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Reducing Carbon Emissions in the Electricity Sector: a Challenge for Competition Policy Too? An Analysis of Experience to Date and Some Suggestions for the Future

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DG Competition has persistently advocated externality pricing (through measures like the Emissions Trading Scheme and tradable green certificates) over subsidies to renewable energy suppliers to tackle carbon emissions. The evidence thus far is that these shadow market methods, as implemented to date within the EU, have not incentivised large scale investment away from fossil fuels but rather have bestowed anti-competitive windfall profits on incumbents. On the other hand, DG Competition has been hostile to national price supports for renewable energy on the basis that they are distorting subsidies. There is evidence which suggests however that these feed-in tariffs provide more and cheaper renewable power than shadow market tools. The EU's 2020 ambitious target of obtaining 20% of all energy (not just electricity) from renewables means that most new and replacement grid capacity will have to be sourced from renewables, nuclear or clean coal. However the recent Renewables Directive largely entrenches the fragmentation of the EU renewable energy market arising from the existence of separate national support schemes. In *Preussenelektra* the European Court of Justice ruled that feed-in tariffs were not state aid and so DG Competition has limited legal powers to shape Member State policy in this area. Given the sunk costs involved, some form of long-term price security for renewables (along with nuclear and clean coal) is essential. This will require much greater state involvement in energy markets and the liberalisation trend will be reversed.

1. INTRODUCTION AND OVERVIEW: THE INTERCONNECTIONS BETWEEN COMPETITION POLICY AND CARBON EMISSIONS

The relationship between EU competition law and the growth of low-carbon electricity is a complex one. At first sight, the role of competition policy is to deliver electricity at the lowest cost to consumers without close regard to environmental side-effects. Carbon emissions are in principle the responsibility of other agencies. Thus, whilst DG Environment was developing the Emissions Trading Scheme ('ETS') to deal with carbon emissions, DG Competition and DG Energy were pursuing a liberalising agenda for the energy sector to lower prices for consumers. It is a primary argument of this paper that there are close connections between the two policy areas and that these need to be better understood in order to promote both emissions reduction and the welfare of consumers. As we shall see below, the design and execution of the ETS provided huge subsidies to traditional power generators (using fossil fuels) that were highly anti-competitive and should have attracted competition concerns. Furthermore,

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the liberalisation agenda in energy markets drove firms to compete on short-run costs of production by switching between different carbon-intensive production methods rather than investing in renewables. Both EU environmental and competition policy have however promoted the use of market instruments that seek to use short-run costs (including volatile spot energy, carbon permits and tradable green certificates for renewable energy producers) to influence investment behaviour. In fact, in the context of persistent market power, energy producers have largely passed on the (low) carbon price or simply switched between different, more or less, carbon-intensive fuels depending upon prevailing relative prices. As a result, large-scale renewable investment has not been stimulated by these innovative market-based systems. The causes are complex but the price volatility and degree of political and technical risk appears to be too great to tempt investors into the market on the scale required.¹ Rather, large-scale renewables have emerged in Member States providing long-term feed-in tariffs paid for by suppliers and ultimately consumers.

Turning to the future, the extremely ambitious target set by the EU of producing 20% of energy (not simply electricity) from renewable sources by 2020 will require unprecedented investment to generate 35%-40% renewable electricity. If the target is met, the 'liberalised' EU electricity market will actually be based on a patchwork of national renewable schemes. There are obvious dangers of protectionism and market distortion in this. Purely national schemes for renewables cannot be reconciled with free movement of goods or competition in a liberalised electricity market. The influence of EU competition policy over national renewable schemes was however rebuffed by the landmark European Court of Justice judgment in *PreussenElektra*.² The recent Renewables Directive³ does little to integrate the respective national schemes. We thus have the odd prospect of the key driver of the EU electricity markets in the years ahead being distinctly hostile to the single market. Electricity markets are likely to remain or become even more partitioned along national lines. This represents a great challenge for competition policy in the EU. DG Competition and Energy need to urgently find new ways to reconcile liberalisation, emissions reduction and financial support for renewables. This paper will explore the relationship between competition policy and carbon emissions to date and suggest what this means for future policy-making in this field.

¹ There are a number of studies comparing short-term market-based incentives as against long-term incentives. See C Mitchell and D Bauknecht et al, 'Quotas versus Subsidies – Risk Reduction, Efficiency and Effectiveness – a Comparison of the Renewable Obligation and the German Feed-In Law' (2006) 34(3) Energy Policy 297-305.

² Case C-379/98 *PreussenElektra AG v Schleswag AG* [2001] ECR I-2099.

³ Directive 2009/28/EC of the European Parliament and of the Council on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, OJ 2009, L140/16.

2. REDUCING EMISSIONS AND ELECTRICITY MARKETS: FOR PRESENT OR FUTURE CONSUMERS?

To reduce carbon emissions energy must be produced from low or non-carbon sources. In the field of electricity generation, the potential for reduction in emissions is still large in Europe because of the widespread use of coal, gas and oil alongside low carbon alternatives such as wind, wave, solar, biomass, nuclear and hydro-power. There has been wide consensus that the role of government in this should primarily be to create market conditions that send the ‘right’ price signals to investors, producers and consumers to make this switch to low carbon electricity as soon as possible. The pattern of long-term investment in plant, transmission networks and research and development needs to shift urgently if European and global targets are to be met.

