



Methodological reflections on the European Commissions' 2013 use of CBA for air pollution policy

EU Conference on modelling for policy support

Complex system modelling and multi-criteria decision making 1 - Room 0.C

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26th of November 2019

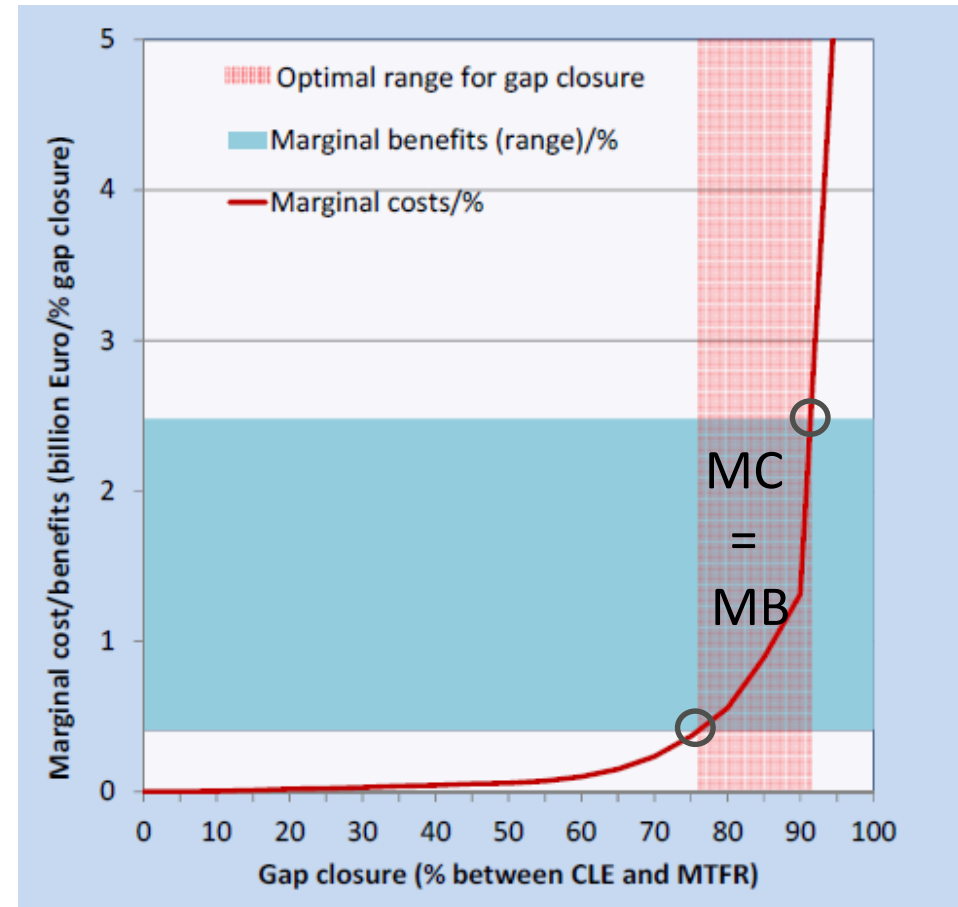


Financed by the Swedish EPA with the Swedish Clean Air and Climate Research Programme



Background

- First time a cost-efficient CBA model solution was used by policy makers to suggest targets for EC proposal on new air quality policy
- Cost efficiency in standard welfare economics:
Marginal Costs = Marginal Benefits
- Growing critique of CBA whilst usage of CBA becomes descriptive and precise
- How come? Is it defensible?
Is it good policy support?



Source: Amann et al., 2014

How come?

