American developments and transatlantic linking

"Advancing climate policies in the face of a global recession"

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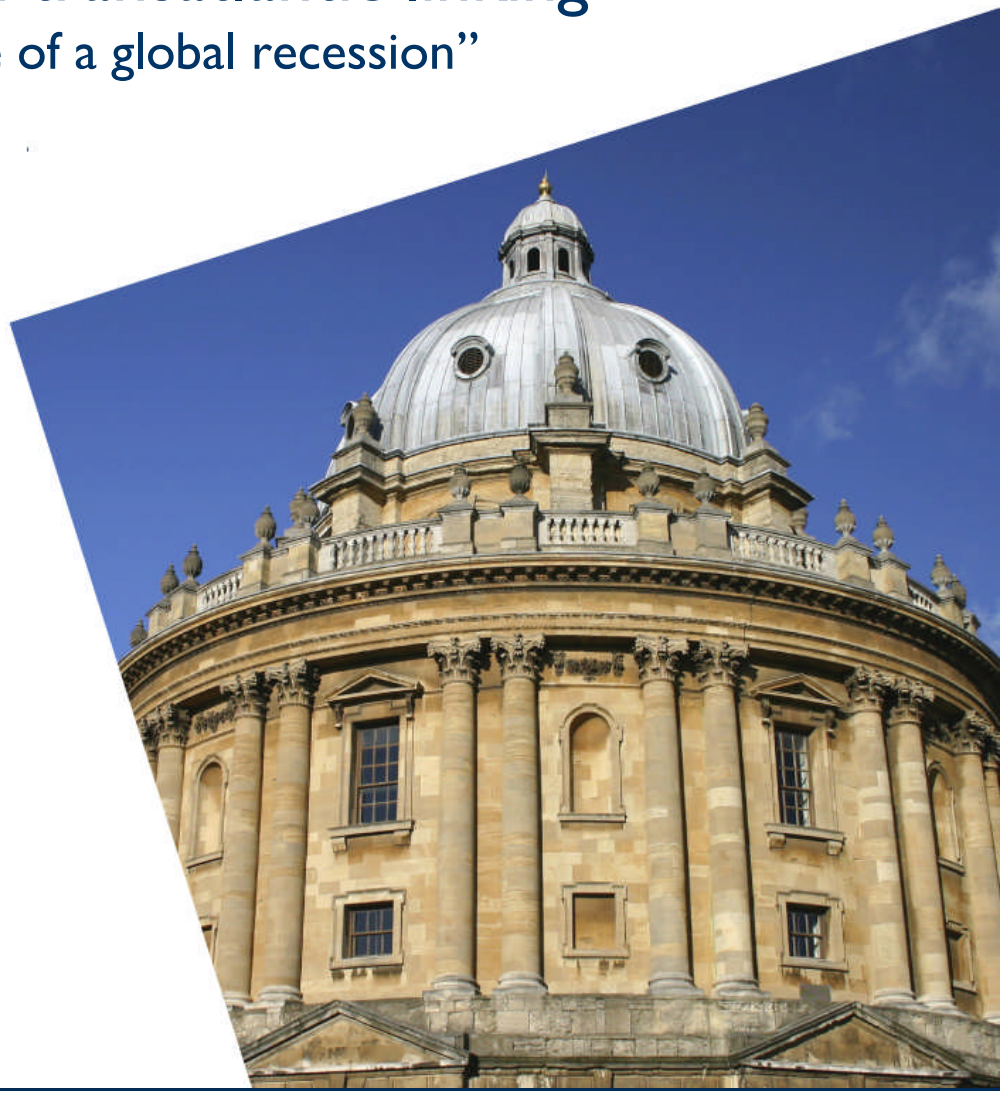
BIEE Seminar
"Sustainable Energy – The Next Crisis"

Monday 21st September, 2009, London

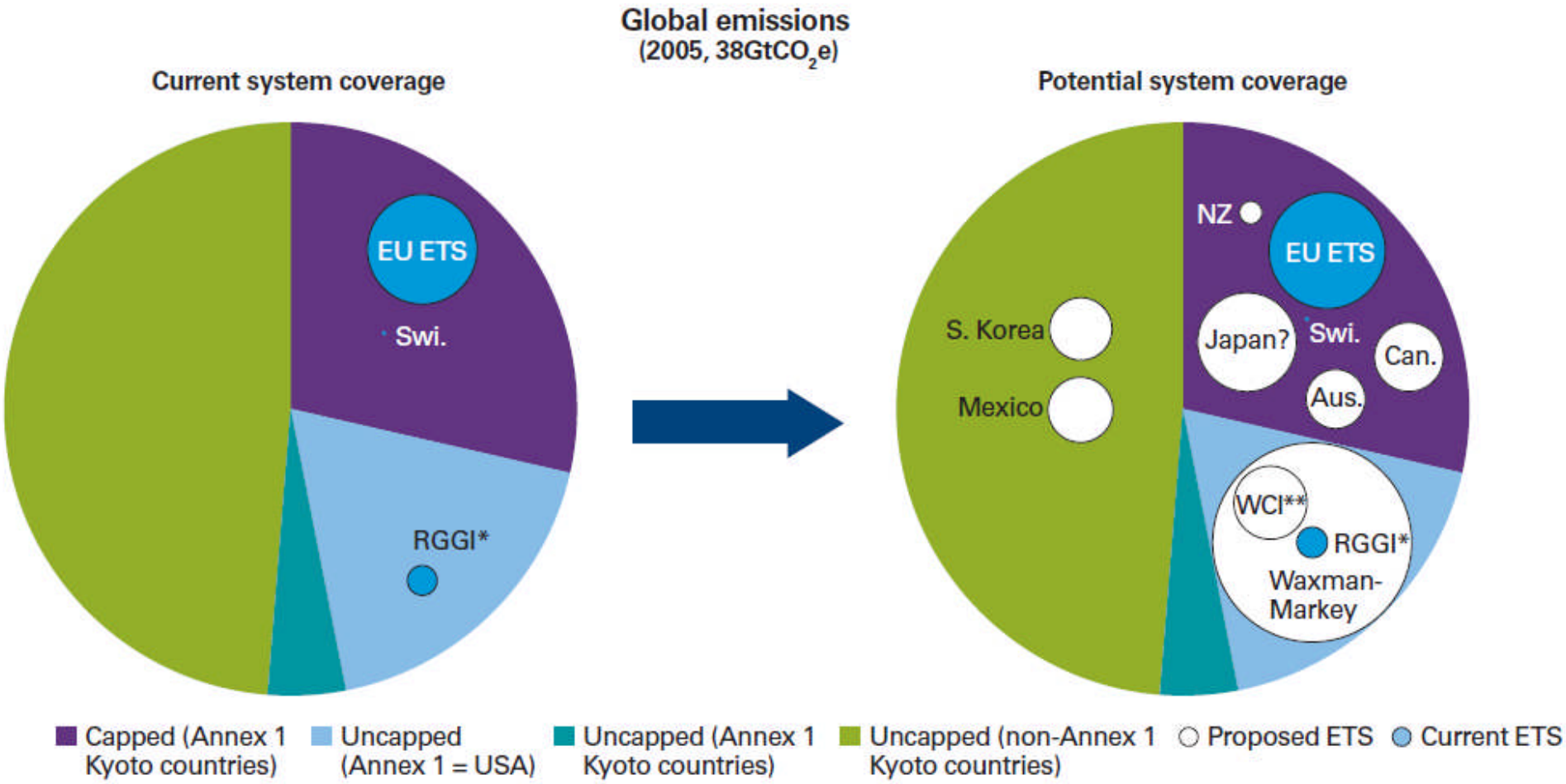


Agenda

1. US climate bills

2. Transatlantic linking

The US ETS will be almost 3 times EU coverage; it is critical for Copenhagen negotiations



