Climate Change Policy and Governance: Taking Stock and Looking Ahead

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Climate change governance for a new global deal

- Reasons for a stall in climate change negotiations and the ways to overcome it;
- Political and institutional determinants of a successful state-based agreement;
- Alternatives to state-based agreements;
- Human rights and social justice aspects of climate change governance

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Atmospheric commons?

- Is climate change a "market failure on the greatest scale the world has seen (Stern, 2007)"?
- Or is it a tragedy of a commons?
- If it is, what follows?

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On the global scale, nations are abandoning not only the freedom of the seas, but the freedom of the atmosphere, which acts as a common sink for aerial garbage.

Garrett Hardin, 1998

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Global atmospheric sinks (GAS)

- GAS are a stock resource providing a flow a sink services. Their units are rival in consumption
- Number & heterogeneity of users, mixing of emissions: exclusion is costly
- The upshot: GAS is a common-pool resource vulnerable to a "tragedy of the commons"
- Key challenges to constrain use and to distribute benefits & costs of provision and use
- Collective ownership, voluntary measures and values all elements of polycentric governance

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Mitigation challenges

- Global emissions of GHGs would have to be at least halved by 2050 from their 2000 level to maintain warming within 2 degrees.
- This would require 80% GHG emission reductions in Annex 1 countries & reductions by other emitters.
- Equity could require still deeper cuts in developed countries and in other major emitters to maintain room for growth of GHG emissions in the LDCs.

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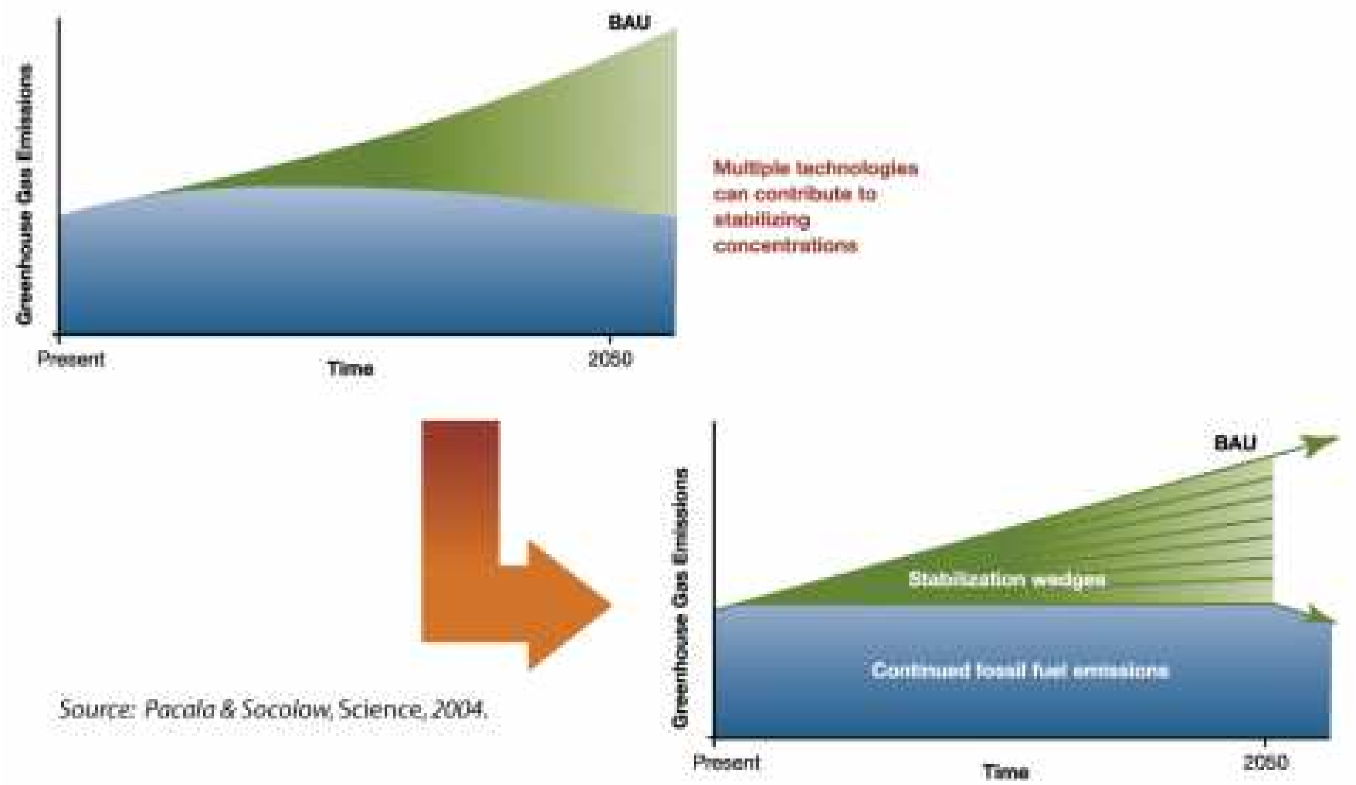
Stabilisation wedges - 50 % CO2 reduction