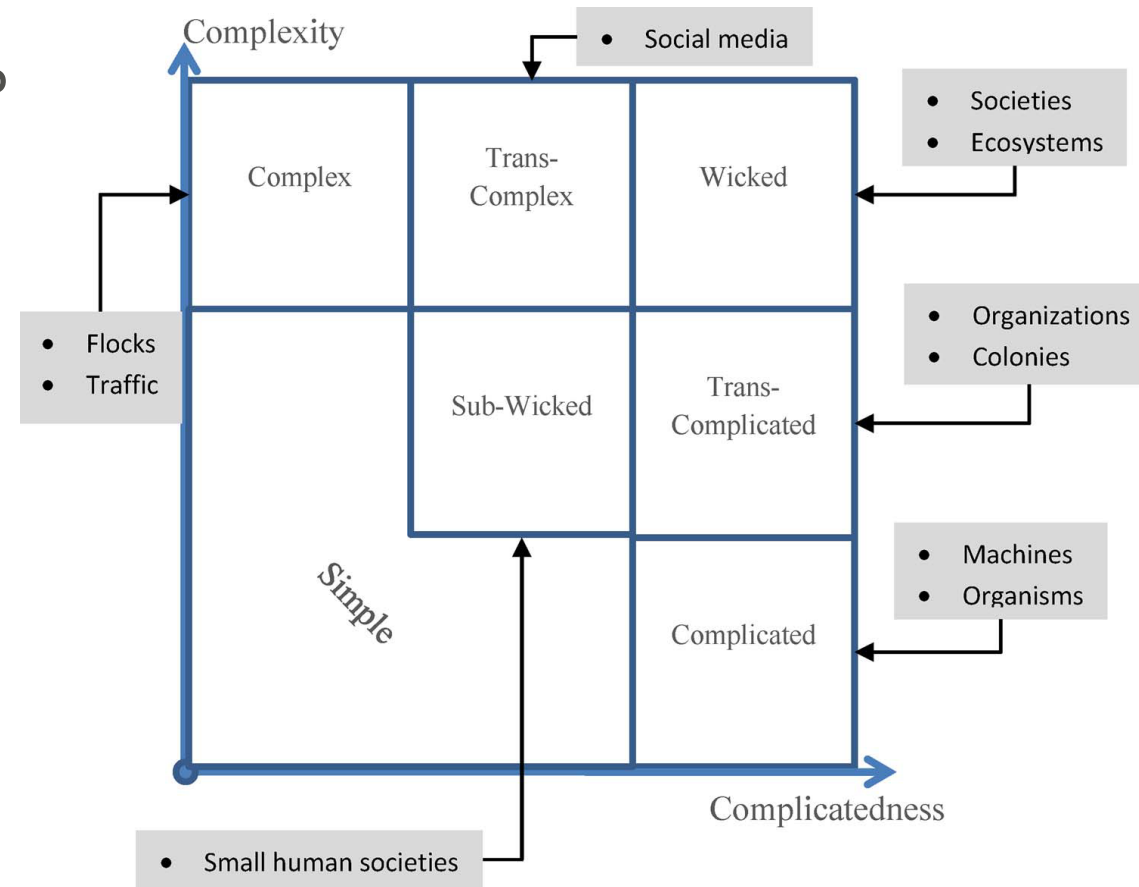
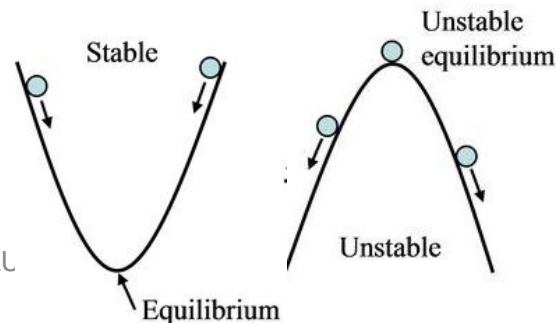
- The simple answer: Economic impact assessments of policy proposals mandated by EU law and national laws.
- The analytical infrastructure is established:
 - Cost effectiveness an important principle of environmental policy
 - Policy support modelling developed accordingly.
- Homo economicus is a consistent and transparent rationale, alternative approaches yet to be established

Is it defensible?

- Questioned methodology
- Questioned ethics
- Data gaps in CBA
- Uncertain future
- What are policy support models meant to do?
- The policy reality after the modelling

