

Electricity Policy
Research Group



Allocation matters – so what can we do about it?

Strategies for the electricity sector 2008-2012

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EU ETS allocation and the power sector

- Power generation accounts for c.2/3 of EU ETS emissions and the response of the power sector is central to both Kyoto compliance and to the price of EU ETS allowances
- This study aims to:
 - Explain current allowance prices and impact on electricity price
 - Look at how allocation affects prices, operation and investment
 - Draw out implications for policy in Phase II and beyond
- The executive summary will discuss
 - Price impacts
 - Distortions from allocation
 - Recommendations
 - Higher-level conclusions on allocations approaches for longer term

Determinants of CO2 allowance prices

- Current CO2 allowance prices are higher than expected
 - Major abatement option was expected to be switch from coal to gas in power generation
 - Rising gas prices have made switch more costly
- Future development
 - Projected gas prices remain high but uncertain, dependent on progress of liberalisation,
 - Confidence in future of emission trading decisive
 - ensures investment in energy efficiency (demand and supply)
 - creates market for CDM and JI projects to import allowances
 - increases investment in carbon free generation technologies
 - This creates emission reductions to reduce CO2 price

Impact of CO2 allowance prices on electricity prices

- In countries with liberalised markets and competition:
 - Empirical evidence confirms that generators add opportunity cost of allowances to energy offers
 - Simulations show that a CO2 price of 20Euro/tCO2 increases the average electricity prices by 10-16 Euro/MWh
- In countries without competitive retail prices:
 - Regulation or threat of regulation can prevent pass through of opportunity costs to domestic consumers
 - If governments intervene to prevent pass through to industrial contracts, then transparency/liberalisation further reduced
 - Likely to undermine incentive structure of ETS towards efficient investment and operation as CO2 prices are not internalised

Distortions from updating on existing facilities

- Repeated allocation process means that today's production will enter baseline of future allocations ("updating"):
 - Attempts to avoid updating would create many complexities and perverse incentives as governments deal with "special cases"
 - With updating today's behaviour is influenced by future allocations, risking distortions
- Three updating methods assessed in this study:
 - Emission based updating
 - Uniform benchmark based on electricity production levels
 - Fuel-specific benchmark based on combination of electricity production levels and fuel used
- In all cases updating inflates emissions and/or allowance prices, creates distortions between sectors/countries and increases abatement costs
- Fuel specific and emission based updating reward production with CO₂ intensive technologies, increasing emissions/CO₂ prices and abatement costs
- Emission based allocation reduces the incentives to improve efficiency of existing plants

Distortions from closure conditions applied to existing facilities

- When closed power stations receive no more allowances (“contingent” allocation):
 - Can lead to unwarranted life-time extensions
 - Thereby increasing system costs and allowance prices
- Problem can persist in countries even if NAPs has no explicit closure conditions if operators expect to receive no allowances in future after closure
- This is a fundamental difference between the EU ETS and successful cap and trade programs in the USA (SO₂ Acid Rain Program) where a one-off allocation remained unaffected by closures of power stations

Distortions from new entrant allocation

- Allocation plans grant free allowances to new entrants partly to compensate for distortions created by closure conditions
- If new entrant allocation is fuel or technology-specific
 - Creates incentives to build the more CO₂-intensive technology
 - Leading to inefficient investment in carbon-intensive plants and extra costs
- If new entrant allocation is based on uniform benchmark
 - Acts as a capacity payment supporting all new investment
 - Can reduce electricity prices as it reduces scarcity premium
 - But requires new entrant reserve to be large enough, as well as low barriers to entry, access to fuels (e.g. gas), and regulatory certainty about future allocation

There is no 'easy fix' for allocation to existing facilities. Reducing the degree of free allocation will reduce social costs and perverse incentives.

- In liberalised markets, evidence of opportunity cost pass through has been established
- State aid compliance (proportionality rule) may require significant reduction of free allocation to power generators in phase II
- Therefore, should limit allocation to compensate for reduced profits arising from implementation of ETS
- Remaining allowances should be
 - auctioned, or
 - allocated to consumers (would require change to Annex III)

An inherent logic must drive allocation rules for new entrants towards capacity-based benchmark across EU

- Avoid that individual country or all countries implement fuel or plant specific new entrant allocation:
 - It creates incentives to build CO₂ intensive technology, leading to inefficient abatement and extra costs
 - Can increase electricity prices in all countries
- Any new entrant allocation should be capacity based (eg. t CO₂/kW)
 - Similar to capacity payment, supports new investment
 - Can reduce electricity prices as it reduces scarcity premium
- Combine with continuing reform of EU electricity market
 - Reducing costs of entry reduces mid and long term electricity prices
 - Sufficient size of new entrant reserve, competitive markets, free entry, access to other fuels (e.g. gas), regulatory certainty about allocation

Deciding now on efficient post 2012 allocation method improves today's investment and operation decisions

- Allocation should move towards uniform benchmark
 - Use benchmark to reward investment in efficiency improvements
 - Make it uniform, so that:
 - updating shifts marginal costs of all plants by the same amount and does not distort dispatch
 - investment decisions 2005-2012 are not biased towards technologies with higher future allocation
 - Avoid minimum run conditions and explicit closure rules
- Reduce volume of free allocation
 - This minimises today's distortions from updating
 - This ensures post 2012 electricity prices will represent full costs
 - Increases profitability of generation and energy efficiency investment today
 - Reduces today's electricity price
- Only a credible government attracts investment. This requires a consistent long-term strategy which is reflected in phase II allocation decisions.

The pursuit of long-term objectives using instruments that have to adapt to shorter term cycles requires institutional independence

- Governments decide on the distribution of free allowances
 - Unlike SO₂/NO_x in US, not lump sum because of 5 year cycles
 - Therefore, market repeatedly exposed to government intervention
 - This creates uncertainty for investment (technology choice, timing), and distorts operation and consumption decisions
- Historically monetary policy was in government hands
 - But political process too short-sighted for long-term commitment
 - Complex economic interactions difficult to manage in political process
 - Therefore, independent central banks were created
- Minimise government influence on ETS via allocation process

The 'terms of reference' for allocation institutions should focus on a specific clearly articulated objective, not a diverse collection of conflicting goals

- Allocation process aims to achieve security of supply, secure industry support, and compensate for forgone profits
 - Political process with multiple objective creates complex NAPs
 - NAPs create perverse economic incentives
 - Investment delayed/distorted because future NAPs unpredictable
 - Historically monetary policy had multiple objectives
 - Governments could not credibly commit to low inflation target as market knew employment and GDP growth are important
 - Therefore, they had to compromise more on GDP growth and employment to convince market of low inflation objective
 - Central banks now have one objective: control inflation
- Use allocation process only to compensate existing installations for the reduction in profitability under ETS

A consistent long-term strategy creates investment security

Phase out free allocation

- Reduces distortions created by political allocation process
- Eliminates investment uncertainty from unknown future allocation
- Eliminates 'early action problem' created by future updating
- Enhances European competitiveness as auction revenue/free allocation to consumers reduces industry taxation

Get all countries on board

- High allowance costs only in some countries for a long time are likely to effect energy intensive industries
- Large free allocation to these industries likely inefficient
- Fall back option – border tax adjustment for CO₂ content to create level playing field among industries in all countries