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Mission possible: bringing end-use energy efficiency to the European Emissions Trading Scheme


Silvia Rezessy,
Renewable Energy and Energy Efficiency Partnership (REEEP)
and Central European University (CEU)

Paolo Bertoldi,
European Commission, Directorate General JRC

Monique Voogt,
Ecofys Netherlands





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Introduction

- The primary purpose of the EU ETS is to reduce emissions in a cost effective manner and promotion of energy efficiency is not in itself an objective of the EU ETS ('technology blind'),
- However the extension of the EU ETS to less energy intensive sectors, and the inclusion of end-use efficiency projects, could foster energy saving actions
- This could bring additional and cheaper options to the carbon market







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Structure of the presentation

- Explore those features of the EU ETS that may have unintended negative effects on additional efforts in EUEE;
- Propose design adaptations and solutions as to how to include EUEE in the EU ETS: the cases of direct integration of energy efficiency carbon credits into the EU ETS and set aside allowances for efficiency.





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Why the EU ETS may be insufficient to stimulate EUEE (1)

- Upstream approach, only an indirect incentive to energy savings.
- Lenient emission caps, excess supply of allowances and therewith low carbon prices
- Bases chosen for allocation: no large incentive to energy efficiency measures
- Disproportional smaller efforts required from EU ETS industries in some countries







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Why the EU ETS may be insufficient to stimulate EUEE (2)

- Often smaller size of highly cost efficient energy saving measures and associated larger transaction costs.
- Power generators under the EU ETS are more likely to take measures on the supply side where their area of expertise is.
- Example: CDM - supply side projects and methane emission reductions are the preferred option for investors; EE projects are under-represented relative to their estimated potential





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Design adaptations

- Extending the sectoral coverage of the EU ETS (even without bringing all downstream sectors under the emission cap);
- Allocation methods and use of auctioning to foster end-use energy efficiency projects in the EU ETS;
- Equivalence between emission allowances and project credits from renewable energy and end-use energy efficiency projects.







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Extending the sectoral coverage of the EU ETS

- Capping emissions from buildings may be politically challenging and technically complicated;
- Allowing white certificates generated in these sectors to be converted into carbon credits avoids this problem.
- For the time being this issue has not been formally discussed; the policy discussion is about including aviation in the EU ETS.





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Auctioning excess allocations

- A more harmonised allocation across the EU to reduce competitive distortions;
- Existing excess allocations can be auctioned to push the market prices up;
- Auctioning credits generated from the conversion of white certificates into carbon credits (see later).







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Allocation methods

- Allowance allocation methods (can be used for new entrants):
 - input-based allocation gives allowances to sources based on emissions per unit of boiler heat input (measured in Btu).
 - An output-based allocation provides greater incentives to reduce emissions through plant operational efficiency.
- Assign allowances for an avoided emission value;
- Introducing set-aside quotas, as discussed later in the paper.





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Equivalence between allowances and credits

- Double counting concerns only hold with regard to electricity savings and savings related to district heating (DH above 20 MW)
- Different and much less complicated is the case of savings in natural gas or heating oil on *non-EU ETS premises*.
 - A residential or tertiary building insulation project (in a building heated by a gas or oil boiler) can bring genuine and additional to EU ETS carbon reduction. Such non-electricity savings undertaken in sectors outside the EU ETS ones represent genuinely additional emission reductions to the EU ETS that are *easily accountable*.
- For CDM it is possible to have EUEE projects (e.g. a CFLs project in China), and this could enter the EU ETS through the linking Directive.







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Integration of white certificates into the carbon regime

- Direct integration (one- or two-way fungibility)
- Set-aside quotas for EUEE and RES




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Direct integration: one- and two-way fungibility

- One-way fungibility: green and white certificates may be used to comply with emission caps, but emission allowances cannot be used to meet green electricity or energy saving targets.
- Two-way (full) fungibility: white and green certificates can be used to show compliance with the emission target and also emission allowances can be used to show compliance with green electricity or savings targets. May compromise the environmental soundness of green electricity and of energy saving targets: not all carbon projects have an energy component, threat of leakage.