Source: Carbon Trust (2009)

Action in the US is fast, but reconciled climate bill will **not** be passed before Copenhagen

- **EPA Regulation** required (now that GHGs found to contribute to climate) to regulate by March 2010
- **Waxman-Markey** passed by Congress on 26 June by 219 to 212 votes
- **Boxer-Kerry** bill in Senate now the focus
  - Unlikely (at best 50-50) to pass in 2009, given health care effort
  - Once Senate bill is passed, reconciliation will take final bill to Q1 2010 at earliest
- **Copenhagen** seems likely to be attended by Obama
  - US will make a commitment at conceptual level
  - Will not answer all (or even many) questions, but provide some clarity
  - US will then pass bill in Q1 or Q2 of 2010

Waxman-Markey starts slow but gets tougher; Heavily distorted from US political process

- **Emission reductions** relative to 2005 are
  - 3% by 2012
  - 17% by 2020
  - 42% by 2030
  - 83% by 2050

- **Banking** is unlimited, **borrowing** 1 year for free, future years with interest

- **Free allocation** is above 50% to covered industry, falling to zero in 2050

- **Projected prices** of $20-90 in 2020 and $40-190 in 2030 (Source: EIA)

- **Offsets** of up to 2 billion / year (total allocation is 5.5 b); 50% international

Passage of a climate bill through the US senate is *prima facie* within the realms of possibility

- Democrats effectively have 59 members of the 100 member US senate
  - 60 less 1 vacancy (Ted Kennedy), two independents
- Need 60 votes for filibuster-proof bill

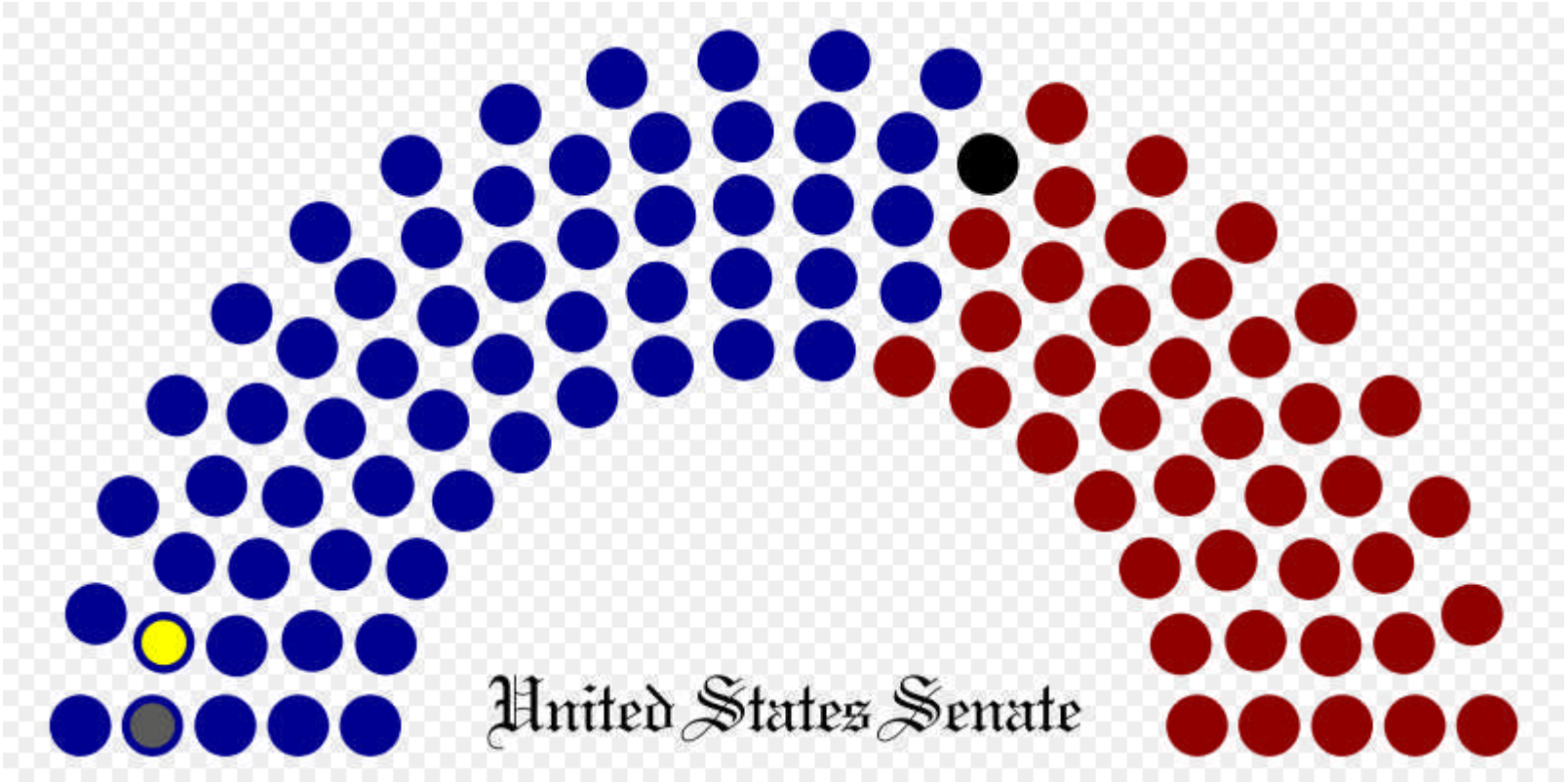


Image source: Gage Skidmore

Regression analysis indicates difficulty of Boxer-Kerry passage without more distortion by Senate

— Based on a regression analysis (in June) commissioned by Nate Silver of votes on Waxman-Markey by Congress, we have:

44 “highly likely” or better Yes voles (all Democrat)
\+ 6 “likely” Yes votes = greater than 83% probability (all Democrat)
\+ 3 “maybe” Yes votes = around/above 50% probability
= **53**
\+ 9 “problematic Democrats” with 10- 46% probability
\+ 4 “Republican long shots with 4-7% probability
= **66**
\+ 34 absolutely no way
= 100