An appropriate regulatory regime within the electricity sector needs to ensure that either ‘dirty’ producers are no longer able to compete without paying for the costs of their pollution and/or that ‘clean’ producers are able to charge more than the market electricity price for their positive contribution to environmental protection. The issue can therefore be located within the traditional economic framework of ‘externalities’ (to price pollution of the environment) and ‘subsidies’ (for protection of the environment). The aim should be to ensure that there is a rapid move to a low-carbon electricity industry which is achieved at lowest cost to industry, taxpayers and ultimately *future* consumers. Because of the ability of markets to price effectively and deliver innovation, both DG Energy and DG Competition have consistently favoured market-based approaches to reducing carbon emissions over state determined subsidies.⁴

The issue is complicated however by the intensive liberalisation programme in the EU electricity markets. DG Energy at the Commission has sought to create a single market in electricity and gas with a view to reducing prices and improving service for *present* consumers. This well-advanced programme was begun long before the decarbonisation objective emerged in EU policy-making. The structures and incentives created by the liberalised market were designed by DG Energy largely from an internal market perspective without much consideration of environmental issues. This was partly based upon a belief that an EU-wide carbon tax was imminent which would begin to tackle the emissions issue by fiscal rather than regulatory means.⁵ The failure to create a single EU energy tax has led to rising emissions as market liberalisation has driven down prices for electricity derived from fossil fuels. There is now an uneasy relationship between the liberalisation agenda and that of carbon reduction which mirrors a conflict between the interests of present and future consumers. This sense of conflict is

⁴ European Commission (1996) Green Paper for a Community Strategy – Energy for the Future: Renewable Sources of Energy, COM (96) 576, 19 November at pp 34-5. The Commission noted the importance of aiming for a Community system of tradable green certificates which would set a market price for carbon and remove the distortions inherent in national renewable schemes. The paper suggests an EU energy tax as the most desirable system for internalising costs of carbon emissions.

⁵ European Commission (1996) Green Paper for a Community Strategy – Energy for the Future: Renewable Sources of Energy, COM (96) 576, 19 November, p 13.

however becoming less significant for two reasons. First, current economic analysis suggests that early investment will lead to huge savings for consumers in the medium and long-term.⁶ Second, given the near-consensus on the need to tackle climate change urgently and the plethora of measures and targets for increasing renewable energy output, present consumers are inevitably going to face higher costs. Increasingly the real debate will be around how best to achieve the necessary cuts in emissions in the most competitive manner possible.

3. COMPETITION POLICY AND EMISSIONS REDUCTION: THE STORY SO FAR

It is clear that the primary goal of competition policy is to promote the welfare of consumers. This said, the growing importance of climate change to EU policymakers suggests that competition policy should also consider what kinds of regulatory policies might promote the most efficient (from the point of view of consumers) shift to a low carbon economy. If the market structures and incentives are wrong then consumers may end up paying much more for their renewable energy than would otherwise be the case. This is no longer a marginal part of the energy market and will come to form the bulk of energy supplied in years ahead. We can assess the history of competition policy in relation to carbon emissions by looking at three key areas: the lack of effectiveness of the Emissions Trading Scheme ('ETS') to properly price carbon externalities, the free allocation of ETS permits to fossil fuel producers and the issue of national subsidies for renewables.

3.1. The Externalities Approach and the ETS: a Failure to Incentivise Low Carbon Electricity

The economics of carbon reduction are in principle relatively simple. If we think carbon dioxide is an externality then we need to find a 'price' to put on this to stop firms undercutting through pricing below their true costs (including environmental costs). Thereafter the firms can compete on the basis of efficiency and innovation. DG Competition has consistently favoured this approach as expressed in its recent 2008 Guidelines on state aid for environmental purposes where it locates the issue very much in the competition context saying where 'undertakings can avoid bearing the full cost of the environmental harm arising from their activities ... the market fails to allocate resources in an efficient manner'.⁷ The Commission suggests that 'these negative externalities can be tackled by ensuring that the polluter pays for its pollution

⁶ One difficulty however is that of the time-frame over which the costs of transition are assessed. The Stern report made a persuasive case that high capital investment now will yield the lowest-cost solution in the long-term. To this extent however the maximization of *current* consumer welfare, the traditional role of competition policy, is inconsistent with environmental protection (and *future* consumer welfare). This leads to the question of what kind of model of competition is appropriate in order to maximize emissions reduction. The relevant time-frame may need to be sufficiently long to take account of long-term cost savings to future consumers through early deployment of capital. N Stern, *The Economics of Climate Change*, 2007, Cambridge University Press.

⁷ European Commission (2008) Community Guidelines on State Aid for Environmental Protection, OJ 2008, C82/1, Recital 7.

... [f]ull implementation of the PPP [polluter pays principle] would thus lead to correction of the market failure'.⁸ In most cases the state does not have to set prices, outputs or calculate subsidies but only find a measure of environmental cost and set a tax accordingly or allow a carbon market to do so. The Commission guidelines do recognise however that the PPP may in practice be impractical if the cost of pollution is hard to calculate or because imposing the full cost may lead to a sudden price shock. In these narrow cases, a subsidy may be appropriate but the guidelines emphasize that this must only occur where both (a) a higher level of environmental protection can be achieved than by the externality approach and (b) the positive environmental effects outweigh the negative effects in terms of distortion of competition.⁹ It is clear then, from DG Competition's perspective that '[t]he PPP remains the main rule and State aid is in fact a second-best option'.¹⁰

This approach is emphasized by the European Emissions Trading System¹¹ which in principle moves the electricity market towards the internalisation of carbon costs by placing a limit on emissions and requiring firms to hold permits to emit. Emissions above their permitted levels must be paid for by buying extra permits. The ETS Directive was introduced in 2005 at such speed that it did not suggest that it would be well-conceived from a competition perspective.¹² Member States did not wish to burden their industries with heavy costs and so they ensured that 95% of permits had to be given away free according to previous emission patterns ('grandfathering'). They were also able to bargain with the Commission over their overall level of emissions through National Allocation Plans. There was further discretion in allocating the permits between firms depending upon the type of fuel employed and also depending upon how long they had been in the market. The price of emissions permits has been volatile and eventually fell very low when it became clear that too many permits were issued. The impact of the price signal from carbon permits was intermittent and weak so that energy companies did not invest heavily in renewables based upon it. More commonly, companies simply switched between different fossil-fuel sources and different plants depending upon the relative price of carbon, gas and coal. Carbon pricing did not stimulate competition between generators to develop more clean technology or even to install existing technology.¹³ This was partly a result of the particular design of the scheme but it illustrates how grave the difficulties with the PPP method can be in practice. DG Competition's favoured method of delivering

⁸ Recital 8.

⁹ Rectital 6.

¹⁰ Recital 24.

¹¹ Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.

¹² For a detailed assessment of the first phase see J Sepibus, 'The European emission trading scheme put to the test of state aid rules,' NCCR trade regulation, Working Paper No. 2007/34, September 2007.

