

ECOLOGICAL TAX REFORM AND EMISSIONS TRADING – CAN THEY WORK TOGETHER?

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1 Does Emissions Trading Render Ecological Tax Reform Redundant?

Industrialised nations use more natural resources than the Earth can provide in the longer term. Fossil fuels are particularly scarce and in limited supply. At the same time, greenhouse gas emissions continue to rise, fostering climate change because the capacity of the Earth's atmosphere to absorb them has been exhausted. In tackling this global challenge, one highly promising measure is the use of economic instruments to increase the price of conventional energy, provide incentives for more efficient energy use and promote greater use of renewables.

The Kyoto Protocol to the United Nations Framework Convention on Climate Change provides a global framework for the use of economic instruments at international level. As a signatory, the EU has agreed to reduce its greenhouse gas emissions by 8 percent. Using a target sharing¹ approach, EU Member States have each set national reduction goals; Germany has committed to reducing emissions of all six greenhouse gases defined in the Kyoto Protocol by 21 percent in the period 2008-2012, compared with the figures for the base year.

The EU Emissions Trading Scheme (ETS) aids fulfilment of the commitments arising from the Kyoto Protocol. The scheme provides for an initial three-year and subsequent five-year trading period. The first trading period (2005-2007) is restricted to CO₂ emissions and limited to specific industry sectors.

Ecological tax reform also aids achievement of Kyoto targets. While primarily a German instrument, it is also used in several other EU Member States and now has an EU framework. While the idea of emissions trading initially took a top-down approach in which decisions were first made at EU level and then had to be transposed into national law within a prescribed short-term time-frame, ecological tax reform took the reverse (bottom-up) approach.

While in theory it would make sense to use a single instrument like emissions trading to meet climate change mitigation targets, this alone would not be sufficient in real life conditions. A combination of multiple instruments and measures is needed. This is the only way to take account of target group-specific obstacles to climate-friendly behaviour and it also avoids the possibility of applying individual measures in overdose.

1.1 Appraisal Criteria

To appraise the underlying question of whether emissions trading renders ecological tax reform redundant, it is necessary to apply a range of different criteria and then to analyse the results. This means looking at both instruments' objectives, structure, sectoral impacts on the economy, society and the environment, level of administrative effort, financial flows, social

¹ In place of the commonly used 'burden sharing', the more neutral term of 'target sharing' is used to avoid giving the impression of a negative situation such as that implied by the word 'burden'.

acceptance, and legal evaluation. In each case, it is necessary to identify differences and similarities, and also any overlaps in how the two instruments interact and how their combined use might be better orchestrated.

1.1.1 Objectives

Ecological Tax Reform

Ecological tax reform has at least two objectives. Firstly, it is designed to reduce energy use and the associated greenhouse gas emissions to make climate change mitigation more cost-effective. Secondly, in Germany, the funds it accrues will be redirected to finance a reduction in wage-related costs and so unemployment. While the overall tax burden will remain the same, the structure will change and provide new incentives – making it far more beneficial to hire people than to fire them. To compensate, excess kilowatt hours of energy use will be 'released' to reduce costs and increase competition.

This is all based on a farsighted vision: if energy savings, increased efficiency and renewables are the energy sources of the future, then a significant share of value creation and thus of jobs creation will occur in the domestic market. Tax incentives will foster innovation. But because the three energy sources mentioned earlier will not play a role in Germany alone, innovation in this sector will not simply reduce domestic energy costs and increase competition, it will also open up new markets and export opportunities.

Thus, apart from promoting climate change mitigation and jobs creation and security, key subordinate objectives in ecological tax reform are the promotion of innovation, technology and exports.

Emissions Trading

The EU Emissions Trading Scheme "aims to contribute to fulfilling the commitments of the European Community and its Member States more effectively, through an efficient European market in greenhouse gas emission allowances, with the least possible diminution of economic development and employment" (Directive 2003/87/EC).

Participants in the scheme may either choose to reduce their emissions and sell their surplus allowances on the market or purchase additional allowances where needed. Emissions trading is thus a market-based instrument and aims to reduce emissions where it is cheapest to do so. Permits take the form of a quantity-related measure for distributing emission allowances and provide a tradable right to use the environment. The scheme restricts emission levels rather than placing a fixed price on the use of nature's resources.