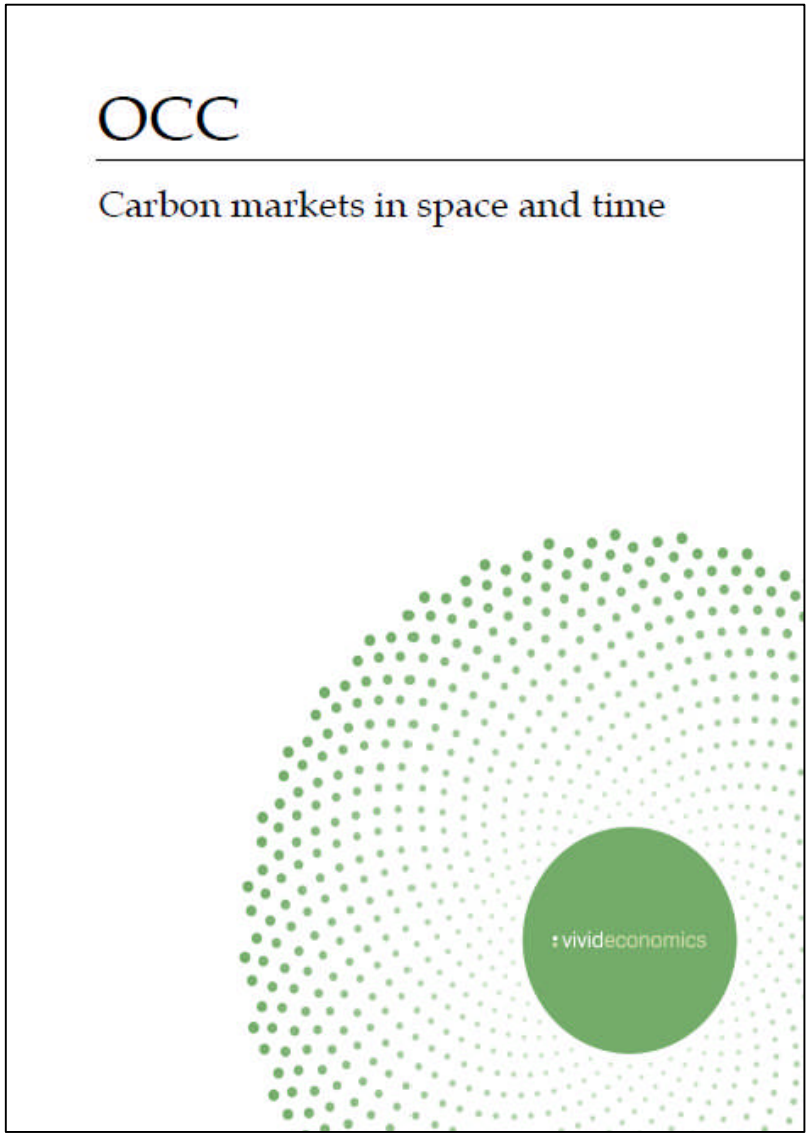
— So getting 60 votes relies upon getting 7 of the 13 problematic Democrats or long-shot Republicans
— Boxer-Kerry will be further distorted until numbers pass
— But remember the EPA is the BATNA