¹³ R Betz and M Sato, 'Emissions trading: lessons learnt from the 1st phase of the EU ETS and prospects for the 2nd phase' (2006) 6(4) Climate Policy 351-359.

reductions in environmental externalities has not proved very effective in reshaping competition in the electricity sector so far. Amendments to the ETS (discussed below) will begin to correct some of these problems but not all of them, particularly the volatility of the carbon price which is a major source of uncertainty for investors.

Interestingly, the idea that the ETS is a kind of PPP scheme that aims to protect competition by internalising the ‘externalities’ of higher emitting producers has been rejected by the recent Grand Chamber ECJ decision in *Arcelor*.¹⁴ Here steel firms challenged their inclusion in the ETS when large-scale chemical companies also producing emissions were excluded. They argued they were suffering discrimination by being included because there were areas of the market in which their products were in competition with chemical producers. The Commission accepted that the ETS should be interpreted as being designed to create a level playing field as between industrial competitors by internalising emissions costs but argued that on the facts there was no competition between the two sectors and therefore no discrimination. In an important ruling, the ECJ rejected the Commission’s interpretation of the nature of the ETS scheme. It held that similar emissions levels rendered the firms ‘similar’ - not the degree of competition between them.¹⁵ It was thus *prima facie* discriminatory to exclude from the ETS industries with similar emissions levels to that of the steel industry. There was no need for competition between industries to bring them under the ETS as, according to the Court, the aim of the scheme was to reduce emissions, not to eliminate unfair competition. Whilst the Court accepted that competition to reduce emissions most cheaply was the logic driving the ETS, this competition did not have to occur between industrial competitors. The ECJ thought of the competition as of the ‘virtual’ kind, occurring in the carbon-permit market such that those companies which found it cheaper to reduce emissions would be able to sell permits to those for whom reductions were more expensive. The *Arcelor* approach to the ETS suggests that EC competition law may not be invoked by renewable energy producers who complain of unfair treatment where competitors with high carbon emissions are given free permits under the ETS. We now turn to discuss this issue in more detail.

3.2. The ETS as State Aid: the free allocation of permits to traditional power generators and windfall profits

The problem of volatile and low carbon prices failing to stimulate investment in renewables has been noted. Worse still, from a competition perspective, is the fact that economic research has shown that the price of carbon under the ETS has also been added to retail prices by emitters - in many cases without loss of market share. This large element of pass-on arose from the low level of competition in the energy markets which remained dominated by large national monopolies.¹⁶ The fact that the ETS

¹⁴ Case C-127/07 *Societe Arcelor Atlantique et Lorraine and Others v Premier Ministre, Ministre de l’Ecologie et du Developpement durable, Ministre de l’Economie, des Finances et de l’Industrie* [2008] ECR I-9895.

¹⁵ Para 36.

¹⁶ The liberalisation of access to the grid and distribution networks clearly has a role to play. Increased competition from new entrants (including renewables producers) might prevent this ‘pass-on’. Hitherto

produced windfall gains for electricity producers using fossil fuels has attracted critical comment as to why DG Competition did not pursue state aid investigations into the matter.¹⁷

The idea that emissions permits were state aids was actually proposed by the Commission in relation to a *national* scheme in the *Dutch NO_x* case in 2004.¹⁸ The argument was accepted in principle but ultimately rejected on the facts by the Court of First Instance. The case concerned a national emissions trading scheme that was introduced by the Netherlands to meet its EU target for reducing nitrous oxide emissions. 250 large plants across a range of types of producer were chosen to participate. The scheme was notified to the Commission which concluded that the tradable nature of the permits meant they were state aids because they were given away by the state rather than sold. The Dutch government challenged this assessment before the Court of First Instance. The CFI made several important findings. It held first that the permits had a tradable value and were a transfer of state resources. Importantly they rejected the argument that because the overall scheme imposed additional new costs of emission abatement upon firms it could not be a state aid. They thus analysed the free permits separately from the rest of the scheme. However the CFI found that because the scheme covered a wide range of different types of firm the transfer of resources was not selective in such a way as to distort competition. The firms were chosen only by reference to the level of their emissions. There were no competing firms in identical factual and legal situations not covered by the scheme. Other firms were in fact not subject to abatement obligations and so the CFI found they could not be said to have been disadvantaged because they did not have to bear the costs of abatement felt by firms in the scheme.¹⁹

Although not decisive, this ruling suggests that attempts to challenge the EU ETS on the basis that the free allocation of permits represents state aid will fail. The ETS covers a wide range of sectors and its basic reference point is the ‘installation’ which is defined by size of emissions. This fits with what the ECJ decided in *Arvelor* that the scheme looks at the level of emissions from plants not particular industries. It does not therefore appear to ‘select’ in such a way as to benefit particular competitors. This is a serious problem from the perspective of no-carbon producers who are not covered by the emissions trading scheme or any other scheme. They are therefore not in a similar

however low carbon prices, lack of grid access and other market access barriers have prevented effective competition from renewables or other producers.

¹⁷ A Johnston, ‘Free Allocation of allowances under the EU Emissions Trading Scheme-legal issues’ [2006] 6 Climate Policy 115-136.

¹⁸ Case T-233/04 *Kingdom of Netherlands and Federal Republic of Germany v Commission* [2008] ECR II-591.

¹⁹ This argument is open to a number of objections the most obvious of which is that the permits could be sold on the open market for more than the cost of abatement. Thus the firms receiving them actually could make profits from their sale which firms not given permits could not. See J Sepibus, ‘The European emission trading scheme put to the test of state aid rules,’ NCCR trade regulation, Working Paper No. 2007/34, September 2007, 10-13.

position legally and factually. At first sight, they cannot therefore argue that there has been a selective advantage given to fossil fuel producers.