Source: Pacala & Socolow, Science, 2004.

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Stabilisation wedges II

- Technologies to cut CO_2 emissions by 50 % in 50 years exist to stabilise GHG concentrations at 500 ppm. Examples:
  1. Improve average fuel efficiency of cars from 30 mpg to 60 mpg by 2054 – yields 1 GtC/y and 25 GtC savings in all
  2. Reduce car reliance to achieve 50 % reduction in annual average mileage from 10000 miles to 5000 miles.
  3. Produce twice today's quantity of coal-based electricity at 60% instead of 40% efficiency
  4. Add 700 GW of nuclear power generating capacity, about twice the nuclear capacity currently deployed globally
  5. Wind electricity wedge requires 2000 GWp capacity to replace coal electricity: 50 x today's wind turbine deployment

Costs and benefits of mitigation I

- Stern (2007) suggests that "costs and risks of climate change will be equivalent to losing at least 5% of global GDP each year, now and forever. If a wider range of risks and impacts is taken into account, the estimates of damage could rise to 20% of GDP or more"
- Stern suggests that "stabilising GHG concentrations at 500-550 ppm by 2050 would cost 1% of global GDP".
- Furthermore, about one third of the GHG emissions reductions needed by 2030 could yield a net benefit.

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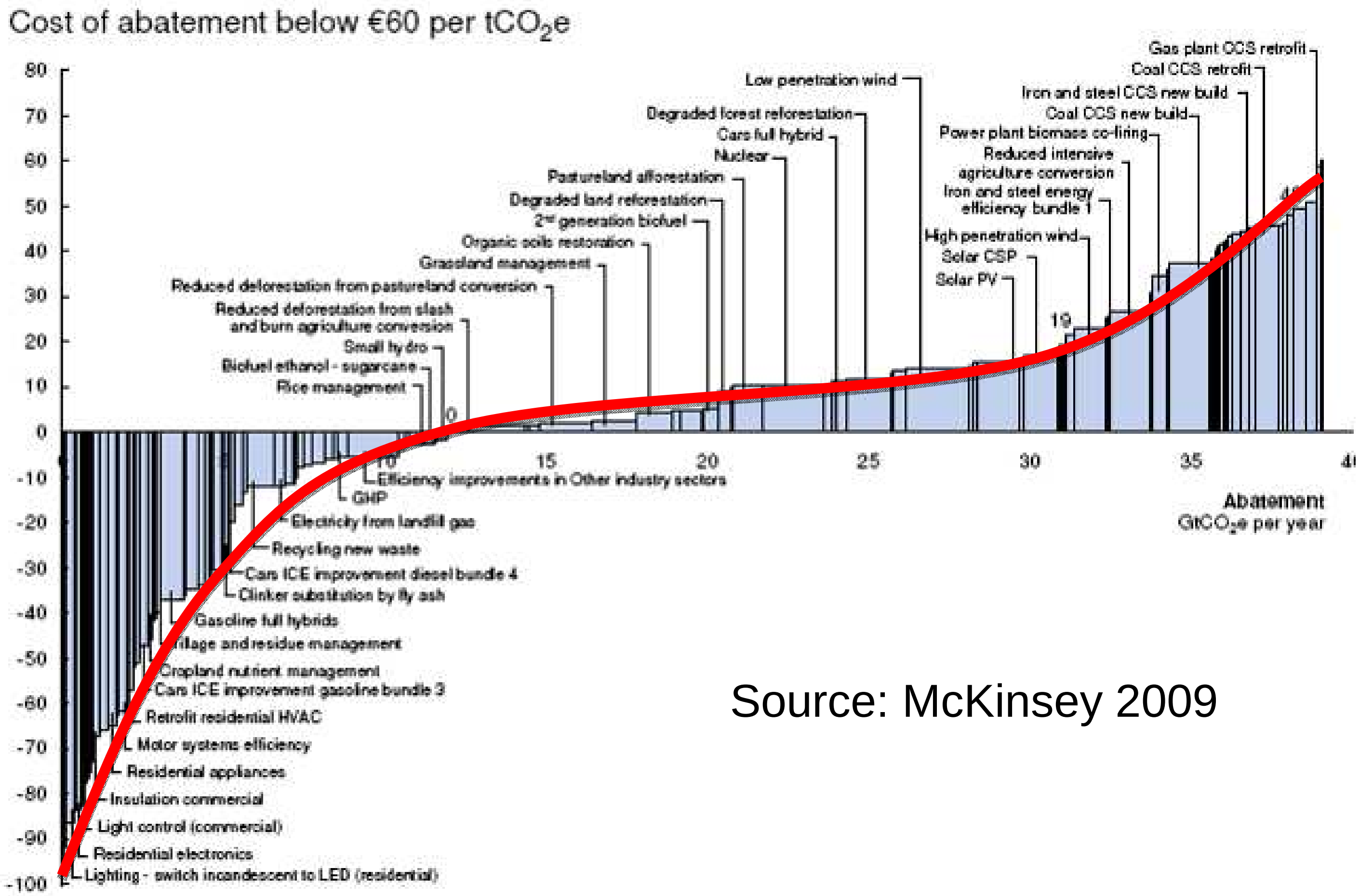
Costs and benefits of mitigation II