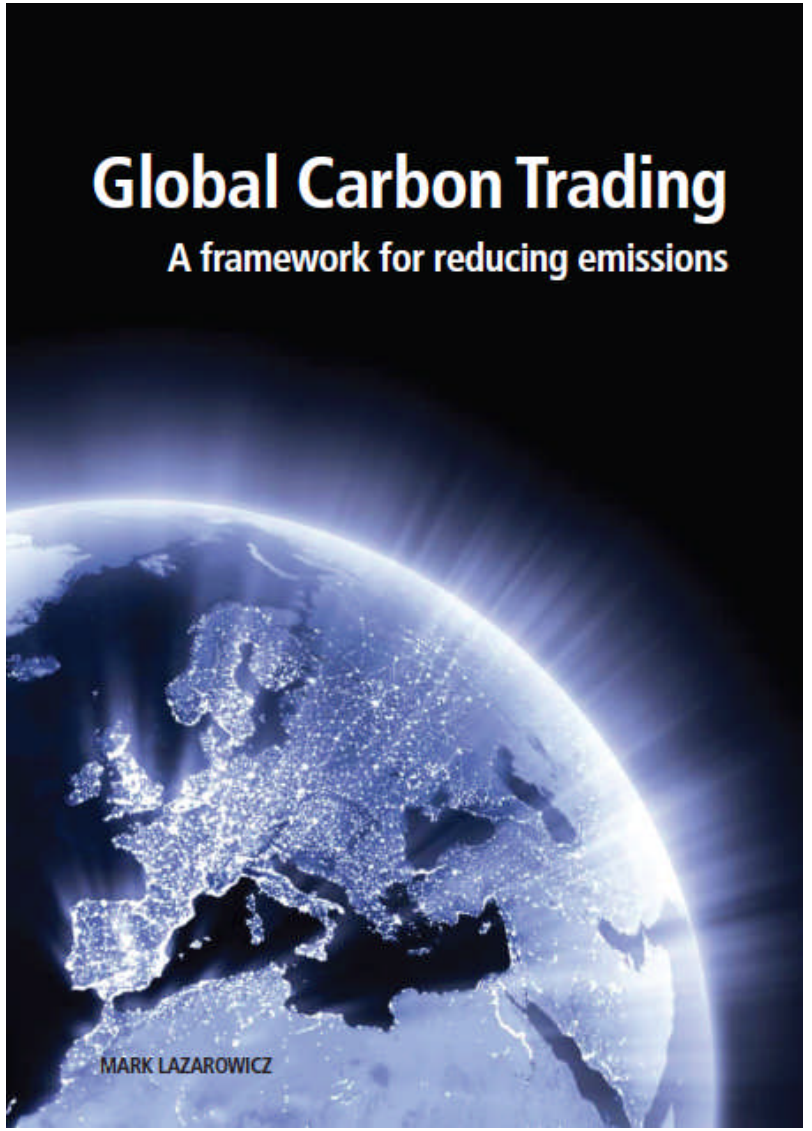
Agenda

1. Waxman-Markey

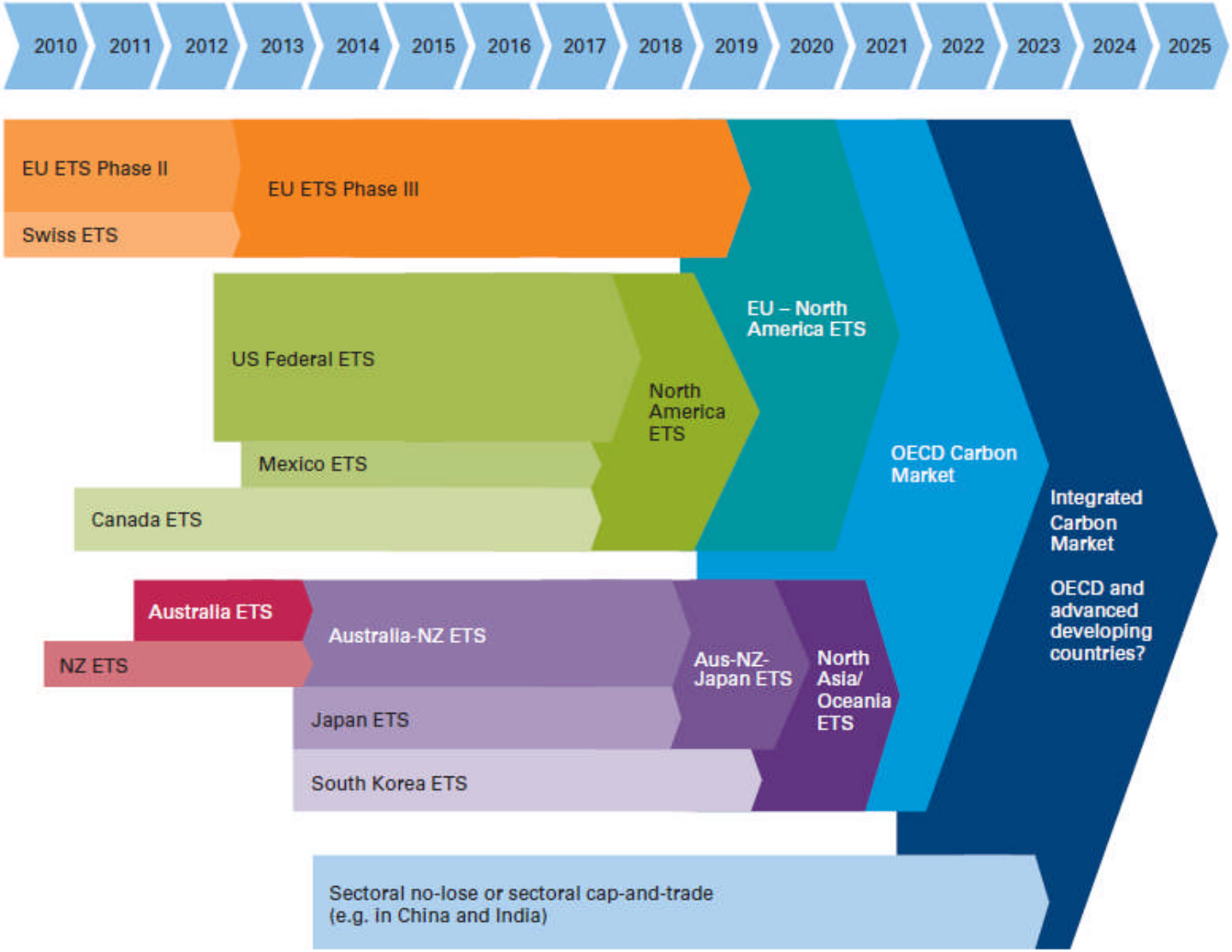
2. Reflections on linking

Linking analysis with Sam Fankhauser and Vivid Economics for Lazarowicz Review





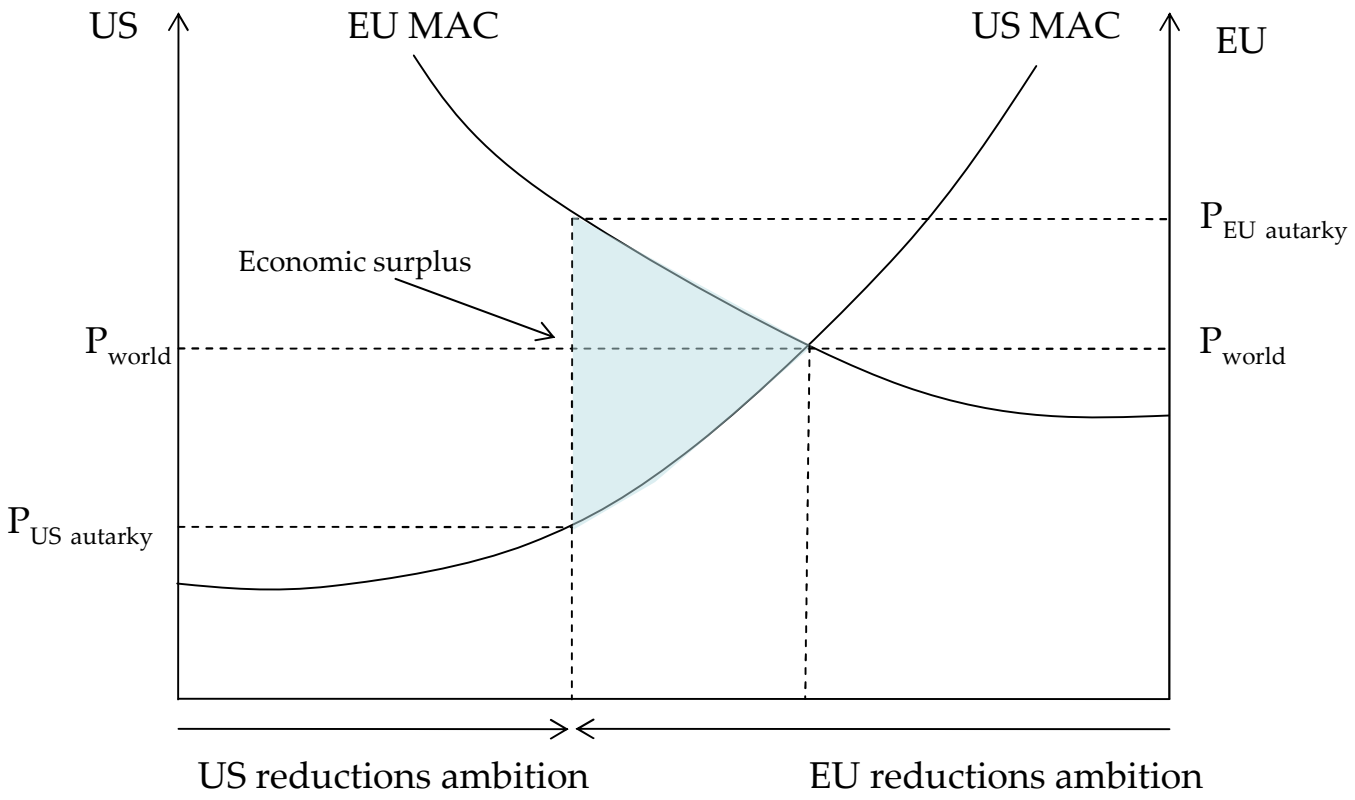
With fair political winds and careful steering, multilateral linking may occur over time



Source: Carbon Trust (2009)