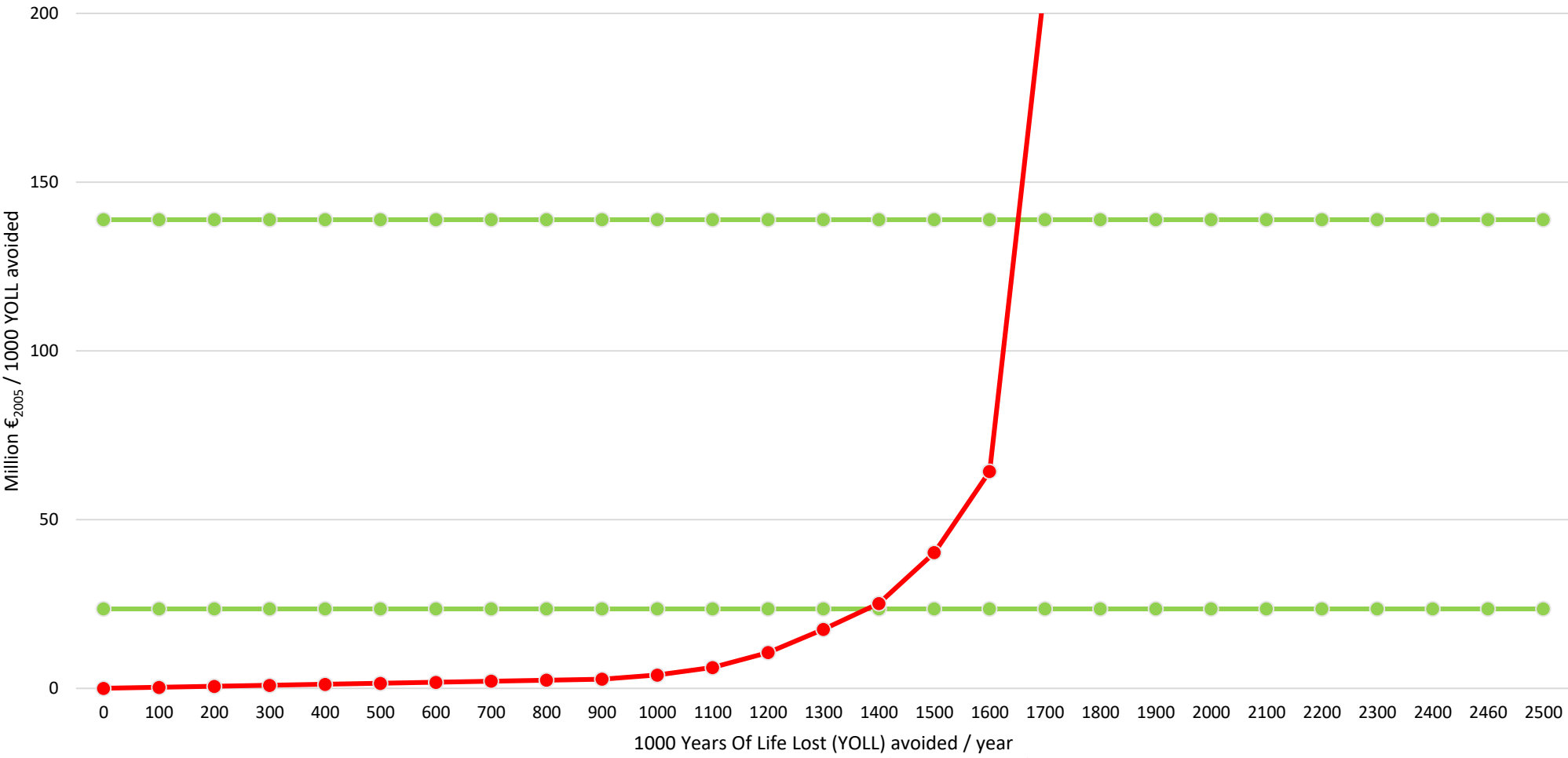
Questioned methodology

- Is the socio-techno-economic system stable? (Or is it complex or even wicked?)
- Is *Homo Economicus* representative?
- Can human values can be revealed with economic valuation methods?
- What about positive feedbacks, pathway dependency and transformative changes?



Source: Andersson & Törnberg, 2018

The original input



Cost-efficient emission reduction:

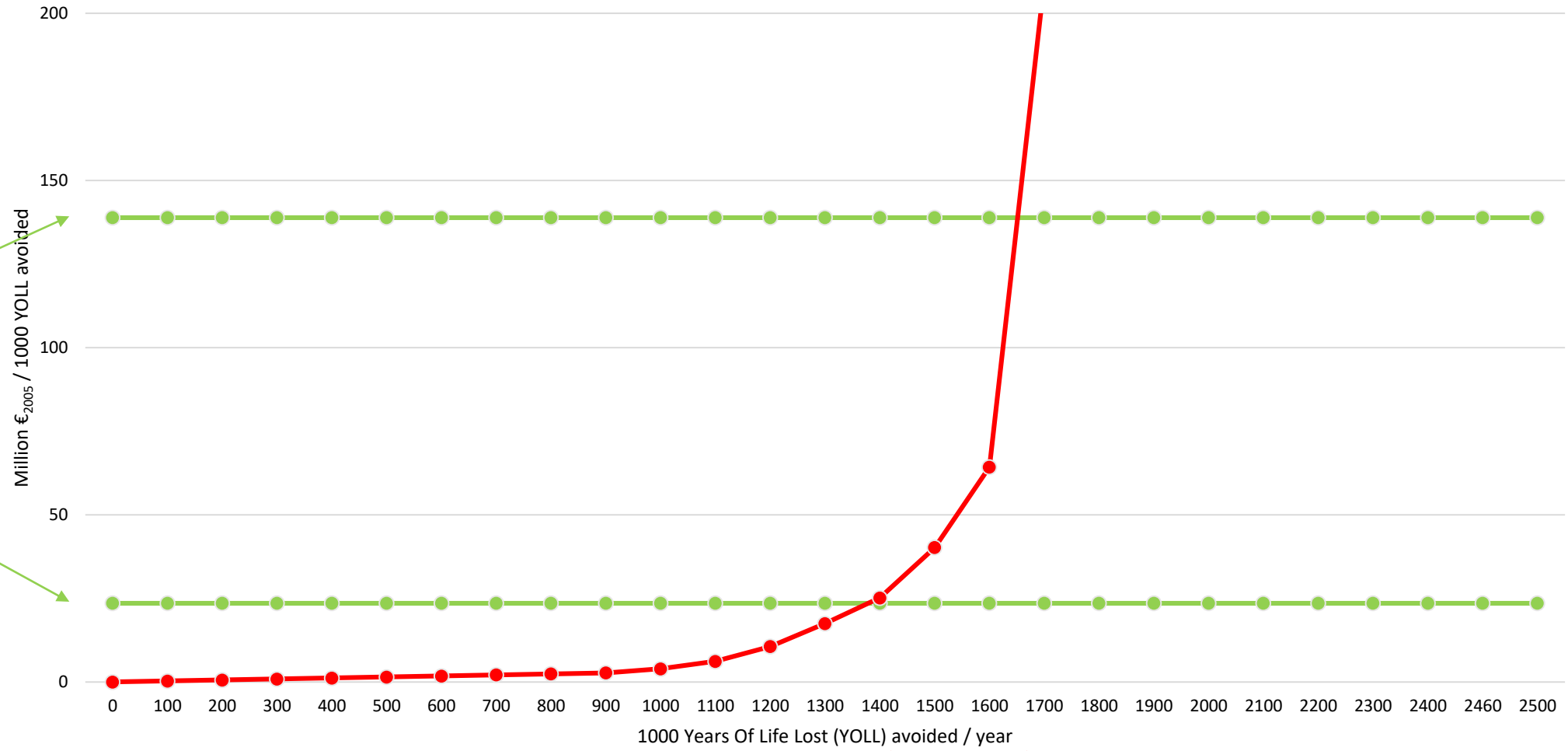


Questioned ethics

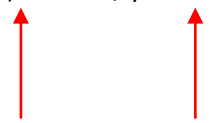
Do you like old people?