1.1.2 Structures

Ecological Tax Reform

Germany's ecological tax reform is limited to energy taxation on the supply side. Between 1999 and 2003, a number of different energy taxes were either increased and/or introduced. This was counterbalanced by a reduction in and stabilisation of contributions to the statutory old-age pension scheme.

Since 2003, fuel tax has risen in Germany by 3 ct/l per year to 65 ct/l. In 1999, fuel tax on lightweight heating oil increased by 2 ct/l to 6 ct/l. Fuel tax on natural gas rose by 0.16 ct/kWh in 1999 and again by 0.202 ct/kWh in 2003. Marginal increases also occurred for liquid gas and heavy heating oil. Electricity tax was introduced at a rate of 1 ct/kWh on 1 April 1999 and increased by 0.25 ct/kWh in each subsequent year (up to and including 2003).

Producing industries initially paid a tax rate some 20 percent lower than the basic contribution of at least €512 p.a. If the payable energy tax amounted to more than 1.2 times the reduced contribution, the excess was reimbursable in full. Since 2003, the reduced rate has increased to 60 percent with only 95 percent being reimbursed, although this now takes place when the payable amount exceeds the 1.0 reduction in contributions to statutory old-age pension. This comes down to a residual tax burden constituting a positive marginal tax rate of at least three percent (a 5 percent refund on 60 percent).

Biofuels were made tax exempt in 2003. Efficient cogeneration of heat and power with monthly or annual usage rates of 70 percent were made exempt from fuel tax back in 1999. If an electricity generation installation is used to provide up to 2 MW of rated output for its own supply or is operated under contract, the electricity generated is also exempt from electricity tax. While renewables used to generate electricity are exempt from fuel tax, they are only exempt from electricity tax when used to generate electricity for the producer's own use in a closed grid using electricity generated solely from renewable energy sources. Public transport is subject to fuel tax at a 40 percent reduced rate, while rail transport pays electricity tax at a 40 percent reduced rate.

On 15 March 2006, the German government approved the transposition into national law of Council Directive 2003/96/EC of 27 October 2003 on restructuring the Community framework for the taxation of energy products and electricity.

Germany's new Energy Tax Act provides for the following changes:

- The existing taxable items listed under the Fuel Tax Act have been expanded in the Energy Tax Act in accordance with the provisions of the Energy Products Taxation Directive. In future, coal, coke and lignite used for heating will be deemed energy products and taxed accordingly.
- Taxation of energy products used to generate electricity will be revised. Under the provisions of the Energy Products Taxation Directive, these will generally be exempt from taxation. In this regard, the provisions on reduced taxation for cogeneration of heat and power will be significantly simplified.

Emissions Trading

The EU Emissions Trading Scheme is initially restricted to CO₂ emissions, does not cover all greenhouse gas emissions and/or energy sources, and is initially limited to specific sectors that are responsible for a large proportion of these emissions. This includes industrial power plants (20 MW and above), oil refineries and coke-ovens, the steel industry, the cement, glass and ceramics industry, and the pulp and paper industry. As emission permits relate to a specific installation, it is possible for a business to be required to hold permits for multiple installations. It also means that rather than being able to pass permits backwards and forwards within a company, holders may only trade them via a third party on the emissions trading market.

In Germany, the allocation of initial allowances for the first trading period is completely free of charge (under a grandfathering arrangement) and based on historic emissions from the period 2000 – 2002. For the second trading period, it is theoretically possible to auction off 10 percent of the allowances allocated.

When allocating emission allowances and if requested by an operator, the German Emissions Trading Authority (DEHSt) may apply a potential factor of 1 if the operator can prove that early action has been taken in the form of modernisation activities completed after 1 January 1994. The modernisation activities must meet specific scope requirements prescribed by law. Operators may also request that a potential factor of 1 be applied for installations that first went into operation during the period 1 January 1994 to 31 December 2002 without having to provide evidence of early action. Early action led to 300 applicants receiving allocations to the tune of 291 million t CO₂ (equivalent to around 97 million t CO₂ a year) in the first trading period (DEHSt, 2004).