Linking schemes reduces costs and create economic surplus

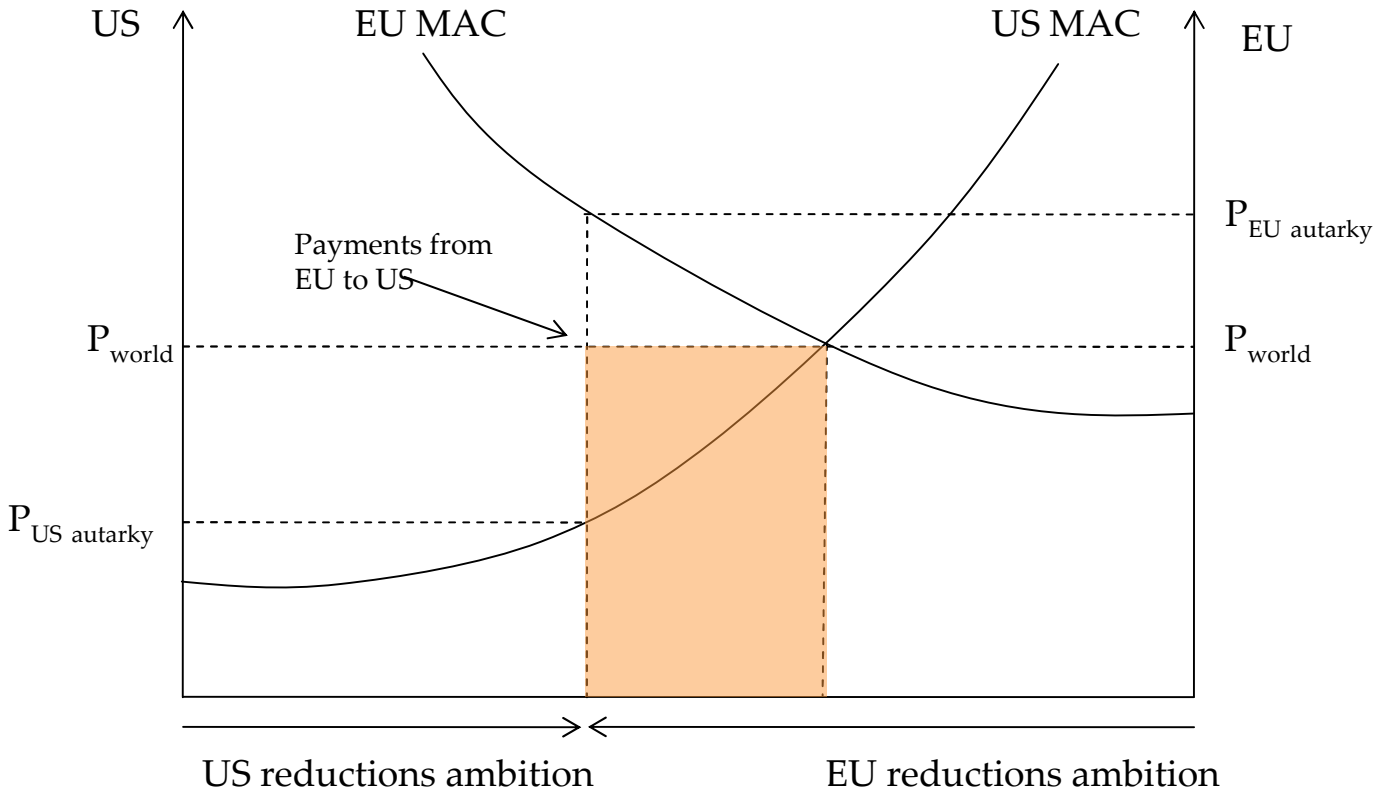
— Linking schemes yields a Harberger triangle of surplus, in this case because the US can reduce more cheaply (given the targets) than the EU



Source: Vivid Economics

Payments could be considerable, from more ambitious to less ambitions ETSs

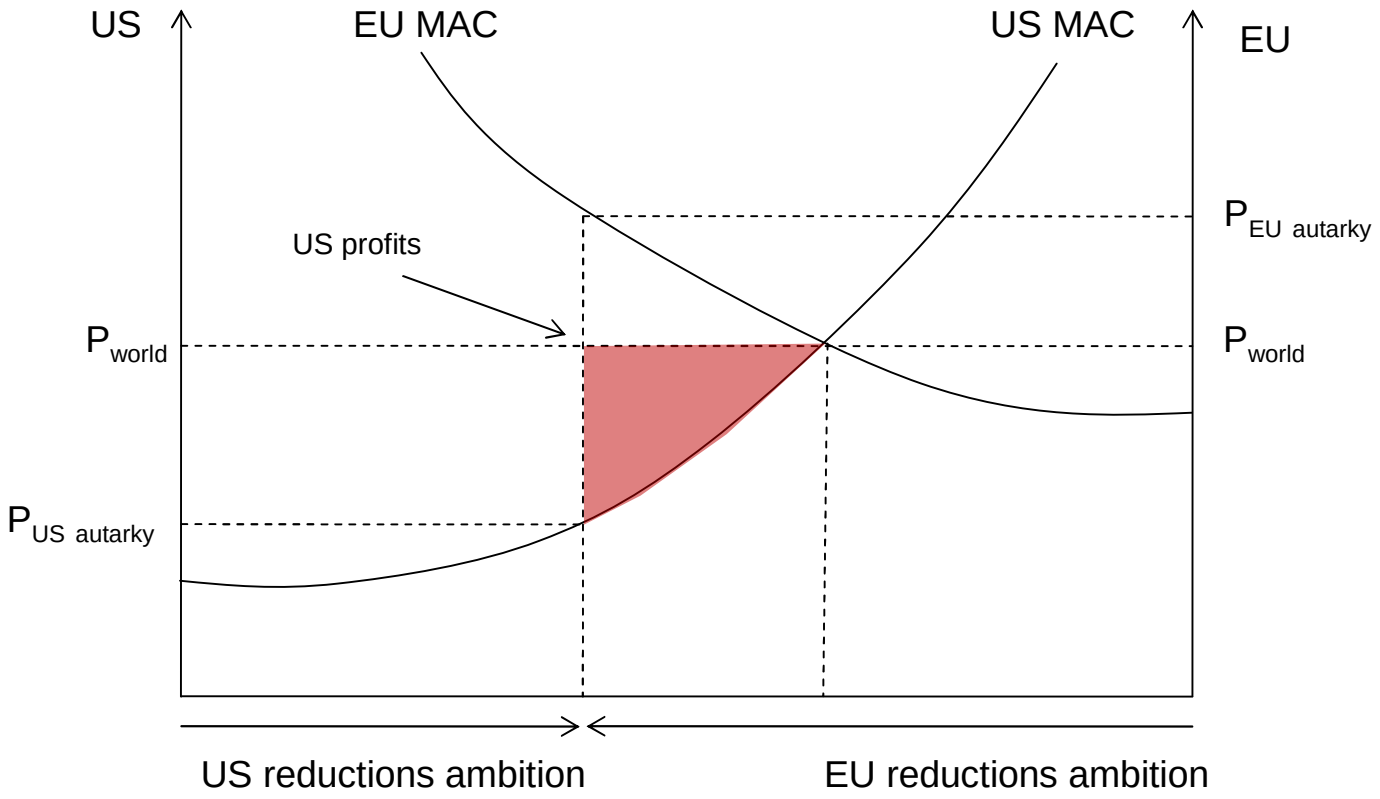
— If the EU had adopted a less ambitious target, and the US a more ambitious target, the payments from the EU to the US would be reduced