Source: McKinsey 2009

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UNFCCC Mitigation Record

- The UNFCCC goal is to stabilise GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system
- Yet the UNFCCC fails to cap atmospheric GHG concentrations:
  - Safe atmospheric CO2 target estimates have ranged between 400-500 ppm but are increasingly contested as too high;
  - CO2 level stands now at 388 ppm and rising ca 2 ppm annually
  - Potentially dangerous CO2 levels are reached in a decade.
- Kyoto commitments have done little to curb global GHG gas emissions & struggle to deliver 5 % reduction of GHGs in the Annex I countries and 8 % reduction in the EU-15.

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EU-15 GHG emissions 1990-2008

Country	target	1990	Changes 1990-2008
	%	*Million tonnes*	*%*
Austria	-13.0	78.2	+10.8
Belgium	-7.5	143.4	-7.1
Denmark	-21.0	68.9	-7.4
Finland	0.0	70.4	-0.3
France	0.0	563.2	-6.4
Germany	-21.0	1 231.8	-22.2
Greece	+25.0	105.6	+22.8
Ireland	+13.0	54.8	+23.0
Italy	-6.5	517.0	+4.7
Luxembourg	-28.0	13.1	-4.8
Netherland	-6.0	212.0	-2.4
Portugal	+27.0	59.3	+32.2
Spain	+15.0	285.1	+42.3
Sweden	+4.0	72.4	-11.7
UK	-12.5	771.7	-18.6
EU-15	**-8.0**	**4 224.7**	**-6.5**
EU-27	N/A	**5 567.0**	**-11.3**

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Source

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EU-27 GHG emissions 1990-2008

Country	target	1990	Changes 1990-2008
	%	*Million tonnes*	*%*
EU-15	**-8.0**	**4 244.7**	**-6.5**
Bulgaria	-8.0	117.4	-37.4
Cyprus	N/A	5.3	+93.9
Czech	-8.0	195.2	-27.5
Estonia	-8.0	40.8	-50.4
Hungary	-6.0	97.4	-24.9
Latvia	-8.0	26.8	-55.6
Lithuania	-8.0	49.7	-51.1
Malta	N/A	2.0	+44.2
Poland	-6.0	453.3	-12.7
Romania	-8.0	242.1	-39.7
Slovakia	-8.0	73.9	-33.9
Slovenia	-8.0	18.5	+15.2
EU-27	**-7.6**	**5 567.0**	**-11.3**

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Emissions in other countries

- ❑ Emissions of Australia, Japan and United States increased 15-25 % between 1990-2004
- ❑ Emissions of Brazil, India and China increased 60-110 % between 1990-2004.
- ❑ Barrett and Toman (2010) have recently suggested that Montreal Protocol has achieved 4 times greater GHG reductions than KP to date

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Weaknesses of the UNFCCC

- ❑ Too few countries have commitments;
- ❑ Those who have commitments have too lax ones and do not even deliver them;
- ❑ Too many sources remain outside of commitments
- ❑ Costly negotiation, lack of political will …
- ❑ Should we consider alternatives?

