



Coal will continue to profit from the EU Emissions Trading Scheme

A WWF summary of the report by Point Carbon “EU ETS phase II – the potential and scale of windfall profits in the power sector”

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Introduction

The power sector is the single biggest source of CO₂ emissions globally. Without rapidly reducing emissions from this highly polluting sector we will fail to keep global average temperatures from exceeding the 2 degrees centigrade tipping point - above which we enter the realms of unpredictable and catastrophic climate change.

Even within the EU - a leader in the global climate change negotiations - emissions from coal still account for over 20% of greenhouse gas emissions. Indeed in recent years coal has returned with a vengeance and there are now plans to build 40 major new coal fired power stations in the next five years¹. These, if they are built, will likely run for 50 years or more and if they are not fitted with carbon capture and storage technology will lock us in to decades of soaring emissions.

The EU Emissions Trading Scheme (EU ETS), which caps emissions from the power sector and energy intensive industries such as cement, refineries and steel, is one of the main tools we have in the EU to drive the day to day operational decisions, and also crucially the investment decisions of industry towards cleaner technologies. It is therefore perverse that the current design of the scheme, through handing out most of the pollution allowances for free, has rewarded high carbon forms of power generation such as coal by enabling them to reap massive windfall profits².

In the main free allocation of pollution allowances to industry will continue throughout the second phase of the EU ETS (2008 – 2012) so it is likely that high carbon forms of power generation will continue to accumulate profits for at least another 5 years³. The European Commission has proposed that from 2013 the power sector will have to pay for all their allowances. This is a very welcome move but it is far from certain whether this key improvement will survive the political process now in train to finalise revisions to the scheme.

In order to get a clearer understanding of the windfall profits in phase II WWF commissioned Point Carbon to assess the potential and scale of these profits in the UK, Germany, Spain, Italy and Poland⁴.

1 “New EU Climate Change Package Fails to Tame King Coal” Media brief from E3G, 22 January 2008
http://www.e3g.org/images/uploads/Media_Brief_-_New_EU_Climate_Change_Package_Fails_to_Tame_King_Coal.pdf

2 Indeed, during phase I this was widely reported in the media. In the UK alone it was estimated that this resulted in profits of £1.2-1.3 billion in 2005 (as mentioned in the partial regulatory impact assessment that accompanied the draft UK Government’s Climate Change Bill <http://www.defra.gov.uk/corporate/consult/climatechange-bill/ria.pdf>).

3 In phase I (2005 to 2007) the EU ETS free allocation must make up at least 95% of the total allocation of pollution allowances. In phase II at least 90% must be allocated for free.

4 In this report Point Carbon define a windfall profit as accruing to thermal (CO₂ emitting) power generation if the additional revenue earned from the pass-through of CO₂ (opportunity) costs to power prices exceeds the level of compliance costs incurred under that scheme by thermal generators (e.g. including the cost of allowances they need to buy to cover their emissions).

These countries were chosen in order to provide coverage across different areas of Europe and to reflect different power market structures. This summary presents the findings of this assessment, as interpreted by WWF.

For further information please refer to the full Point Carbon report “*EU ETS phase II – the potential and scale of windfall profits in the power sector*”.

How the current design of the EU ETS results in windfall profits

With the establishment of the EU ETS carbon is now a traded commodity with a transparent market price⁵. For products within the EU that are not traded on the global market, and where the price is not regulated - the carbon price may be carried through to the price of the product.

In liberalised energy markets the price of carbon may be carried through into the price of electricity as the very nature of this product means that it will not re-locate outside Europe if prices exceed those beyond its borders. This so called ‘pass through’ occurs because in deciding to generate, a power producer will use up both its fuel and the carbon allowances required to offset the emissions from that generation. The carbon price is therefore an opportunity cost and generators will not be prepared to generate electricity unless the price of power exceeds the generating components (e.g. fuel), which now includes the value of pollution allowances.