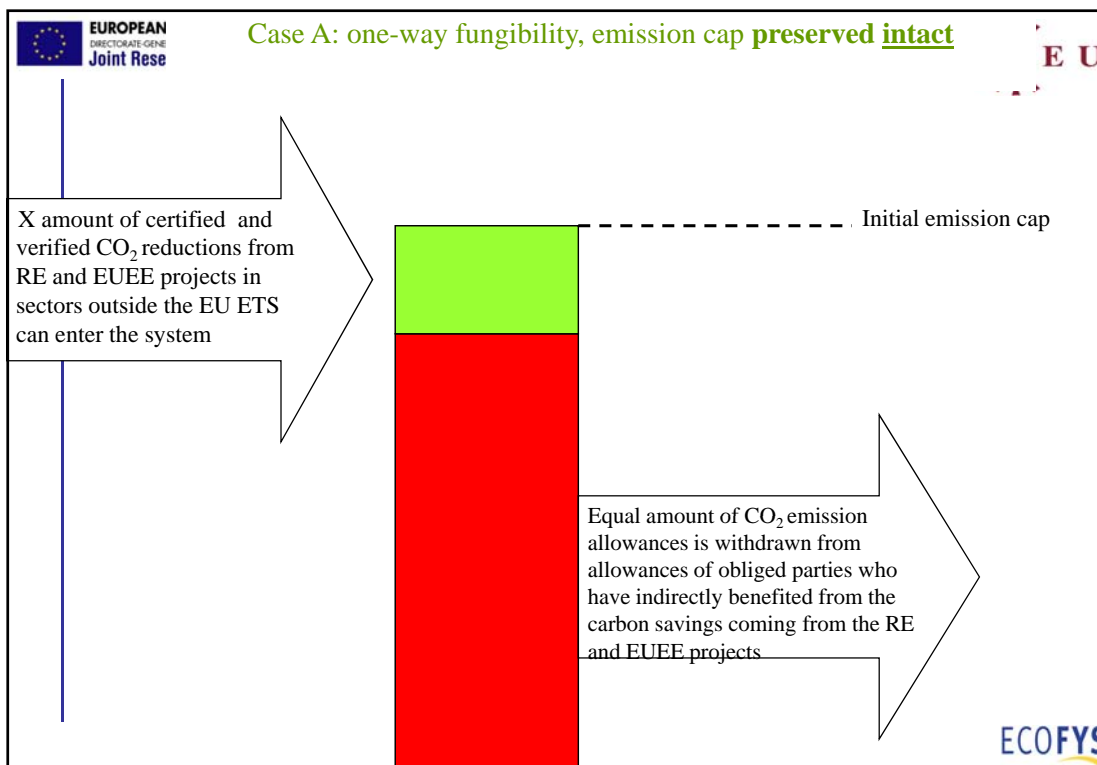
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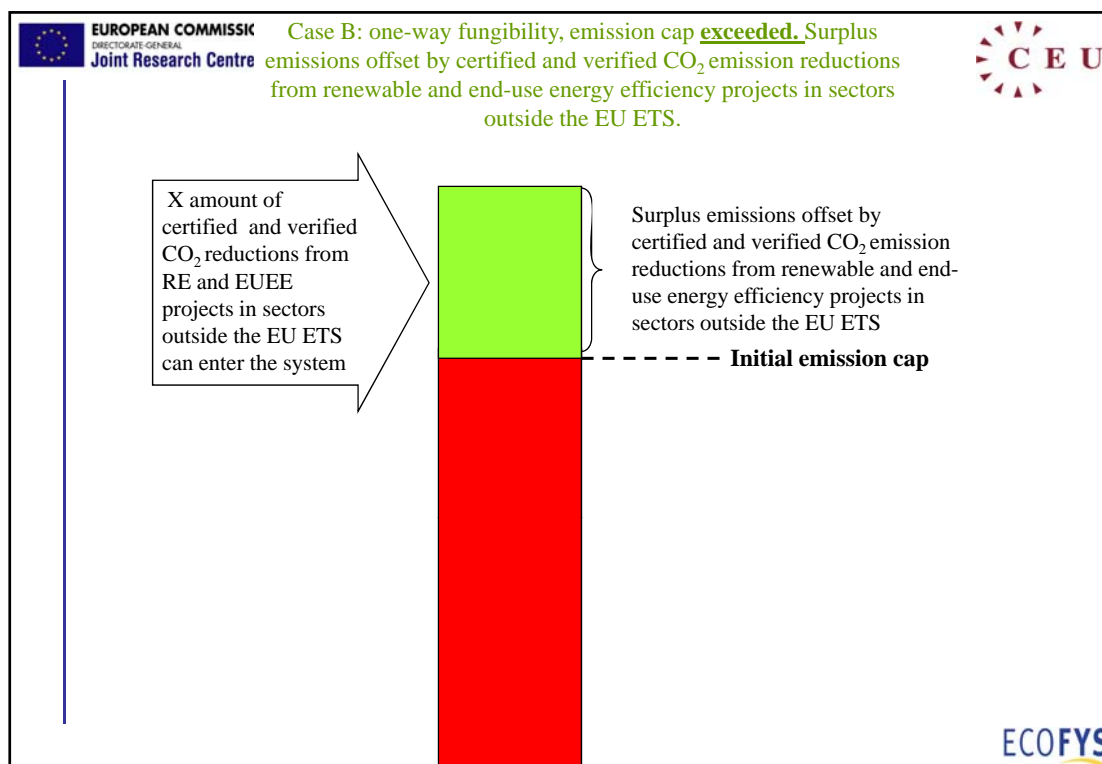
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Integration and the carbon cap: two scenarios