Yes

No



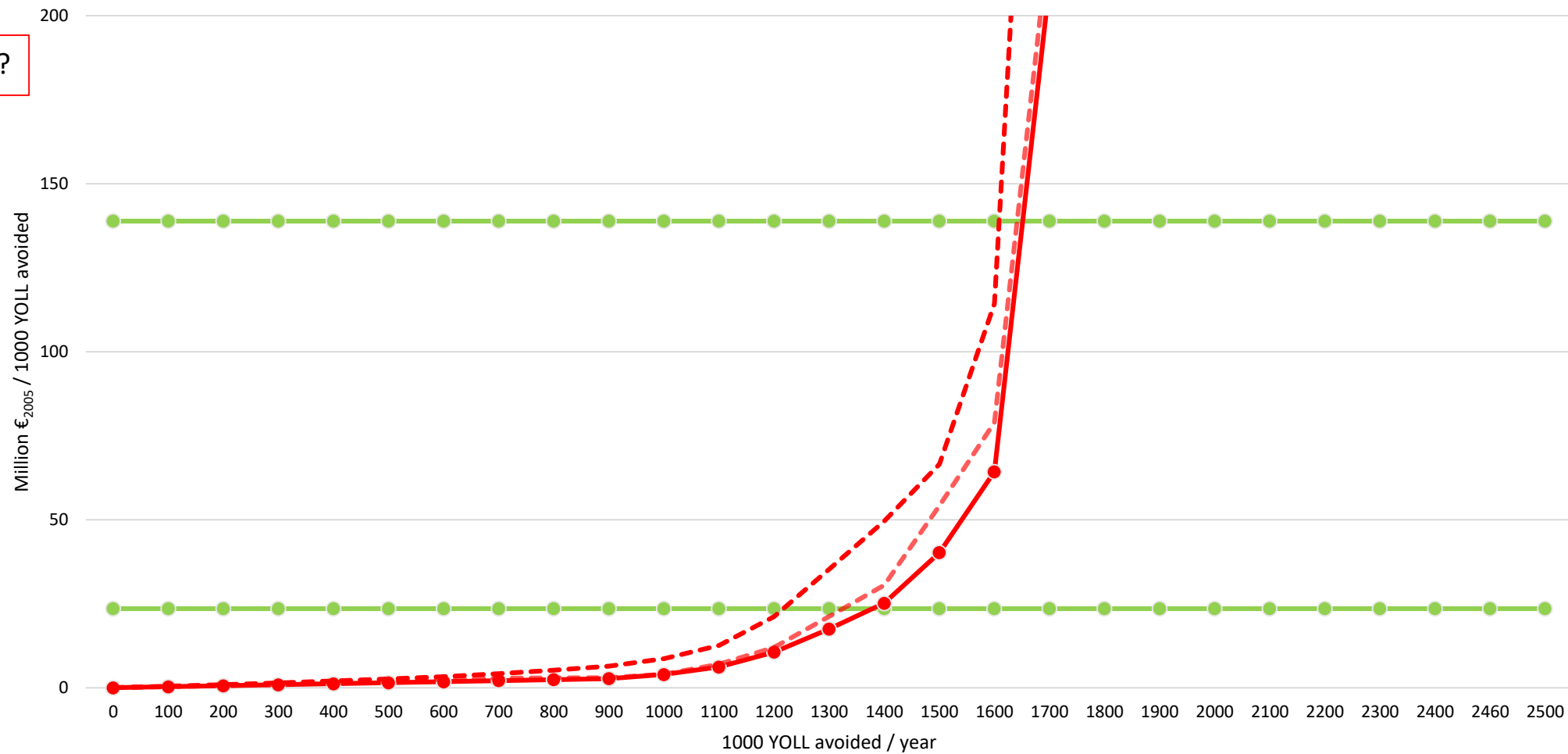
Cost-efficient emission reduction:



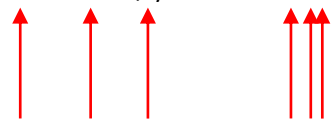
Data gaps and uncertain future (illustrative)

Cost effect of inv. perspectives?