Special arrangements are in place for installations – known as newcomers – that went into operation after 1 January 2005. Emissions allocations for these installations are based on benchmarks that focus on best available technology. The electricity benchmark is 750 gCO_{2e}/kWh_{el}. No installation should receive allocations in excess of its actual emissions, although it should not receive less than 365 gCO_{2e}/kWh_{el}.

A transfer rule allows new installations that replace old ones to transfer their emission allowances in full for a period of four years, after which time they may be operated for fourteen years without having to commit to emission reductions.

1.1.3 Sector-Specific Economic, Social and Environmental Impacts

Ecological Tax Reform

Private households are directly affected by the higher electricity, energy and fuel costs resulting from eco-tax. To look at how German ecological tax reform impacts on everyday consumer behaviour, a representative survey was conducted in 2004 in which 1,002 individuals were asked about the amount of energy they use in terms of electricity use, living in and heating their homes, and personal mobility. About half the respondents who take measures to save energy said eco-tax played either a strong or very strong role in their actions. This applied to all three areas (electricity, living/heating and mobility). Only a fifth of respondents said that eco-tax played no significant role in their decisions.

Ecological tax reform does not necessarily place a burden on business. In fact it can bring a number of direct or indirect benefits. Interviews conducted by Ecologic in 2005 with 16 small, medium and large-sized businesses from a range of different sectors highlighted both the ways in which businesses can benefit from German ecological tax reform and the key factors involved:

- Some businesses benefited because, faced with rising electricity and energy prices, they have accelerated both production and distribution of energy-efficient products (e.g. low-energy homes).
- Energy consultants have benefited from increased demand for their services, ecological tax reform having fostered both start-up and innovation in this business sector.

- Other businesses have benefited from saving energy (say by switching to energy-efficient production processes) and the resulting cost-based competitive advantage.

Another group of beneficiaries were businesses who were able to make use of special arrangements provided for by the ecological tax reform. Among these were businesses who used natural gas or biodiesel or who produced energy in combined heat and power plants.

A key advantage for business overall was the reduction in wage-related costs. Business has thus benefited from the stabilisation of pension contributions brought about by ecological tax reform. This was particularly the case for businesses with labour-intensive operations.

According to calculations done by the German Institute for Economic Research (DIW 2005), the ecological tax reform is achieving its dual objective: compared to the scenario without ecological tax reform, reductions in CO₂ emissions in the year the reform was introduced amounted to around half a percent, 2.4 percent was achieved in 2003 and more than 3 percent will be achieved by 2010. The employment situation improved over the entire period studied, while growth fluctuated between one half and three-quarters of a percent. Based on 2003 figures, this equates to CO₂ emission reductions totalling 20 million tonnes and some 250,000 more people with jobs.

Emissions Trading

Aside from the first allocation of emission allowances (by grandfathering or auction), the actual holding of permits gives rise to opportunity costs in that there is the potential to sell them at market prices. Looked at from a different angle, this means a loss in profit for each permit held (Heilmann, 2005). Thus, the free allocation of emission allowances initially results in permits being subject to the same entrepreneurial financial evaluation as that involved in an auction. The permits flow into the variable costs of production.

Whether or not they impact on pricing depends on whether it is possible to enforce appropriate prices in the market. According to a study commissioned by the EU Commission and jointly conducted by McKinsey and Ecofys, around half of the companies questioned factor the value of their permits into their prices (European Commission et al., 2005). Some 70 percent of those who do are energy companies. To the extent it is possible to enforce higher electricity prices in the market, not only the direct costs of permits are factored in but also the opportunity costs, leading to higher returns for power plant operators.

1.1.4 Administrative Effort

Ecological Tax Reform

The German Federal Finance Ministry initially estimated the administrative effort involved, and particularly the number of public service staff needed, as considerably higher than has actually been the case. The German government recently assessed the expense to public service in administering ecological tax reform at 0.13 percent of the revenue generated (currently about €18 billion). Thus, despite the complex, administration-intensive special arrangements (especially for industry), ecological tax reform is one of the most efficiently administered taxation instruments. This can largely be explained by the application of the methods used in the tried and tested administration of fuel tax. Eco-tax hardly affects private households because it cannot be levied at that level for administrative reasons. While the

occasional complaint is received, these remain few and far between so there is no reason to assume that industry suffers any substantial administrative burden.