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Polycentricity?

- Empirical base in the post-war public service and good provision in the US
- Ostroms' demonstrated that new overlapping, networked and coreless governance solutions made both economic and political sense
- Vertical differentiation and horizontal dispersion of authority key features, in addition to bottom up processes;
- Is polycentric governance emerging for climate change?

	Monolithic	Fragmented
Symmetry	TD: Federal state BU: Nested irrigators' associations	?? ??
Differentiation	TD: EU environmental directives BU: International conventions	BU: Industry initiatives BU: Local government networks

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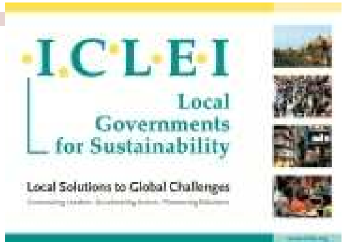
Cities for Climate Protection (CCP)

- Founded in 1993, a leading but not the only network of local governments.
- CCP expects a local action plan, emission reduction measures, awareness raising, and low carbon procurement from those joining
- 550 local governments involved, representing 4% of population and 6 % of GHG emissions globally
- Has achieved CO_2 reductions of 60 million tons or about 3 % between 1990-2006
- CO_2 reduction generated a net benefit of about $35 per tonne to local governments.



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Cement Sustainability Initiative (CSI)

- Formed by the key manufacturers in 2002, considered template of the "sectoral approach"
- Cement production creates 5 % of global CO_2 emissions. CSI represents two thirds of global cement production outside China.
- Baseline emissions inventory, targets & annual reporting. Joint search for CO_2 reductions.
- Thermal efficiency up 14 % and CO_2 emissions 6% down per ton of clinker between 1990-2006.
- Yet industry-wide CO_2 emissions increased by 35 % and cement output by 50 %.

Cement Sustainability Initiative

REDD

- 2007 Bali Action Plan called for *"policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries"*
- Deforestation & biomass decay contribute 15 % of GHG emissions. Two thirds of forest carbon stocks are in developing countries.
- Scoping (RED, REDD, REDD+), the establishment of a reference level, management plan and actions, and financial reward are the cornerstones of the draft scheme.
- Multiple sources of potential financing, from governments to voluntary carbon markets.

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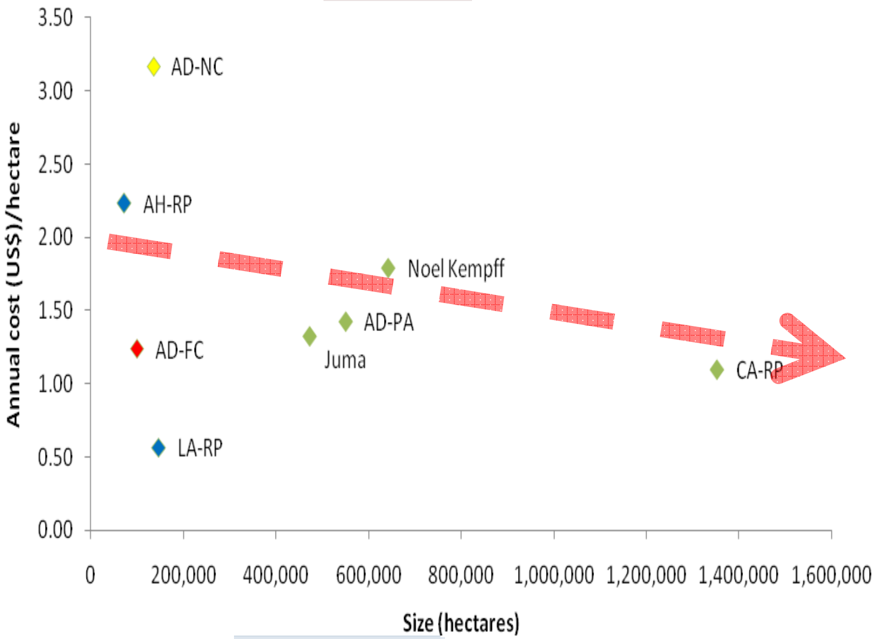
REDD

- Set-up costs & economies of scale favour larger projects
- Implementation costs low in legally protected & remote sites.
- Management and opportunity costs higher in tribal / indigenous lands and in frontier
- Who gets payments, who carries (opportunity) costs?