Source: Åström et al., 2019



Cost-efficient emission reduction:

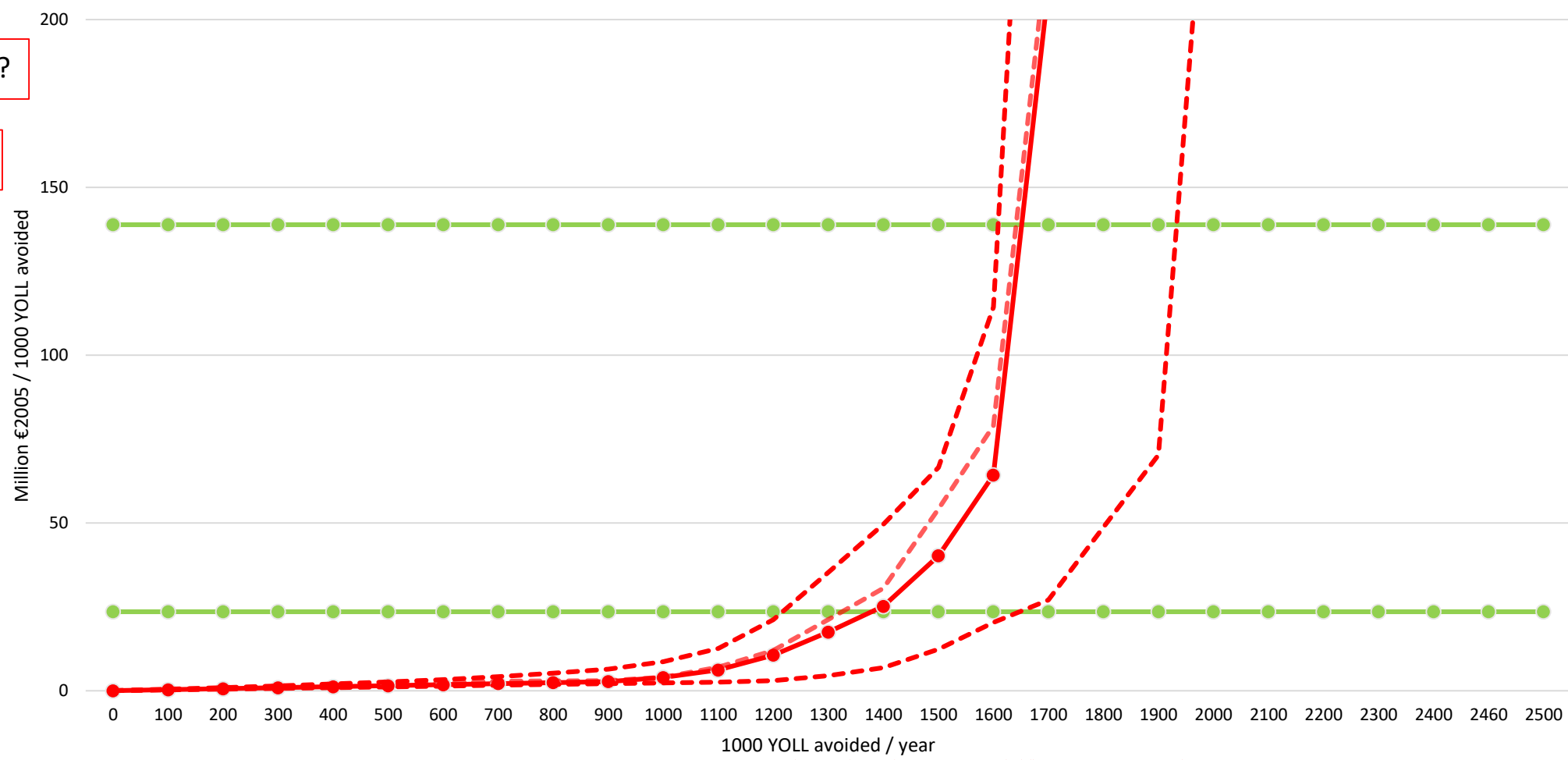


Data gaps and uncertain future (illustrative)

Cost effect of inv. perspectives?

Cost effect of EU GHG policy?

Source: EU parliament (2014)



Cost-efficient emission reduction:



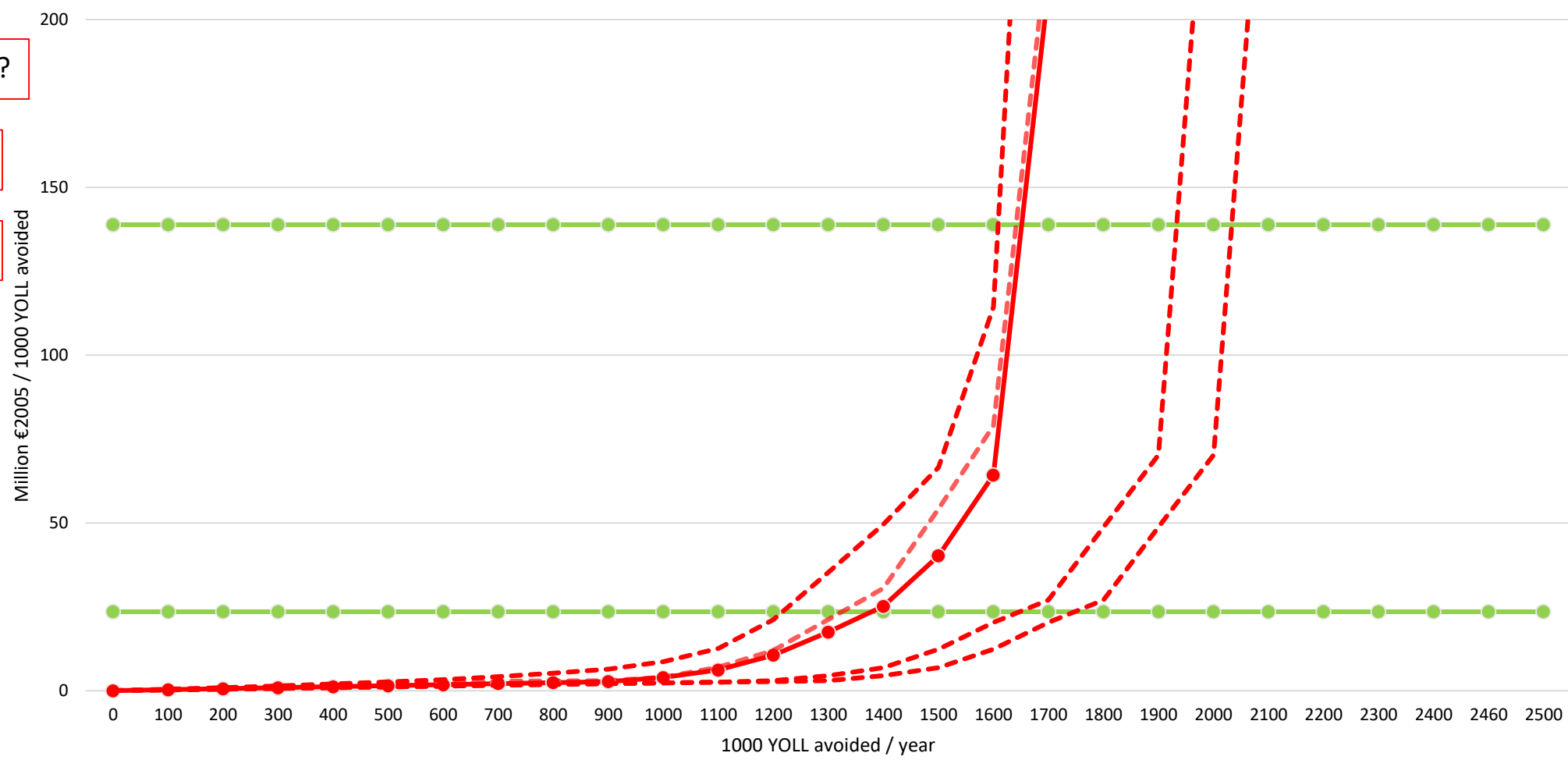
Data gaps and uncertain future (illustrative)

Cost effect of inv. perspectives?

Cost effect of EU GHG policy?

Cost effect of shipping?

Sources: Cofala et al. (2019) & Åström et al. (2018)



Cost-efficient emission reduction:



Data gaps and uncertain future (illustrative)

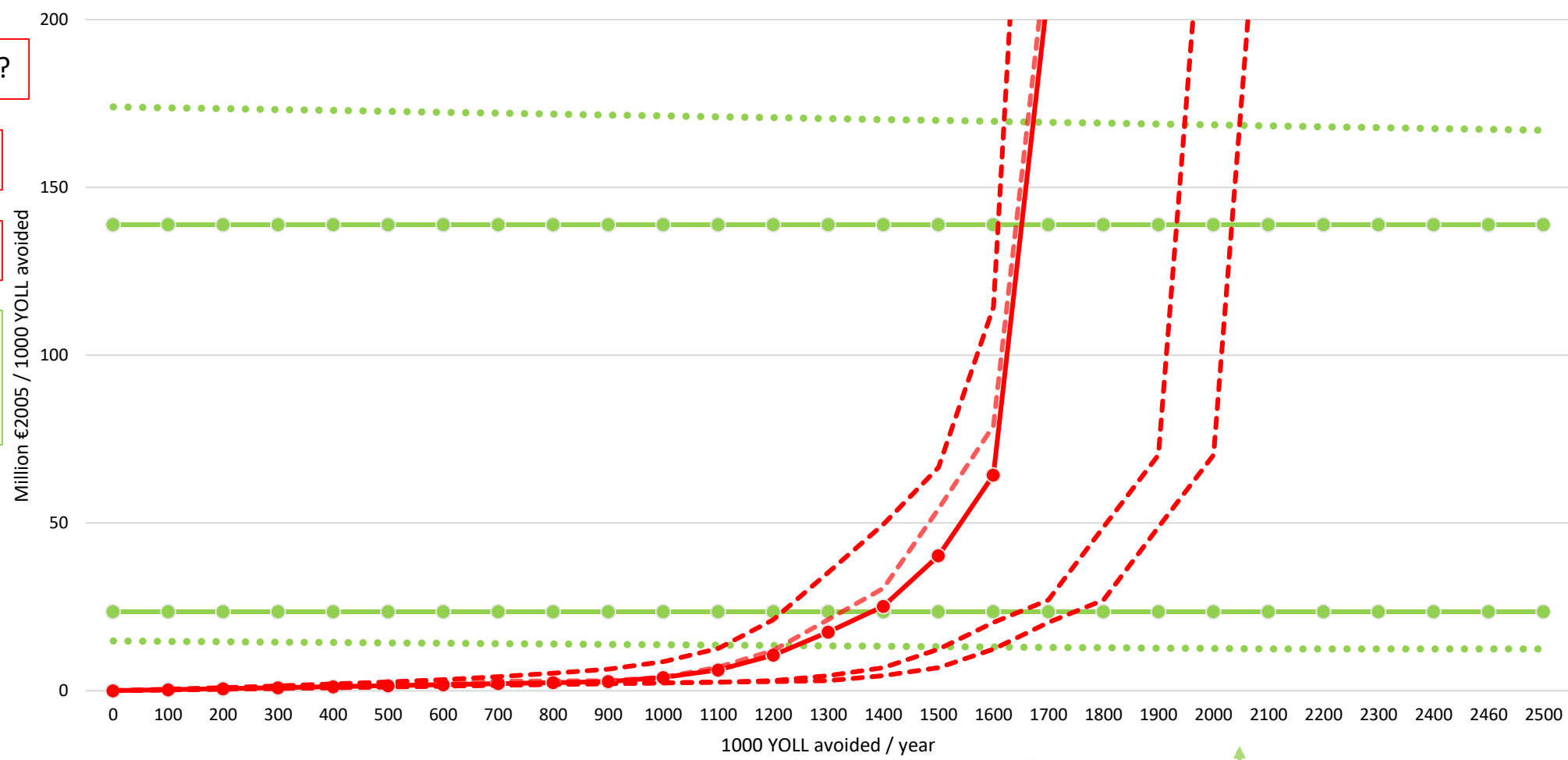
Cost effect of inv. perspectives?