The argument against this conclusion stems from the pass-through evidence which suggests that fossil fuel producers with sufficient market power actually received windfalls from free permits. This indicates that giving free permits to polluters allowed them to increase their profitability by continuing to pollute and passing on the opportunity costs of not having sold their free permit.²⁰ This result stems from economic theory.²¹ This suggests that firms exercise a choice about whether to sell the free permits or use them; by using them they lose the revenue they would have gained from selling the permits. This is an opportunity cost and was added to the price of the electricity produced. The fact that they were competing with low-carbon producers and gained an advantage from being placed in the trading scheme suggests that the issue of state aid is quite significant. The decisions in *Dutch NO_x* and *Arcelor* fail to recognise this aspect to the problem because they focus solely upon the emissions constraints imposed upon the participants in any scheme. In fact, giving free permits to firms with market power appears to give them supra-normal profits as compared to the non-emitting firms/installations in competition with them. This also sends the wrong incentive signal to firms - to continue with fossil fuel inputs. It is strongly arguable that DG Competition should have begun enforcement action to challenge the free allocation of permits where this facilitated incumbent firms taking windfall profits. Until full auctioning of permits begins the distortion of competition (and consequent consumer harm) remains in place.

The more straightforward case of individual fossil fuel generating firms which are included in the ETS challenging particularly generous permit allocations to rivals also under the ETS have all failed on the ground of lack of standing. The leading case is that in *EnBW Energie Baden-Württemberg v Commission*.²² It is clearly more easily arguable when both firms are in the ETS that relatively abundant free permits to one give a selective advantage over a rival given fewer permits. This would overcome the objection of the CFI in the *Dutch NO_x* case as to the appropriate comparator being a firm also subject to emissions restrictions. The Commission has not however chosen to take any action against Member States on this basis so far but it seems a clear legal argument in principle.

The fact that the ETS in its first phase led to higher prices and windfall profits for polluting companies has been widely recognised if not the arguable violation of EU

²⁰ K Neuhoff and M Grubb, 'Allocation and Competitiveness in the EU Emissions Trading Scheme: Policy Overview,' (2006) 6(1) Climate Policy 7-30. J Sijm, K Neuhoff, C Yihsu, 'Cost Pass Through and Windfall Profits in the Power Sector,' (2006) 6 Climate Policy 49-72.

²¹ P Krugman, R Wells And K Grady, *Economics* (2008, Worth, New York) at 7.

²² Case T-387/04, [2007] ECR II-1195. The court held that the Commission decision did not directly concern the applicant. The Member State had discretion as to which rules to adopt under its National Allocation Plan. The Commission decision is only one of guidance which the Member State need not act upon. The challenge should therefore be to the Member State not the Commission. See also Case T-130/06 *Drax Power and Others v Commission* [2007] ECR II-67 and Case T-489/04 *U.S. Steel Kosice v Commission* [2007] ECR II-127.

state aid rules this entailed. The forthcoming phase III requires full auctioning of permits to the electricity companies.²³ This should stop the windfall profits. There is however still a possibility of producers offsetting a large proportion of their emissions externally under the Certified Emissions Reduction ('CER') scheme set up under the Clean Development Mechanism of the United Nations Framework Convention on Climate Change.²⁴ This may lead to a lower carbon price under the ETS and also provide very cheap offsets for fossil fuel producers. The experience with the ETS under Phases I and II suggests that the competition authorities should be looking very closely at the operation of the carbon markets and the allocation of permits in the years ahead. Carbon pricing and allocation of permits and offsets should become a central concern of DG Competition and DG Energy in order to create genuine pressure to internalise the cost of emissions.²⁵ Emissions reductions schemes should be closely monitored to remove perverse incentives that may be anti-competitive. Above all, the establishment of a stable carbon price floor (effectively a tax) should be a clear policy goal for the EU electricity market.

3.2. Subsidies for renewable energy: the hostility and ultimate exclusion of EC competition policy

The gap between market prices for carbon emitting energy and renewables remains significant, although much depends upon the spot prices for oil, coal and gas. Since 1990, Germany has pioneered 'feed-in tariffs' to bridge this gap.²⁶ This allowed higher prices to be guaranteed to renewable energy producers which covered all the extra costs of production plus a return on capital. The state simply set a long-term price – usually over 20 years – and required power distributors to pay this to producers. Eventually the growth of the scheme was costly enough to attract criticism from the large German utilities and DG Competition under state aid rules.²⁷ The Commission favoured a quota scheme linked to tradable green certificates.²⁸ This would require renewable producers

²³ Directive 2009/29 of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community.

²⁴ See above Article 11a.

²⁵ See the hitherto very benign view taken by the Commission of trading schemes where it says that so long as 'the global amounts of permits granted ... is lower than the global expected needs...the overall effect on the level of environmental protection will be positive'. As to state aid, it says merely that no 'over allocation of allowances can be justified and provision must be made to avoid undue barriers to entry'. European Commission (2008) Community Guidelines on State Aid for Environmental Protection, OJ 2008, C82/1, 1.5.11. This fails to provide strong or clear limitations upon the allocation of free permits.

²⁶ The German schemes varied over time and initially began as a guaranteed payment of 90% of the retail price for electricity. This was later varied to a fixed price differentiated by technology with wind prices being much lower than solar.

²⁷ For an excellent history of the German schemes and the Commission's hostility see V Lauber and L Metz, 'Three Decades of Renewable Electricity Policies in Germany' (2004) 15(4) Energy and Environment 599-623.

²⁸ See European Commission (2001) 'Community Guidelines on State aid for environmental protection' OJ 2001, C037, 03/02/2001 for the old guidelines which were replaced in 2008.

to sell their energy to the distributors at wholesale prices but receive the prevailing green certificate price on top. Feed-in tariffs committed the cardinal sin of state aid law by apparently giving ‘operating aid’ rather than more limited investment support. DG Competition gradually lost patience with the German schemes and intervened to support a legal challenge brought in Germany that was referred to the European Court. The challenge had great political significance because it pitted apparent free-market liberalism against a left/green alliance committed to state intervention in the context of environmental protection.²⁹

