
 - Established capital is barely challenged
 - Freely distributed quotas as a way to change the world
- Electricity sector as example
 - Free quotas to old and to new: reasons and consequences
 - Green certificates etc: Tax and cross-subsidize
- Future speaks:
 - Free quotas
 - Border tax adjustments
 - CPP?

Refrain, in findings

- Resistance to raising prices, of emissions and of products (electricity, say), to level indicated by FPPP.
- Multiple instruments, distributive effects seem driving

Conclusion

- Conclusion:
- EcCs of pollution control changes when emphasis is on transition, not statics
- The position that capital cannot be taxed reiterated, but from another angle?
 - Old and tautological: because consumption is end, only consumption can give
 - Old, important: with capital mobile and supply curves horizontal, capital cannot be taxed
 - Here: *because* capital is rigid and sunk, it will be respected, not taxed

Towards future research

- One observation is that energy prices will not be as high as textbook claims, and recommends
- From this, an observation is that energy efficiency and energy R&D need special attention (and policies)
- We conclude (Knut Alfsen and I) and recommend; R&D treaty (we show that it is mutually supportive of instruments such as cap&trade, not alternative to, or in competition with)

So, proposal is:

- Study sectors in transition
- Technological potential
- Innovation and R&D
- Durability of capital
- Political resistance
- Constitutional restraint

Proposal, cont'd

- Maritime shipping
- Aviation
- Rest of transport,
- Electricity
- 'Urban', buildings
- Cement
- Fertilizer
- Buildings
- Metals

My take on this

- Either R&D in general, or
- Maritime transport,
- Or buildings, urban, mobility

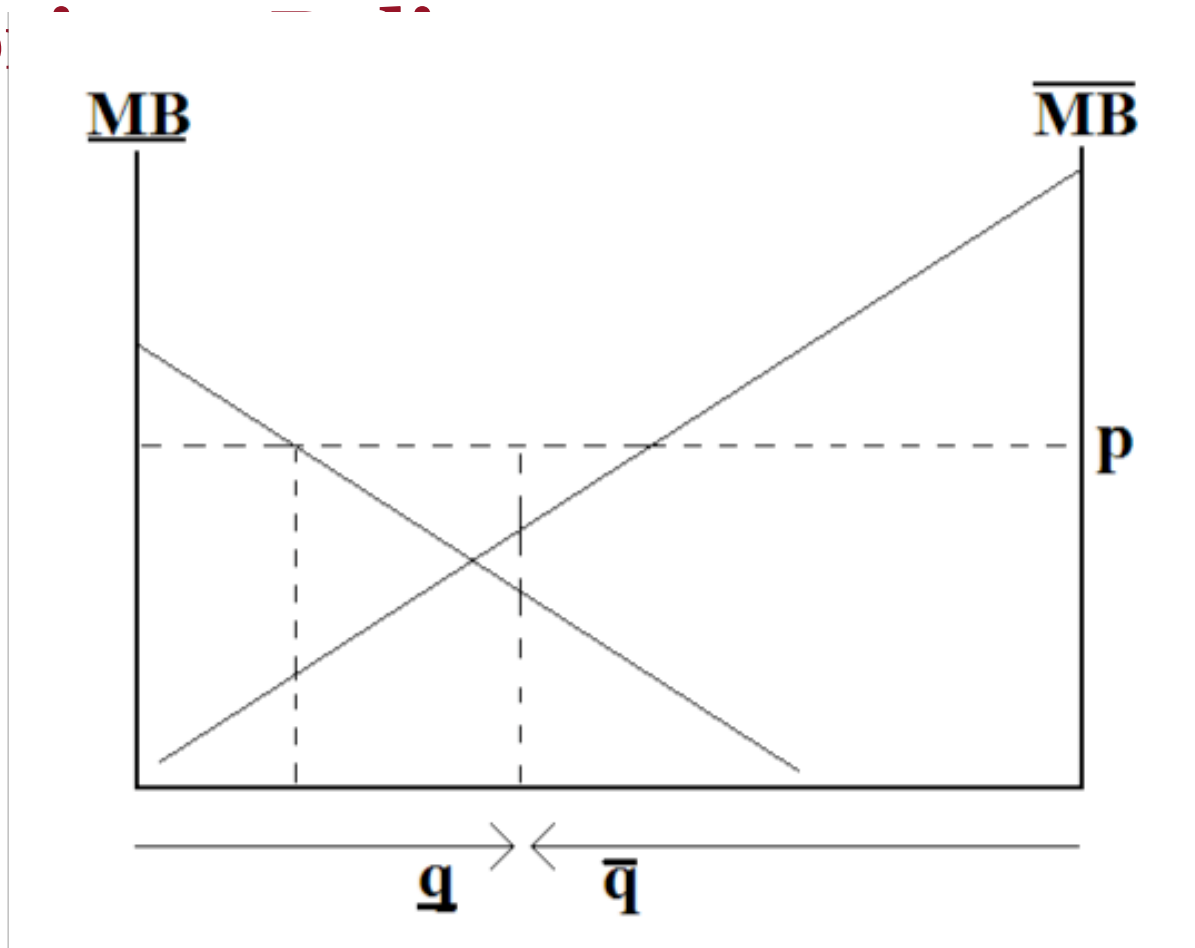
Proposal cont'd

- Where can technological change come from (in particular: if not from high expected emission prices)
- How can R&D be 'distributed', instigated
- Role of finance, of trade and – perhaps – of norms.

- Thanks!!



Equilib



- Total number of permits: $p > v$
- More permits to high-cost firms

Allow Trade