Pass through is actually an important aspect of the scheme as it provides additional revenue to low carbon forms of power generation such as wind energy, which benefit from the uplift in the overall price of power without forgoing any additional costs themselves (as they do not have to purchase pollution allowances to comply with the scheme). Additionally, a higher power price contributes to reducing the demand for power and increasing energy efficiency measures, thus targeting sectors that are not part of the emissions trading scheme.

However, when allowances are given out for free the most carbon intensive forms of power generation such as coal are also rewarded. This occurs because generators are able to pass through the value of the pollution allowances into the price of power regardless of whether they have been allocated allowances for free or if they have had to buy them. Windfall profits arise when the revenue gained by generators from passing through the value of allowances into power prices exceeds the level of actual compliance costs incurred by the generator (from the purchase of the remainder of allowances it needs to cover emissions).

It is important to remember that emissions trading is a mechanism to help achieve emission reduction targets at least cost. In the context of its impact on electricity prices it is just one of several factors which affect the price. These also include the global price of fuel (oil and gas prices have a significant impact on price), transportation and distribution costs, services and taxes⁶.

⁵ The price of carbon in phase II of the EU ETS as of 1 April 2008 was €22.5 www.pointcarbon.com

⁶ European Commission memo - questions and answers on energy policy, September 2007. <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/07/362&format=HTML&aged=0&language=EN&guiLanguage=en>

Assessment of the windfall profits to CO₂ emitting power generation

Main assumptions

Point Carbon based their assessment of windfall profits on the assumptions given in the table below.

Table 1: Main assumptions used in windfall profit calculation

	UK	Germany	Spain	Italy	Poland
CO ₂ price levels	€21-32/tonne ¹				
Level of power sector emissions 2008-2012 (MtCO ₂ /year)	178	338	105	152	156
Level of free allocation to power sector (MtCO ₂ /year)	107	230	54	100	106
% of time coal/gas spent at the margin	35/65	75/25	25/40 ²	20/70 ³	95/5
Range of pass through	75-100%	75-100%	75-100%	0-75% ⁴	45-65%

¹ Based on forward curve price and implied fuel switching price from 24 January 2008.

² We note for Spain that hydro/co-gen plant are estimated to remain at the margin 35% of the time.

³ We note for Italy that oil-fired plant are estimated to remain at the margin 10% of the time.

⁴ We use a wide pass-through range for Italy to reflect possible changes to the market structure towards 2012.

Results

Table 2: assessment of windfall profits to thermal power generation over phase II of the EU ETS

Country	Windfall profit over 2008 to 2012 (€bn) with CO ₂ price of €21/tonne	Windfall profit over 2008 to 2012 (€bn) with CO ₂ price of €32/tonne	Average windfall profit per thermal MWh generation (€MWh) ³
UK	6-10	8-15	7.3
Germany	14-22	21-34	11.3
Spain	1-3	2-4	3.2
Italy ¹	0-6	0-9	6.9
Poland ²	2-6	4-9	6.7

¹ Point Carbon note that the pass-through level in Italy is uncertain based on spot price evidence from phase 1. Pass-through rate assumptions for Italy are from 0 to 75%. In the 0% case, our calculations register low or zero windfall profits although we note that a high percentage of costs (to purchase allowances) would be recovered from the power price, which is high compared to other EU countries.

² It is important to note that in Poland consumer electricity prices are still regulated by the Government so currently these profits may not be realized⁷. However, Poland is required in line with EU law to introduce a more liberalized energy market and this should happen well before the end of phase II. This would then mean that higher levels of windfall profits might well then be realized.

³ Profit per unit of thermal generation is based on the mid-point of windfall profit range except for Italy which uses highest windfall profit.

⁷ As the pass through of the value of the free pollution allowances to the price of power will not take place

Conclusions

It is clear that the level of windfall profits to carbon intensive power generation are highest in countries:

- where the level of pass-through of CO₂ costs into wholesale power prices is high;
- where carbon intensive forms of generation such as coal set the overall power price most of the time; and
- where the power sector receives the highest percentage of its pollution allowances for free.