In a landmark decision in *PreussenElektra* the European Court ruled against the Commission holding that such price guarantees as were offered by the German system were not state aids at all.³⁰ This followed the logic of earlier cases on state aids which required *state* resources to flow to the sector aided in order for this to be caught by Art 87.³¹ Regulation of the market per se, even by setting prices paid to generators of renewables by distributors, was not state aid because the funds did not come from the state treasury. Whilst controversial, this gave the feed-in tariff model a safe harbour free from the opposition of DG Competition and it was adopted in many Member States over the green certificate system. It is clear that it has since been used as a powerful tool of industrial policy to promote the development of new industrial sectors that have generated employment and exports. The model has been widely viewed as successful by giving investors and purchasers of renewable generating technology price certainty over the long-term, leading to lower capital costs. This has expanded the market (which is unlimited) and reduced unit costs to approaching competitive levels in some instances.³²

DG competition remains suspicious of such schemes despite the growing evidence that they appear to lead to greater deployment of renewables at lower cost. This resistance is not surprising as feed-in tariffs conflict with central assumptions of EU competition and liberalisation policy; setting prices is seen as likely to reduce pressure on both costs and innovation, leading to consumer welfare losses compared to other models. Furthermore, the schemes are entirely national; they do not reward foreign renewable energy and so appear directly discriminatory and in breach of the fundamentals of the single market. DG Competition has therefore (despite *PreussenElektra*) continued to review each feed-in scheme on the basis that they are in fact subsidies or barriers to trade which may be justified only on a case-by-case basis if they meet the rules of

²⁹ See D Toke and V Lauber, ‘Anglo-Saxon and German approaches to neoliberalism and environmental policy: the case of financing renewable energy’ (2007) 38(4) *Geoform* 677-682.

³⁰ Case C-379/98 *PreussenElektra AG v Schleswig AG* [2001] ECR I-2099.

³¹ See C-72/91 & 73/91 *Slom v Neptun v Bodo Ziesemer* [1993] ECR I-887.

³² See A Johnston, A Kavali, K Neuhoff, (2007) ‘Take-or-Pay Contracts for Renewables Deployment’ (2007) Cambridge Working Papers in Economics No. 0723. See also C Mitchell and D Bauknecht, et al, ‘Quotas versus Subsidies – Risk Reduction, Efficiency and Effectiveness – a Comparison of the Renewable Obligation and the German Feed-In Law’ [2006] 34(3) *Energy Policy* 297-305. There are difficulties in drawing any general conclusions about competitiveness because much depends on prevailing fossil fuel prices, carbon permits, demand for renewables components and weather conditions at different sites.

proportionality. Interestingly the recent 2008 guidelines on state aid in environmental cases have tightly drawn rules on aid for renewable energy. These permit state aid up to 100% of investment costs but only where the aid was bid for in a transparent auction.³³ For operating aid, they also suggest tradable green certificate systems are compatible with state aid rules. Importantly, direct financial payments can only be made until the plant has been fully depreciated. The guidelines do not mention feed-in tariffs at all which remain outside the competition framework altogether despite providing what looks very much like operating aid on a long-term basis. Of course this may be DG Competition simply acknowledging the *PreussenElektra* holding that such schemes are outside the scope of Article 87 EC Treaty. Nevertheless, with the widespread adoption of such schemes across the Member States, DG Competition is in a parallel universe operating guidelines that do not have any relationship with what is actually happening in the Member States. When renewable energy was only a fraction of the total this was less significant; with the 2020 target however renewables are set to dominate the future of electricity production.

DG Competition urgently needs to come in from the cold here and rethink the approach to renewables. The best means would be to recognise that market mechanisms such as green certificates appear to be ineffective in present conditions (particularly with the ETS not providing a stable floor carbon price and with fossil fuel price volatility). DG Competition should endorse the long-term price certainty of the feed-in schemes but give guidelines which encourage Member States to follow more competitive approaches. One example is the use of competitive auction systems whereby the state invites tenders for low-carbon energy on long-term contracts. The auctions would have to be differentiated by technology to encourage more costly infant industries. This would give investors long-term pay-back without the state having to 'guess' the level of subsidy as under the feed-in system.³⁴ Such an approach is however inconsistent with an energy liberalisation policy that seeks to remove the state from the whole process of buying and selling electricity. The state will have to begin to take a more active role in commissioning energy in order to meet renewable targets at competitive prices and develop new technologies. Along with energy security concerns, this points towards a move back towards more state involvement (even planning) within the electricity market.

³³ See Guidelines on State Aid for Environmental Protection at 3.1.6.1

³⁴ In fact, the UK adopted such an approach for several years which appears to have been successful in driving down prices but failed to call-forth significant wind capacity. The reasons for this failure are complex. See C Mitchell and P Connor, 'Renewable Energy Policy in the UK 1990-2003' (2004) 32(18) *Energy Policy* 1935-1947 and L Butler and K Neuhoff, 'Comparison of feed-in tariff, quota and auction methods to support wind power deployment' (2004) *Cambridge Working Papers in Economics* 0503. This does not mean however that differently devised schemes cannot be made to deliver capacity.

4. THE LIBERALISATION OF ELECTRICITY MARKETS: THE PROBLEM OF INTEGRATING RENEWABLES

The other key aspect of competition policy impacting upon emissions has been energy market liberalisation. Looking back to the early days of energy liberalisation it is clear that DG Energy was unduly optimistic about the prospects for renewable energy in a liberalised market.³⁵ Driven by a belief that wind power was about to become competitive and that an EU energy tax was imminent, the assumption was that renewables would benefit from the opening up of markets to new players.³⁶ There was however recognition that renewables perhaps still suffered from modestly higher costs and might remain uncompetitive for a time. This risk could increase with lower prices after liberalisation. The main tool to support renewables would be the possibility of a premium on top of the wholesale electricity price to reflect the environmental benefits of renewable power.³⁷ This would not however remove the exposure of renewables to the volatile nature of wholesale prices.