Source: Vivid Economics

Equivalence of ambition is needed to avoid rents transfers

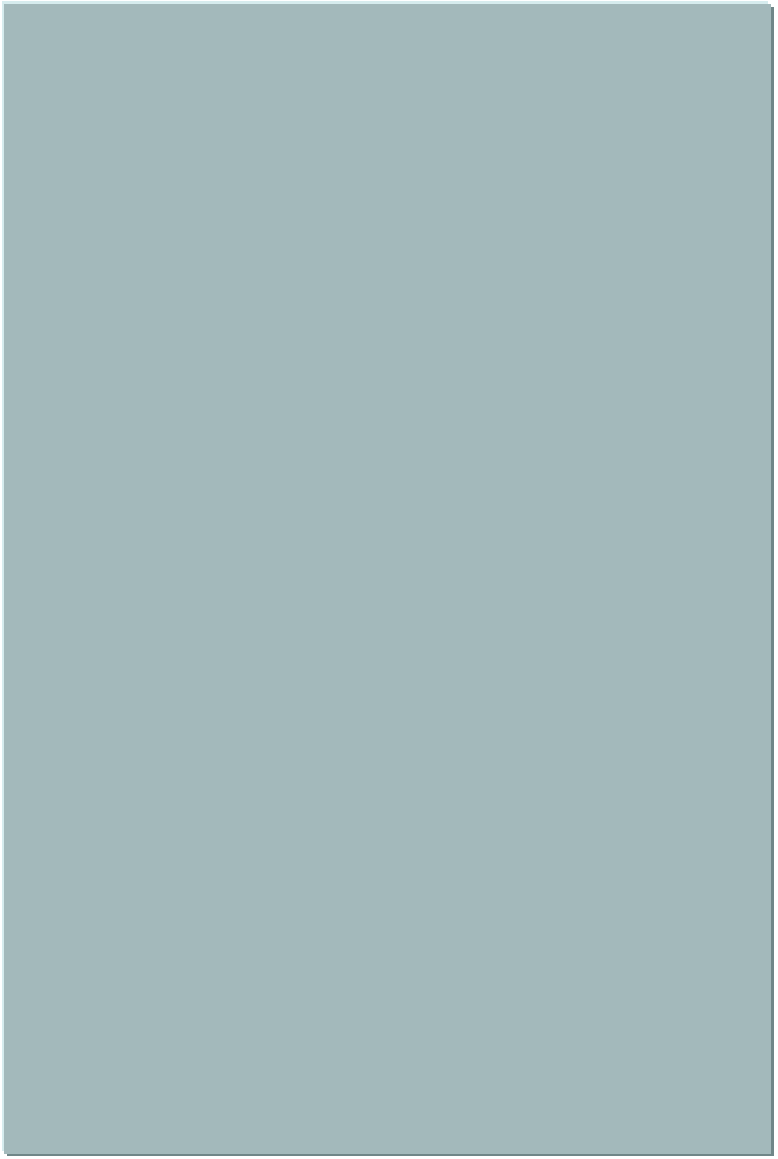
— The US profits from the fact that the EU has a more ambitious, and linked, scheme



Source: Vivid Economics

Thank you

Forthcoming OUP book (co-edited with Dieter Helm)



The economics and politics of climate change

Contributors include:

- Nick Stern
- Ross Garnaut
- Robert Stavins
- Paul Collier
- Scott Barrett
- David Victor
- Tony Venables
- Jiahua Pan
- Ngaire Woods

Publication in October 2009

Forthcoming *Oxford Review* issue

Environmental policy, government and the market

Contributors include:

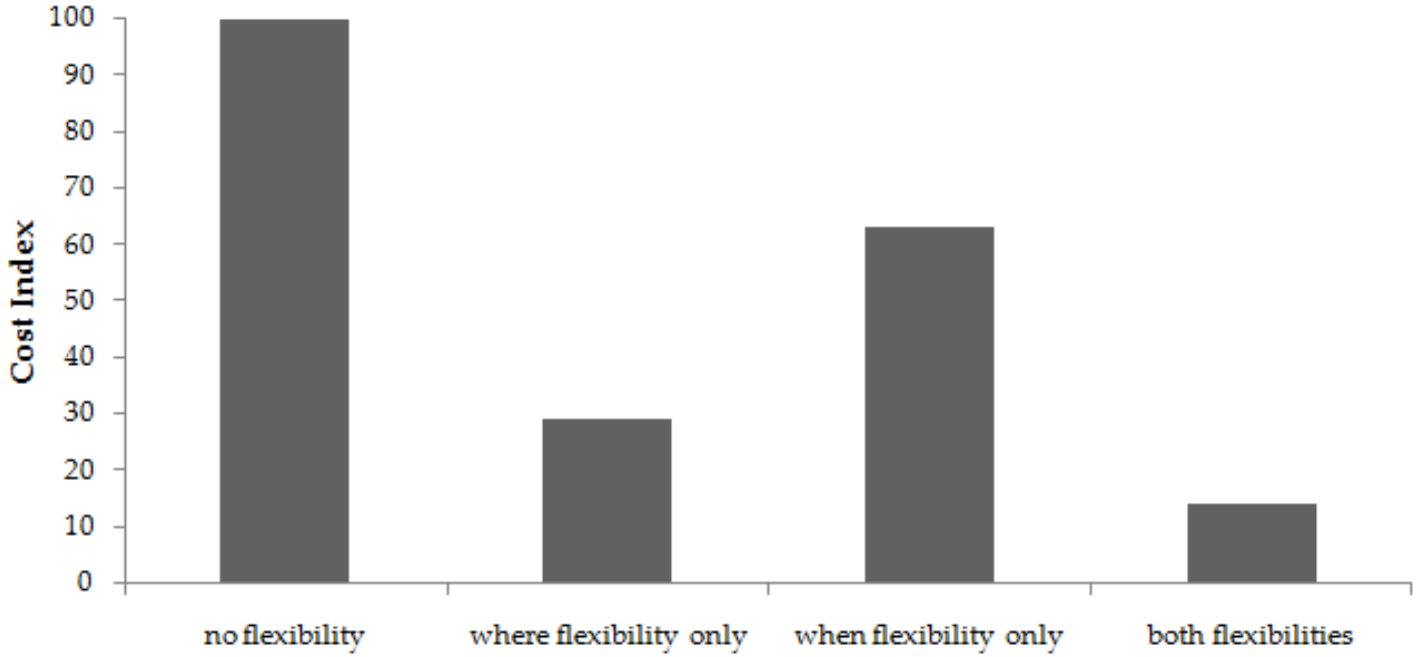
- Alex Bowen
- Nick Stern
- Michael Hanemann
- Robert Stavins
- Richard Newell
- Robert Hahn
- Dieter Helm
- Simon Dietz
- Sam Fankhauser
- Karsten Neuhoff