- Keeping the initial carbon cap intact after allowing project-based green or white certificates to enter the carbon market,
 - an equal number of carbon allowances will need to be withdrawn from the allocation of any obliged party under the EU ETS, in relation to whose emissions energy savings - and therefore carbon reductions - have taken place (very complex).
- Allowing the cap to be exceeded under certain conditions.
 - Exceed individual caps with an amount of emissions, which can be precisely offset with project-based energy saving credits generated by sectors outside the EU ETS. Because energy savings have a precisely measurable carbon content, this will have no implications in terms of environmental soundness as long as the surplus emissions can be covered by white and green certificates denominated in carbon.

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Set-asides

- A *set-aside* is a pool of allowances that are kept by the program administrator in charge of emission trading and used to reward energy savings and renewable energy projects.
- Dedicated set-aside: impose on each entity under the EU ETS a total emission cap and deduct a fraction of this allowance cap 'reserving' it for emission reductions coming from energy efficiency and green electricity project credits. Can be optional or mandatory.

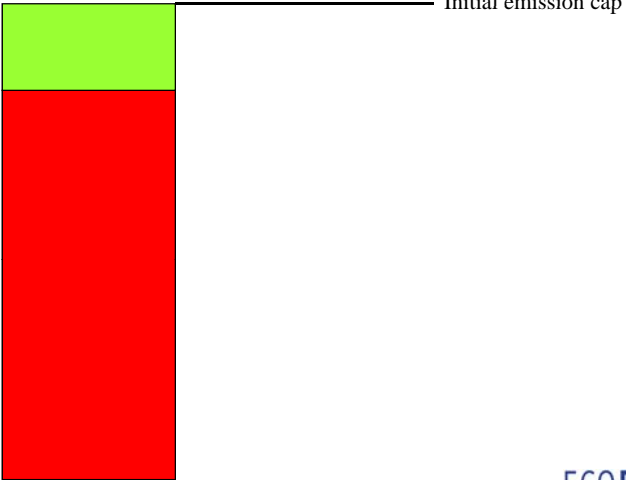
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Case C: A set-aside quota for renewable energy and end-use energy efficiency projects in sectors outside the EU ETS: **initial emission cap preserved intact**

A certain share of emission allowances is kept 'reserved' by the program administrator and dedicated only to certified and verified CO₂ emission reductions from renewable energy and end-use energy efficiency projects



Initial emission cap

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Generic factors influencing the exchange between white certificate and carbon markets (1)

- The stringency of the emission cap and of the energy saving obligations, allocation criteria in the EU ETS;
- Possible trade restrictions;
- Availability of energy saving options: unit cost of emission savings coming from energy saving projects, the volume of such emission savings and the speed with which they can be generated vis-à-vis availability of other mitigation options available (unit cost, volume and speed of realisation);
- Transaction costs associated with trading;

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Generic factors influencing the exchange between white certificate and carbon markets (2)

- Emission factor for conversion;
- Exogenous factors (weather, changes in business activity);
- Existence of a fixed non-compliance penalty on energy saving obligation;
- Length of the compliance periods of a European white certificate system and the EU ETS;
- The possibility to bank certificates and allowances;
- High auction share and treatment of new entrants in the EU ETS;
- Size of a set-aside quota.





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Conclusions

- Depending on its design the EU ETS could also foster EUEE thus bringing additional and cheaper options to the carbon market.
- Design adaptations in EU ETS that would remedy potential design flaws that have unintended or limited effects on additional efforts in end-use energy efficiency:
 - extending the sectoral coverage of the EU ETS even without bringing all downstream sectors under the emission cap,
 - using allocation methods and use of auctioning to foster end-use energy efficiency projects in the EU ETS and
 - equivalence between emission allowances and project credits from renewable energy and end-use energy efficiency projects.




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Conclusions (2)

- In principle certified project credits from EUEE can be integrated in the EU ETS on the basis of voluntary white certificates;
- The additional complexity of integrating carbon credits from energy saving projects into the EU ETS may outweigh the benefits – for the time being!



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Thank you for your attention!

Silvia.Rezessy@reeep.org

Paolo.Bertoldi@ec.europa.eu

M.Voogt@ecofys.nl