For example under the assumptions of the study:

- It is estimated that German utilities would gain the highest profits per mega watt hour (and also the highest absolute profits with estimates ranging from €14-34 billion) due to the high level of pass through expected (between 75 and 100%) and the high carbon intensity of power generation in this country which is dominated by coal.
- The UK would receive the second largest windfall – both in absolute terms (€6-15 billion) and per mega watt hour. Mega watt hour profits are lower than in Germany due to rather lower level of free allocation of pollution allowances to the power sector. In addition gas sets the price of power more often than coal in the UK. As gas is less carbon intensive, and hence requires fewer pollution allowances than coal, the power price increase is less.
- It is estimated that Spain on the other hand would profit less (€3.2 per mega watt hour and between €1-4 billion in absolute terms) over the second phase due to having a higher proportion of low carbon power generation and allocating a relatively low level of free pollution allowances to the power sector.
- To date the accumulation of windfall profits in Italy has been highly compromised by the market structure. The dominant position of former monopolist has influenced the electricity pool price more than the carbon price. The mark-up observed in the market has been high enough to include CO₂ windfall profits. However, during phase II higher levels of competition in the market should result in a surge in windfall profits (€0-9 billion). Nevertheless, this will be limited, given the small contribution of coal power in the national mix. In addition to the estimated windfall profits, the Italian market will face further costs in phase II due to the full pass through of CO₂ cost by CIP6 power plants and additional unlimited free allocation for new entrants.
- Currently the estimate for windfall profits to the Polish power sector (€2-9 billion) may not be fully realised as the electricity prices are still regulated by the Government. However, Poland is required in line with EU law to introduce a more liberalized energy market and this should happen before the end of phase II⁸. This would mean that higher levels of windfall profits might well then be realised.

WWF ETS policy recommendations

If the EU wants to maintain its global leadership role in tackling climate change then it cannot allow un-abated coal to continue to have a role in the energy mix. The EU's energy package which was released in January must be improved to provide sufficient incentives and long term certainty to ensure that building new un-abated coal fired power stations within Europe rapidly becomes extremely economically unattractive⁹. If it doesn't then the EU will undermine itself in its leadership role at a critical time in the international negotiations to develop a post 2012 global climate deal.

⁸ In December 2006 the European Commission launched an infringement procedure against Poland (and several other Member States) to bring them in line with energy policy agreed in 2003 which required that markets for energy were fully open by July 2007. Poland was required to provide further information on their regulated energy tariffs and the impact these had on competition (<http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/06/481&format=HTML&aged=0&language=EN&guiLanguage=en>). In September 2007 the Commission requested that Poland end its long term power purchase agreements with electricity generators as they were unlawful and incompatible with state aid. These long term agreements oblige the Polish Network Operator to purchase power at a fixed price for a set length of time (<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/1408>)

⁹ Indeed, WWF is calling for an emissions ceiling of 350g CO₂/kWh to be set on all new, and ultimately all existing power generation plants.

With regards to the EU ETS a crucial aspect of the proposal to amend this Directive is that the power sector will have to buy 100% of its allowances from 2013. The political process now in train to agree the energy package (including amendments to the EU Emissions Trading Scheme) must not weaken this key aspect. Free allocation which leads to windfall profits that reward the most highly polluting forms of power generation must not be allowed to continue. Furthermore such windfall profits reduce the incentives provided by the scheme to invest in low carbon forms of power generation such as wind energy.

Obliging the power sector to purchase all of their allowances is not expected in itself to have a major impact on electricity prices as the sector is able to pass through the costs regardless of if they have received allowances for free or not. Indeed, depending on the degree to which the energy efficiency target of 20% savings is achieved – the total bill for households may not increase at all¹⁰.

10 "Questions and Answers on the Commission's proposal to revise the EU Emissions Trading System" Memo from the European Commission, 28 January 2008
<http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/35&format=HTML&aged=0&language=EN&guiLanguage=en>