Source: Rendon et al, 2010

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Conclusions

- There is rationale for polycentric climate change governance and indications exist that it is already emerging
- Non-conventional governance can muster substantial action to curb GHG emissions but is this focused on cost-saving solutions?
- There is thus scope for state-based solutions as well. How do state based and non-conventional forms of governance interact?
- To what extent non-conventional governance solutions generate new solutions, create & expand markets, mainstream and benchmark, and thereby shift cost curves?
- Do non-conventional forms of governance signal political willingness to accept binding commitments and create political pressure?

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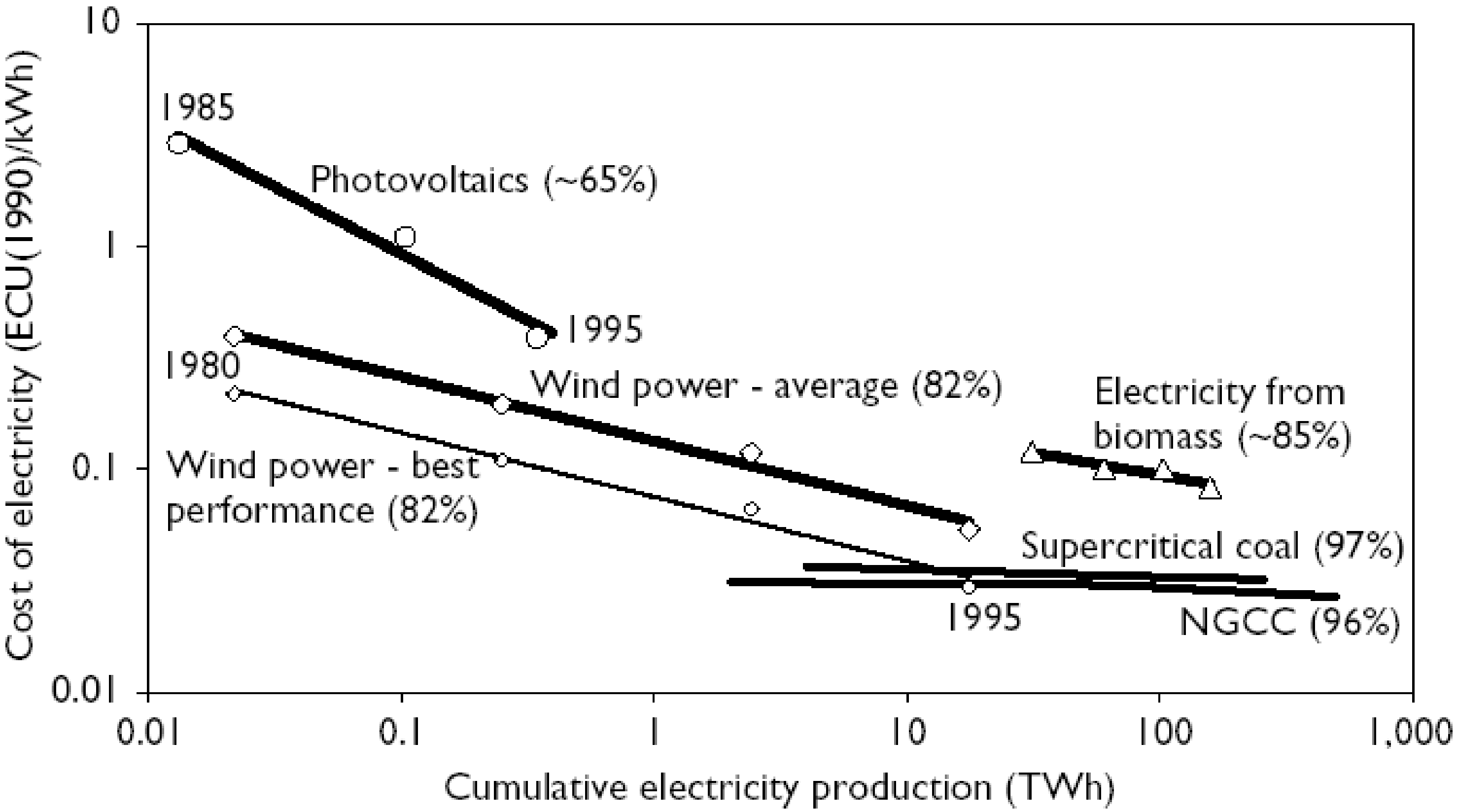
Marginal costs of abatement I