Publication in January 2010

Backup

"Where" reduces costs substantially

- Costs of stabilisation are a function of efficient (cost-minimising) policy
- Costs of reducing emissions are minimised with:
  - Flexibility on **where** emissions are reduced (spatial flexibility); and
  - Flexibility on **when** emissions are reduced (temporal flexibility)
- Linking markets increases liquidity, which reduces transaction costs by reducing the bid-ask spread



Source: Richels, Edmonds, Gruenspecht and Wigley (1996)

Equivalence of supplementarity limits also matters

- Different limits on the use of offsets from different developed country schemes will be “blended” once the schemes are linked
  - Suppose EU and US schemes are linked.
  - If the EU offset import limit is reached, but the US offset import limit is not, than a firm can sell a CER into the US ETS, and swap an US allowance for an EU allowance, effectively circumventing the EU offset limit
- Similarly, if one scheme imposes offset “quality standards” while the other scheme doesn’t the lower quality offsets will enter the linked system through the scheme with the lower quality standards

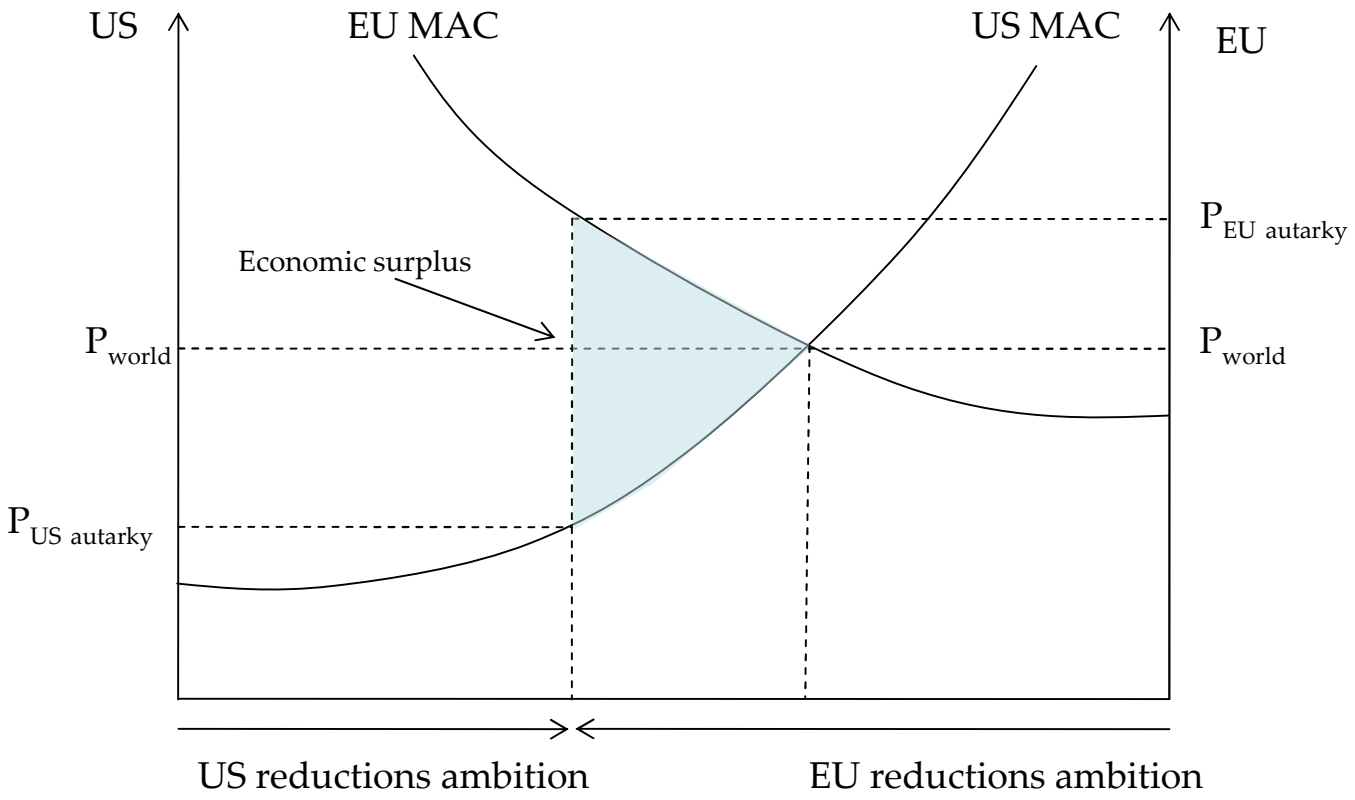
Sector coverage differences

- **Quality:** There are qualitative differences between emission reductions from some sectors, which have differential quality, because of challenges of permanence, measurement or jurisdictional issues and the potential for leakage
  - Forestry and REDD
    - Permanence (and leakage)
  - Aviation and shipping
    - Jurisdiction and international issues creating leakage problems
  - Agriculture and non-CO2 emissions
    - Measurement questions about the global warming potential of non-CO_2 emissions

- **Rents:** Differences in marginal abatement costs between technologies (e.g. HFC) may recommend against including all technologies in the one trading scheme
  - Substantial rents might accrue to owners of low-cost abatement solutions unless this is recognised in the allowance allocation (or baseline setting procedures)

Linking schemes reduce costs and create economic surplus

— Linking schemes yields a Harberger triangle of surplus, in this case because the US can reduce more cheaply (given the targets) than the EU