With these assumptions about competitiveness and energy taxes, the Commission vastly underestimated the financial support needed to reach ambitious targets for the growth of renewable energy from 14.3% to 23.5%.³⁸ Rather it believed that consumers would soon choose the cheapest energy from a range of sources, including renewables that would be competitively priced.³⁹

This is not the place to provide a detailed review of the workings of the electricity market reforms.⁴⁰ The main point is to consider the principal effects of the new legal structures as regards lowering carbon emissions. The first Electricity Directive attempted to open up generation to competition without discrimination in favour of incumbents. In principle this would allow new renewable energy producers, along with other competitors, to enter the market having previously been legally excluded by authorisation schemes. There was also one specific provision made allowing Member States to give preference to the dispatch of renewables but not how this was to be

³⁵ For a survey of the evolution of Commission thinking see V Lauber (2005) 'The Politics of European Union Policy on Support Schemes for Electricity from Renewable Energy Sources' available at www.wind-works.org/lauber (at 22 September 2009).

³⁶ European Commission (1996) Green Paper for a Community Strategy – Energy for the Future: Renewable Sources of Energy, COM (96) 576, 19 November, 13.

³⁷ European Commission (1997) Energy for the Future: Renewable Sources of Energy. White Paper for a Community Strategy and Action Plan, COM (97) 599 final, 26 November 1997.

³⁸ 1997 White Paper 28-31. It estimates that only about 300 million per year would be required between 1998-2010 across the whole EU.

³⁹ European Commission (1999) Working Paper: Electricity from Renewable Energy Sources and the internal electricity market, SEC (1999) 470, 13 April.

⁴⁰ For a good summary see T Jamsasb and M Pollitt, 'Electricity Market Reform in the European Union: Review of Progress toward Liberalization and Integration,' (2005) Working Paper 05-003, Centre for Energy and Environmental Policy Research.

achieved in a manner consistent with competition law.⁴¹ The second Electricity Directive⁴² modified the first in ways that attempted again to improve access to the market for competitors. The principal method was unbundling vertically integrated network operators in terms of legal form. There were also better guarantees of grid access. The specific reference to renewables was limited but the increased power of Member States to intervene in the market to protect security of supply allowed them to give priority to renewables.⁴³

There remain, however, serious barriers for renewables within the liberalised market structure as it stands. In a comprehensive review de Sepibus argues that liberalisation has failed to produce the modernisation of the grid and distribution systems to allow access by large numbers of small and medium sized renewable installations.⁴⁴ This would include the installation of ‘smart’ technology which is able to balance the variability of renewables supply with the shifts in demand. Thus, in conjunction with the failure of the ETS to price emissions adequately, renewables have not been able to benefit from the liberalised market without support from national policies, particularly feed-in tariffs.

During the early phase of liberalisation, the Commission was concerned about the compatibility of national renewable energy support schemes with the rules governing the single market. It thought the schemes should be harmonised because they were ‘non-transparent, unstable and unpredictable’ and ‘a serious barrier to further market penetration’.⁴⁵ It was recognised that long-term investor confidence required a stable EU framework that a harmonized scheme would achieve. The Commission was clear however that this should be based upon ‘market-based’ schemes like renewable energy certificates and tenders rather than national feed-in tariffs set by the state. The latter were understandably seen as costly, damaging to competition and creating barriers to free movement of goods.⁴⁶ As discussed above, only energy produced within that

⁴¹ Article 8(3) and Article 11(3) of the Electricity Directive 96/92/EC which allowed but did not require Member States to require system operators to give priority to dispatching installations using renewable energy for reasons of environmental protection.

⁴² Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC, OJ 2003, L176, pp 37-56.

⁴³ Article 3(3).

⁴⁴ For a detailed analysis see J de Sepibus (May 2008), ‘The Liberalisation of the Power Industry in the European Union and its Impact on Climate Change’, NCCR trade regulation working paper no. 2008/10, 48-51. The author explains that renewables suffer from the short-term cost pressure because of their capital intensiveness but also the degree of market dominance by traditional fossil fuel producers which still inhibits their access to markets. A further matter is the intermittent nature of renewables which attracts penalty balancing charges not felt by large-scale fossil fuel and nuclear producers under current grid rules.

⁴⁵ European Commission (1996) Green Paper for a Community Strategy – Energy for the Future: Renewable Sources of Energy, COM (96) 576, 19 November at 17.

⁴⁶ European Commission (1999) Working Paper: Electricity from Renewable Energy Sources and the internal electricity market, SEC (1999) 470, 13 April, 16-20. The Commission was relying upon evidence from the UK in which the tender price under the Non-Fossil Fuel Obligation (‘NFFO’) scheme had come down to apparently near competitive levels for wind energy.

Member State was eligible for feed-in tariffs which appeared to be directly discriminatory. Even after the *PreussenElektra* decision, the Commission could take encouragement from the apparently provisional nature of the court's decision on Article 28 EC. The court had talked about the difficulty of securing mutual recognition for renewable energy from other Member States and the fact that the liberalisation of the electricity market was only work in progress so that some obstacles to trade must remain for the time being.⁴⁷ This suggested that national schemes might be vulnerable to attack on Article 28 grounds in the future if a system of mutual recognition for renewable power could be agreed.

The remarkable fact is that despite first being proposed over ten years ago, there has been almost no progress toward integrating the market in renewable support schemes. In 1998, the Parliament proposed an EU-wide feed-in system for renewables that was innovative in proposing a single method of calculating the premium for renewables above the average price in each Member State.⁴⁸ Grid operators would have to purchase all certified renewable energy and be compensated by the government if their share was excessive. The important additional element was that the proposal allowed Member States to choose between feed-in per se or tenders for blocks of renewable supply. The proposal effectively endorsed the legality and efficiency of feed-in tariffs despite the strong opposition to them emanating from the Commission as discussed above. In the end the Parliament's suggestion was rejected by the Commission which was seeking to have the feed-in system declared illegal in the *PreussenElektra* case. After that case, the Commission was chastened as national schemes were left apparently untouchable under state aid law. As a result, a much more modest measure, the 'RES Directive'⁴⁹ was eventually passed in 2001. This simply required Member States to create objective, transparent and non-discriminatory criteria for designating energy as coming from renewable sources.⁵⁰ Energy produced according to these national standards should be given a guarantee of origin ('GO'). Each Member State had to confer mutual recognition upon each other's guarantees.⁵¹ Crucially however there was

⁴⁷ See paras 76-81 of the judgment.