Emissions Trading

The sliding-scale general emissions trading fee comprises a basic fee which increases commensurate with the size of the installation and a variable amount which is linked to the allocated emission allowances. On average, the transaction costs per installation amount to €22,960.95 for the first trading period (assuming an average amount of €0.038 per EUA) (EuPD-Research 2006, cited in Point Carbon 2006c).

The 1,860 German installations taking part in the EU Emissions Trading Scheme were allocated almost 1.5 billion EU emissions reduction units for the first trading period. For the German Emissions Trading Authority (DEHSt), this means takings of around €4.46 million in fees for the first trading period and an additional €327,000 for administering the national registry (installation operators plus voluntary participants from the wholesale and retail trade) (Point Carbon, 2005a).

Comparing administrative costs totalling €4,832 million with a market value of around €5.4 billion as estimated by Point Carbon (2006d), the effort involved amounts to only 0.089 percent. This is even lower than the German government estimate mentioned earlier when referring to the administrative costs of ecological tax reform (0.13 percent). Both figures show that, despite a certain level of effort and detailed regulation, highly effective environment policy can be achieved using extremely efficient, administratively lean economic instruments.

1.1.5 Financial Flows

Ecological Tax Reform

Since its final phase in 2003, ecological tax reform has brought the German state annual revenue of some €18 billion. This equates to around two percent of all taxes and contributions paid. About €17 billion flows into reducing and stabilising pension contributions. About 10 per cent flows into programmes to promote renewable energy (almost €200 million in market incentives for the use of renewables) and to increase energy efficiency (boosting the KfW low-CO₂ building modernisation programme by another €160 million, bringing the total to €360 million since 2003 – the grand coalition government is now in the process of further supplementing the fund to make some €1.4 billion available each year). Factoring in annual tax concessions for biofuels far in excess of €1 billion and rising shows that ecological tax reform actually brings in hardly any net revenue at all.

Technically, the income from ecological tax reform flows into federal coffers because both fuel and electricity tax are purely federal taxes. In accordance with policy agreements and the provisions set out in Germany's Social Code, a large portion of this increased revenue is transferred to the statutory pension fund. The pension fund in turn is required to reduce its contributions under rules demanding that it operate efficiently. In 2006, contributions are 1.7 percentage points lower than they would be in the scenario without ecological tax reform.

Emissions Trading

Apart from the fees charged to cover administrative costs, the state derives no direct income from emissions trading. The Emissions Trading Directive provides for the auctioning of up to 10 percent of available permits. Germany, like all other EU member states, made no use of this option in NAP1 and thus waived around €1 billion in revenue.

According to the German Federal Environmental Agency (UBA 2005), more than 90 million of the EUAs traded were registered by DEHSt in 2005. This means that around 18 percent of all permits allocated in Germany were traded, with some 21 million EUAs being transferred to other European states and around 19 million EUAs being transferred to Germany. The actual percentage is probably higher because not every transaction is readily visible in the register.

1.1.6 Social Acceptance

Ecological Tax Reform

The basic concept of ecological tax reform met with broad acceptance among the German population. Organisations like the German Confederation of Trade Unions (DGB), individual companies, the scientific community, the Church and environmental organisations all declared their widespread support. However, this general acceptance soon disappeared as ecological tax reform was implemented. This was largely due to the *Benzinwut* (petrol protest) campaign jointly conducted in 2000 by the then opposition government and Bild (a tabloid newspaper). Ironically, leaders of the former CDU conservative government (Klaus Töpfer, Angela Merkel – the environment minister at the time – and Wolfgang Schäuble, see for example www.foes.de) had repeatedly called for similar ecological tax reforms while in office (Schlegelmilch, 2005).

Since 2000, the arguments for and against ecological tax reform have been largely balanced – depending of course on which survey is used as a reference (BMU 2000, 2002, 2004). The impacts of ecological tax reform outlined earlier also show that, in the broadest sense, it has been accepted by the general public and not least because it was so very much in the public eye that the incentives it provides were taken up in about 50 percent of cases.