Cost effect of EU GHG policy?

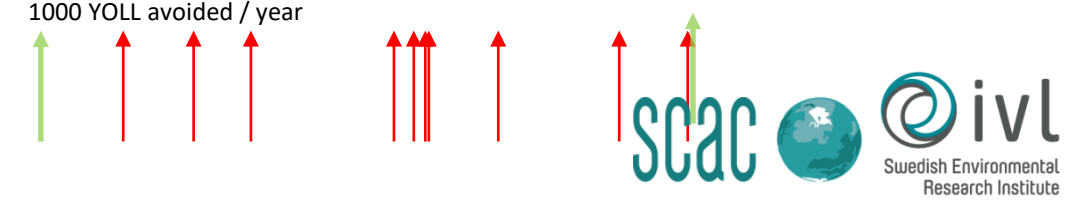
Cost effect of shipping?

Benefit effect of morbidity-, ecosystem, and SLCP climate effects?

Sources:
 Hypothetical based on
 Gustafsson et al. (2018),
 Kriit & Åström (in preparation),
 Ytreberg et al (in preparation),
 Åström et al. (2018)



Cost-efficient emission reduction:



What are policy support models meant to do?

- Scrutinizing the CBA concept indicate problems, but...
- Policy makers needs cost-effective* even cost-efficient** policy,
- Alternative economic approaches have yet to provide advice,
- Policy support models do not aim to predict the future, rather to:
 - provide a “... level epistemological basis for debating social, political, and moral theories that can be used to frame economic policy” *Source: Evans (1999) on macro-economic modelling),*
 - Present a “credible counterfactual world” *Source: Sugden (2007) on theoretical economic models).*
- Policy support models interact with the policy environment,
(hence rational for CBA to exclude shipping and climate policies)
- Policy makers are accounting for priorities outside the model domain in the negotiation process. Example:

Negotiations for a National Emissions Ceilings Directive (NEC)

The policy reality after the modelling: NEC

- Changed target year from 2025 to 2030
- Internal EC discussions adjusted ambition
- Proposed NEC in Dec. 2013
- Complementary climate policy analysis Oct. 2014
- Proposal almost cancelled in Dec. 2014
- Letter from mayors of Paris and London 27th May 2016

MAYOR OF LONDON

La Maire de Paris

Ms Sharon Dijksma
Dutch Minister for the Environment and
President of the European Union Environment
Council
Ministry of Infrastructure and the Environment
P.O. Box 20901
2500 EX The Hague
The Netherlands

Date: May 27th, 2016

Dear Ms Dijksma

We write as the leaders of two of the largest cities in the European Union whose citizens disproportionately feel the impact of pollution blown across the continent. This letter urgently sets out our joint priorities for the National Emissions Ceiling Directive that is currently being discussed and finalised.

In the coming month, the institutions of the European Union and its member states have a once in a generation opportunity to proactively address Europe's air quality public health crisis. Across the continent the equivalent of 400,000 people die each year as a result of long-term exposure to air pollution.

Estimations by the European Commission suggest that weaker national emissions ceilings would lead to about 16,000 extra deaths in the EU every year¹. This is not acceptable and we require our Governments to follow the bold lead taken by our cities in tackling this issue.