⁴⁸ European Parliament (1998) Report on Network Access for Renewable Energies – Creating a European Directive on the Feeding in of electricity from renewable sources of energy in the European Union. Committee on Research, Technological Development and Energy; rapporteur R. Linkohr. A4-0199/98, PE 224.949.fin, DOC_EN/RR/354/354415, 26 May.

⁴⁹ Directive 2001/77/EC of the European Parliament and of the Council on the promotion of electricity produced from renewable energy sources in the internal electricity market. The Directive did impose a requirement that the grid operators and distributors 'guarantee the transmission and distribution of electricity produced from renewable sources'. (Article 7(1)) The firms could however impose charges for this service under Member States required them to bear the costs. (Article 7(3))

⁵⁰ Article 5.

⁵¹ This met the concern of the Court of Justice in *PreussenElektra* about the difficulty for Member States in satisfying themselves that imported renewable energy was produced according to appropriate standards. Although it is thus possible the European Court might revisit its conclusion on the Article 28 point in the light of harmonised Community standards requiring mutual recognition, it seems unlikely on political grounds that feed-in tariffs would be found illegal given their centrality to European energy policy on renewables.

no obligation to accept feed-in energy from other Member States or harmonise the substance of national support schemes.⁵²

5. THE 2008 RENEWABLES DIRECTIVE: THE RISE AND FALL OF TRADING IN RENEWABLE ELECTRICITY GUARANTEES OF ORIGIN

The most recent stage in reviewing energy liberalisation within the Commission converged with the climate change issue at the European Council in March 2007. This endorsed proposals for a new electricity Directive but also the 2020 targets on renewables. The Commission was then required to join the two issues together in a Strategic Energy Technology Plan ('SET-Plan') in November 2007.⁵³ This led to a new Proposal for a Decision to meet the 2020 targets which required amendments to the ETS, the RES Directive and a new Directive on Carbon Capture and Storage.⁵⁴ The Commission (and DG Energy in particular) had given up the idea of producing a single harmonized model for renewables support across all Member States because of the previous problems. The new RES Directive proposal did however initially include an important measure to require trading in guarantees of origin for renewable energy between both Member States and firms.⁵⁵ This would have meant that firms producing renewable energy in one Member State could sell the GOs to firms in other states. The price of GOs would be determined by the market and this might lead to higher production of renewables where it was cheapest to do so and the sale of the resulting GOs to places where it was more expensive to produce green energy. This would have been a significant integration of the renewable energy market (or at the least the GOs arising thereunder). Electricity suppliers could meet targets to surrender a given volume of GOs whilst green energy producers would gain a premium in the form of the sale of the GO. During the drafting debates, a system of tradable GOs was strongly supported by DG Competition on the basis that it would lead to more efficient deployment of renewables.⁵⁶

The proposal for tradable GOs proved highly controversial and was eventually dropped after much lobbying by renewable producers, some large-scale energy consumers and

⁵² For a discussion of how to harmonize feed-in tariffs see M Munoz, V Oschmann and JD Tabara, 'Harmonization of Renewable electricity feed-in laws in the European Union' (2007) 35(5) Energy Policy 3104-3114. For a comparison of different support mechanisms in the context of the debate on harmonisation see D Fouquet and TB Johansson, 'European renewable energy policy at crossroads – focus on electricity support mechanisms' (2008) 36(11) Energy Policy 4079-4092.

⁵³ COM (2007) 723. Adopted by the Council of Ministers on 28 February 2008, 6722/08 (Presse 45).

⁵⁴ COM (2008) 30.

⁵⁵ Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources. COM (2008) 30 final. Articles 6-9. The proposed text did allow Member States to have a system of prior authorisation before permitting transfer of GOs on certain conditions being met.

⁵⁶ M Nilsson, IJ Nilsson, K Ericsson, 'Rapid turns in European renewable energy policy: advocacy and framing in the proposal for trading of guarantees of origin' (2008) Fridtjof Nansens Institute Report 9/2008.

Member States with feed-in systems.⁵⁷ There were a variety of concerns. Most prominent was the view that national support schemes would be undermined by trading in GOs.⁵⁸ This stemmed from the fear that firms with low production costs might simply sell their energy in neighbouring states along with the GOs if the combined price was more attractive than the feed-in tariff in their home Member State. This would have left the home Member State with increasingly expensive and less diverse renewable suppliers which would undermine taxpayer support for the schemes.⁵⁹ There was also concern that the system of GOs might simply provide further windfall gains to power producers (as the ETS had) – a view given some credence by the Commission.⁶⁰ This was because pricing for GOs might well be set by the most expensive marginal technologies (such as PV-solar). This would result from EU-wide demand for GOs outstripping supply and the market clearing at the most costly marginal prices. Other producers of energy would then simply set their prices to match those of this marginal cost (including the high GO price). The result might lead to higher electricity prices for all consumers than under the feed-in system where the price paid is technology specific.⁶¹

The demise of the trading of GOs shows that there is wide-spread resistance to any attempt to integrate national feed-in schemes, particularly because they are seen as politically and economically vulnerable in any trading system but also because of concerns that private actors (power firms and traders in instruments) will receive windfalls at the consumers' expense. The political support for national schemes comes from a number of factors including the success of the schemes in generating green energy but also the industrial policy advantages of supporting fledgling components industries supplying the renewable generators.⁶² In the longer term the growth of renewables will become central to EU energy markets. The present position is that competition will not take place between power generators because the national support schemes are likely to remain separate. There will however be strong competition in the

⁵⁷ Directive 2009/28/EC of the European Parliament and of the Council on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, OJ 2009, L140/16. See Article 15 which does not on the face of it require or permit the transfer of GOs between persons in different Member States. Member States are given an unfettered discretion to deny feed-in tariffs or other support to firms asking for GOs. Thus they can force firms to choose between feed-in or GO trading in their business models (Article 15(2)).

⁵⁸ M Nilsson, IJ Nilsson, K Ericsson, 'The Rise and Fall of GO trading in European renewable energy policy: the role of advocacy and policy framing' (2009) 37(11) *Energy Policy* 4454-4462.

⁵⁹ See K Neuhoff, A Johnston, D Fouquet, M Ragwitz and G Resch, 'The proposed new EU renewables directive: an interpretation,' 6th April 2008. Accessible at Cambridge Electricity Policy Research Group under 'Other Publications.'