Source: Vivid Economics

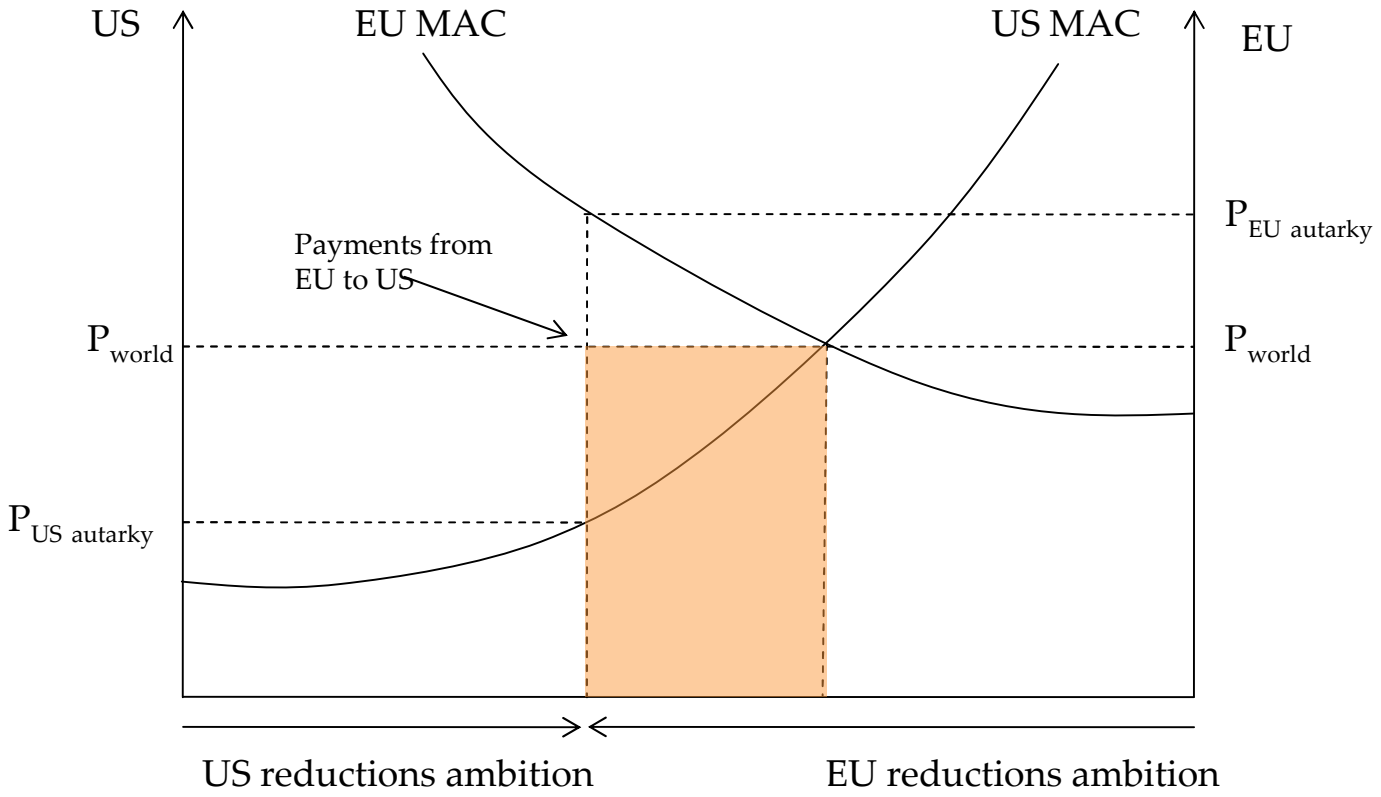
Scale of surplus: a sample calculation

- Suppose EU autarky price is 40 EUR / t CO_2e
- Suppose US autarky price is 20 EUR / t CO_2e
- Suppose EU aims to reduce emissions by 400 mt CO_2e / year, and quarter of this (100 mt CO_2e / year) occurs through purchases from the linked US ETS

- Then the approximate size of the economic surplus is
  - ½ 100 x (40 – 20) = EUR 100 million / year

Payments could be considerable, from more ambitious to less ambitions ETSs

— If the EU had adopted a less ambitious target, and the US a more ambitious target, the payments from the EU to the US would be reduced



Source: Vivid Economics

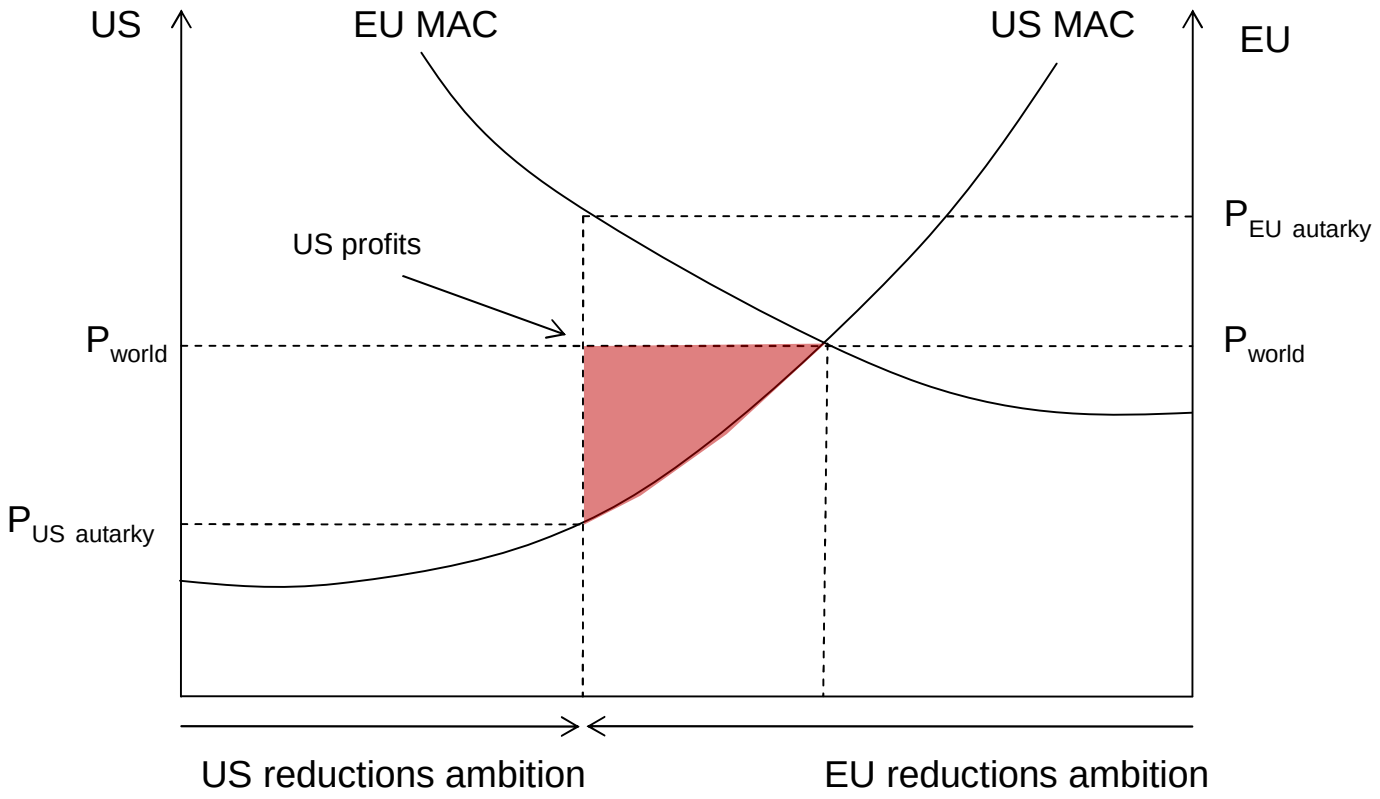
Scale of payments from EU to US: sample calculation

- Suppose world price is 30 EUR / t CO_2e
- Suppose EU aims to reduce emissions by 400 mt CO_2e / year, and a quarter of this (100 mt CO_2e / year) occurs through purchases from the linked US ETS

- Then the size of the payments from the EU to the US is:
  - 100 x 30 = EUR 300 million / year

Equivalence of ambition is needed to avoid rents transfers

— The US profits from the fact that the EU has a more ambitious, and linked, scheme



Source: Vivid Economics

Scale of profit to US firms: a sample calculation

- Suppose world price is 30 EUR / t CO_2e
- Suppose US autarky price is 20 EUR / t CO_2e
- Suppose EU aims to reduce emissions by 400 mt CO_2e / year, and a quarter of this (100 mt CO_2e / year) occurs through purchases from the linked US ETS

- Then the approximate size of the economic profits by US firms is
  - ½ 100 x (30 – 20) = EUR 50 million / year