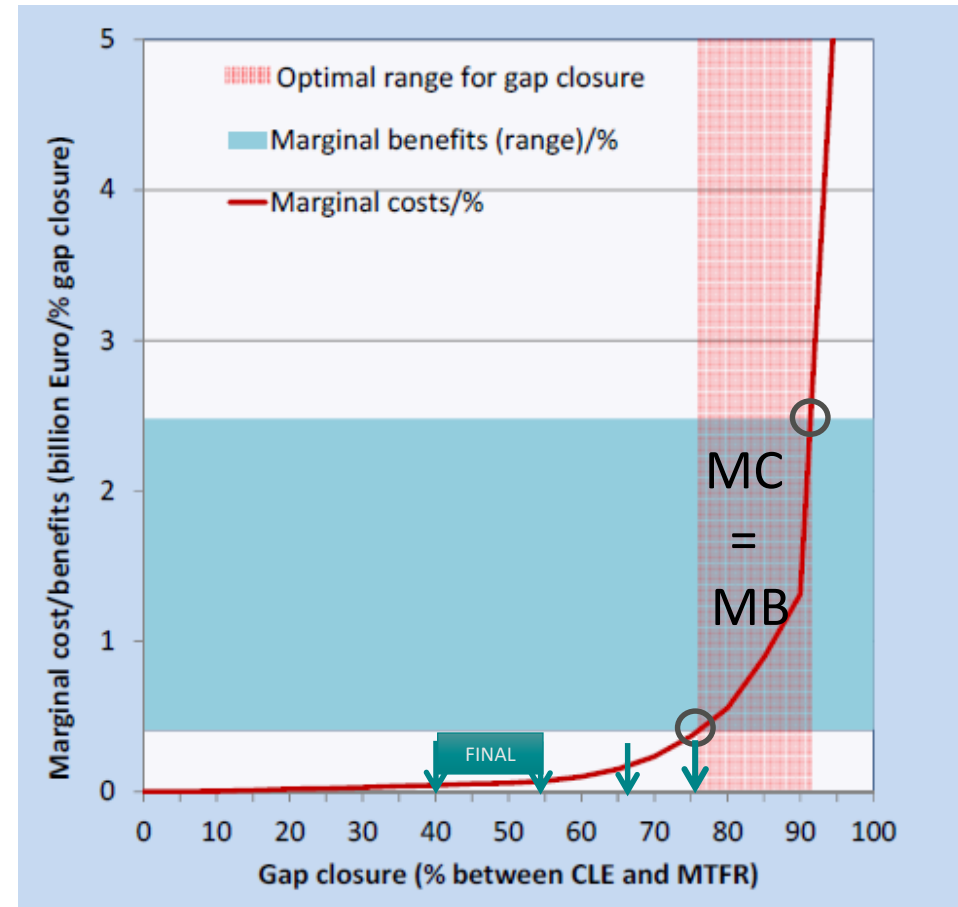
Accordingly we are calling on Europe's institutions and all member states to adopt binding targets for both 2025 and 2030 within the National Emissions Ceiling Directive. These ceilings must at a minimum meet the position adopted by the Parliament in October 2015 although we believe that even greater ambition is still required. It is also essential that both ammonia and methane remain in the scope of the directive given their broader contribution to the formation of air pollution.

All sectors must contribute to the fight against air pollution, including agriculture and road transport. For this reason we also call on Europe's institutions and all member states to adopt a Euro 6 testing regime that works. The current testing proposals allow vehicle nitrogen oxides (NOx) emissions to exceed the agreed emissions limits by more than double until 2020 with ongoing flexibility beyond this. It is unacceptable to introduce emissions thresholds, only to allow them to be violated. It cannot be right to impose a duty upon public authorities to comply with air pollution standards, while at the same time giving the automotive industry the green light to infringe them.

¹ In his speech at the Environment Council's debate on 16 December 2015, EU Environment Commissioner Vella estimated that every percentage change from the 25% health improvement proposed by the European Commission for the National Emissions Ceiling Directive would result in around 1,000 additional premature deaths in the year 2060. The four percentage "weakening" proposed by the Council's general approach would therefore lead to around 16,000 additional premature deaths EU-wide in the year 2060.

The policy reality after the modelling: NEC

- No decision 20th of June 2016 (the last opportunity during Dutch presidency)
- Brexit vote June 23rd 2016
- Dutch foot-work ensures provisional agreement on the 30th of June 2016
- Ambition level much above baseline



Source: Amann et al., 2014

Does CBA give good support for air pollution policy?

- How come?
 - Mandated by law, robust research infrastructure, consistent rationale in methodology, lack of reliable analytical alternatives,
- Is it defensible?
 - Questioned methodology
 - Questioned ethics
 - Data gaps in CBA
 - Uncertain future
 - What are policy support models meant to do?
 - The policy reality after the modelling
- On the balance: Yes, but...
- **CONTINUOUS METHODOLOGICAL, METHOD, AND MODEL DEVELOPMENT SHOULD BE PROMOTED MORE!**

Cross cutting messages for policy support modellers

- Continuous method and data development important!
 - Increase effort to incorporate state-of-the-art economics into policy support models but be aware of keeping consistent rationales,
 - Close data gaps,
 - Ensure representation of uncertainties.
- Include presentation of targets from models based on non-economic rationales! Examples:
 - Model sustainability maximization,
 - Analyze equity in costs,
 - Analyze equity in human and environmental health,
 - Analyze achievement of existing ambitions and targets,

Thank you

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