⁶⁰ European Commission (2008) 'Impact Assessment: Document Accompanying Package of Implementing Measures for EU's Obligations on Climate Change and Renewable Energy for 2020.' Brussels, 23 January, SEC (2008) 85/3 at 12-13.

⁶¹ D Toke, 'The EU Renewable Directive: What is the Fuss about Trading?' (2008) 36 *Energy Policy* 3001-3008.

⁶² M Nilsson, IJ Nilsson, K Ericsson, 'The Rise and Fall of GO trading in European renewable energy policy: the role of advocacy and policy framing' (2009) 37(11) *Energy Policy* 4454-4462.

generating capacity and services markets with producers using free movement of goods provisions in the Treaty. This should drive innovation in reducing costs for established technology. The experience in Germany, Spain and Denmark so far suggests that feed-in tariffs have not produced ossification in the product markets where there has been strong competition between manufacturers that have congregated in these markets.

6. CONCLUSIONS

The theoretical ideal (in orthodox competition policy terms) of dealing with emissions by internalising externalities has not yet happened and is not likely to do so soon. The modest and volatile carbon price so far seen under the ETS has not stimulated investment in renewables. The scheme has however given windfall profits to dominant generators at the expense of consumers. Over the medium-term the ETS may begin to exert pressure of emissions more effectively although this is still subject of great uncertainty. There are two main potential sources of strong downward pressure on carbon prices: the possibility to buy off-sets under the Certified Emissions Reduction scheme and the large expansion in renewable energy itself.⁶³ In any event, DG Competition should favour a strong and consistent carbon price (with a floor price) to provide a more transparent price incentive for investment. Furthermore, they should favour short-run competition on a level playing field with companies paying for their pollution. Full auctioning of carbon permits in the electricity sector will begin in principle begin in 2013. It should be seen as a key policy, along with unbundling and grid improvements, for the internal market in electricity. There is still a danger that anti-competitive subsidies will reappear in the form of grants to add carbon capture and storage facilities to fossil fuel plants. Any such aid should be closely scrutinized because it will reduce incentives to invest in alternative energy. Other schemes also have the potential to harm consumers such as the tradable guarantee of origin put forward in the draft Renewables Directive. This might well have led to windfall profits for power producers at the expense of consumers. DG Competition has so far failed to intervene to challenge these side-effects of environmental policy taken at EU level.

By contrast the issue of national subsidies was placed beyond competition scrutiny in *PreussenElektra*. This gave a legal buttress to massive state support for renewables by individual Member States outside the competition law regulatory system. The passing on of the extra costs of a feed-in system to all consumers has allowed renewables to scale up and driven unit prices down. Ironically therefore, perhaps the most effective measure thus far taken to promote environmental protection was subject to strongest attack from the perspective of EU competition policy at DG Competition. This said, the fixing of prices by the state looks very unsatisfactory from a competition policy

⁶³ There is no doubt a conflict between the feed-in tariff which 'pays for' emissions reduction and the ETS system which is supposed to do them same. The larger the feed-in market, the lower the carbon price generated by the ETS will fall. The domestic consumers of the Member States are paying (through feed-in tariffs) to reduce emissions at a higher price than that set in the ETS market. The policies are not joined up at all. In an ideal world, the ETS should do most of the work of shifting incentives by being stable and high enough to obviate the need for subsidies from taxpayers and consumers.

angle. The German experience suggests nevertheless that technological competition has been generated but that it requires long-term price ‘certainty’ for firms engaged in each technology to enter the market. The rejection of the state aid argument by the ECJ in *PreussenElektra* may thus have opened the way towards a new model of competition. This appears to be appropriate for a capital intensive fledgling industry which faces low-marginal cost incumbents with heavy sunk costs.

Despite these benefits, there are obvious problems with the feed-in systems currently in place in that (a) they discriminate against cheaper renewable energy from outside the particular Member State operating the scheme (b) they favour existing technology (c) they rely upon state officials’ estimates of the costs of production and innovation, and (d) they are very open to particular interest-group lobbying. DG Competition could thus attempt to engage more fruitfully in this debate by arguing for technology neutral feed-in tariffs that support low-carbon energy and/or tenders by new state renewable purchasing authorities. There could also be a policy to encourage cross-border feed-in tariffs and regional co-operation between schemes. This will be harder to sell to Member States who have been keen to see feed-in tariffs as part of their industrial policy in developing home industries. It will however offer a move away from the uncertainty of spot pricing mechanisms (including the ETS and green certificates) favoured so strongly up to now by the DG Competition and DG Energy in electricity markets.

Thus there remains a serious conflict between the national partitioning of the market in renewables deployment and the creation of a single EU energy market. Support for feed-in tariffs has been closely linked to industrial policy and the development of export industries for components. If the feed-in tariffs borne by one set of taxpayers ultimately fund generation and components industries in other Member States this would be unsustainable. It thus seems unlikely that Member States will allow significant subsidised cross-border trade in renewable energy.⁶⁴ There will continue to be discrimination against imported renewable energy. There is already however increasingly vigorous competition in the markets for equipment (both within the EU and from outside) and this should drive down costs of renewable electricity. In the longer term, one can imagine that opinion within Member States will shift from supporting expensive feed-in tariffs to simply buying the cheapest renewable power. As the natural resources used by current technology are distributed differently across Member States (most obviously sun, wind and hydro-power), electricity should ultimately flow from resource ‘rich’ to resource ‘poor’ areas within a single market. There is however little prospect of this in the foreseeable future under the current

⁶⁴ The renewables directive does however contain provision for Member States (rather than firms) to engage in statistical transfers to each other. See Article 6. Directive 2009/28/EC of the European Parliament and of the Council on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, OJ 2009, L140/16.

market and regulatory conditions. This will rather depend upon more strategic EU and Member State action to commission trans-European grid improvements.⁶⁵

⁶⁵ For more details on this see the Strategic Energy Technology Plan COM (2007) 723. Adopted by the Council of Ministers on 28 February 2008, 6722/08 (Presse 45).