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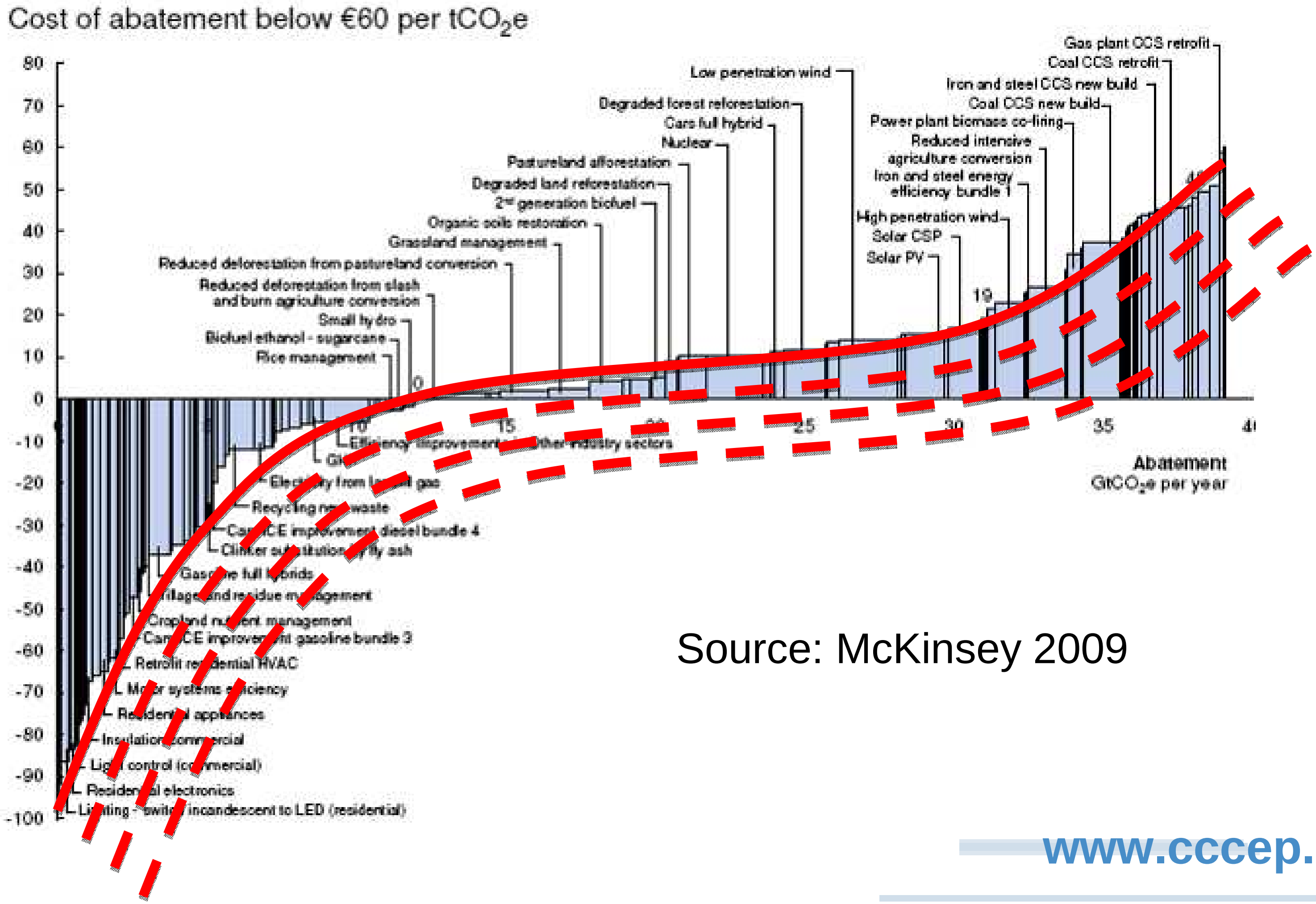
Costs and benefits of mitigation



Source: McKinsey 2009

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