Emissions Trading

A survey among businesses in the lead up to emissions trading being introduced showed that most companies knew very little about it (Santarious, Ott, 2002). Another finding showed that the majority of respondent companies did not see emissions trading as a cost factor but rather as cost-neutral or as a potential source of income.

But attitudes changed as implementation of the EU Emissions Trading Scheme drew nearer. It was argued that the EU ETS was harmful to industry and would lead to considerable distortion of competition (see for example BDI 2004). The industry lobby was largely successful in pushing through its demands as regards the structure of the National Allocation Plan. As a result, non-governmental organisations believe the objectives are too weak and question whether the emissions trading scheme can actually work.

Acceptance among households and consumers as a whole is less a matter of emissions trading than awareness of an issue. This is probably due to the fact that emissions trading remains relatively unknown as it has no direct impact on the public. As part of a study conducted by

BP (Deutsche BP AG 2004), a representative survey of 2,000 people in Germany found that only about one in three respondents had heard of emissions trading and only a fraction knew what it was all about.

1.1.7 Legal Evaluation

Ecological Tax Reform

On 20 April 2004, the Federal Constitutional Court declared ecological tax reform to be clearly in line with the German Constitution. A series of appeals had been submitted by the likes of freight companies, refrigerated storage firms, private households and farmers (BVerfGE 2004). Germany's highest court basically gave the government carte blanche and confirmed its broad scope for action. In particular, it strengthened the government's view that environment protection calls for market intervention even at the risk of changing the competitive base. It was expressly pointed out that grandfathering arrangements could not be provided for businesses, a situation that could well force environmentally inefficient businesses out of the running. The impact of this precedent will probably ripple as far as the underlying legal conformity of the emissions trading scheme.

EU Emissions Trading Scheme

Emissions trading is the subject of various legal challenges brought by the state and businesses alike. For example, the German government has brought a case before the European Court of Justice to appeal against the EU Commission's decision on NAP1 with regard to ex-post adjustments. The case is not about the instrument as such but about allocations in the broadest sense (Official Journal of the EU 2004).

Legal challenges have also been submitted by the other side: The EU took action against Finland on grounds of shortfalls in its implementation of the Emissions Trading Directive. It won the case. The jury is still out on the action brought by the EU against Italy – also on grounds of shortfalls in implementing the Directive (Point Carbon 2006b).

A number of businesses have also taken legal action in connection with emissions trading. At European level, Arcelor² took a case before the European Court of Justice at the beginning of 2004. The aim was to obtain a partial annulment of the Directive and to secure compensation for any and all losses the company incurred from the EU ETS. The chances of the case being upheld are not thought to be great, although no decision has been made as yet.

² Europe's biggest steel producer

2 Interim Summary: Overlaps and Complementarities

In presenting overlaps and complementarities, a sectoral approach is taken to highlight the most relevant areas.

Transport Sector

Only marginal overlaps occur in the transport sector. For example, road transport is virtually only affected by ecological tax reform. In some cases, electrically powered rail transport is not only affected by reduced electricity taxation but also from CO₂ prices being factored in as a result of EU emissions trading.

Despite intensive efforts, air transport is not yet covered by either system. But a closer look highlights evidence of a positive impact: while they make no contribution to pension funding through taxation on aviation fuel – apart from a minor contribution through taxation on heating fuels, electricity and road and rail transport – employees working for airlines who pay taxes in Germany actually benefit from the reduced pension contributions resulting from ecological tax reform.

Inland shipping pays no fuel tax and thus no eco-tax, although it profits from reduced pension contributions.

Industry and Energy Sector

Industry and particularly the energy sector is the main area in which overlaps between the two instruments occur. The theoretical conclusion is that simultaneous use of emissions trading and environmental taxes need not necessarily result in a higher burden on energy users because the impacts of one instrument are cushioned by the impacts of the other. In this way, savings achieved through eco-tax reduce the quantity of emissions allowances needed, leaving a surplus that can be sold at a profit (Kohlhaas 2005). The impacts in the real world could, however, be rather different to those assumed in this simplified model.

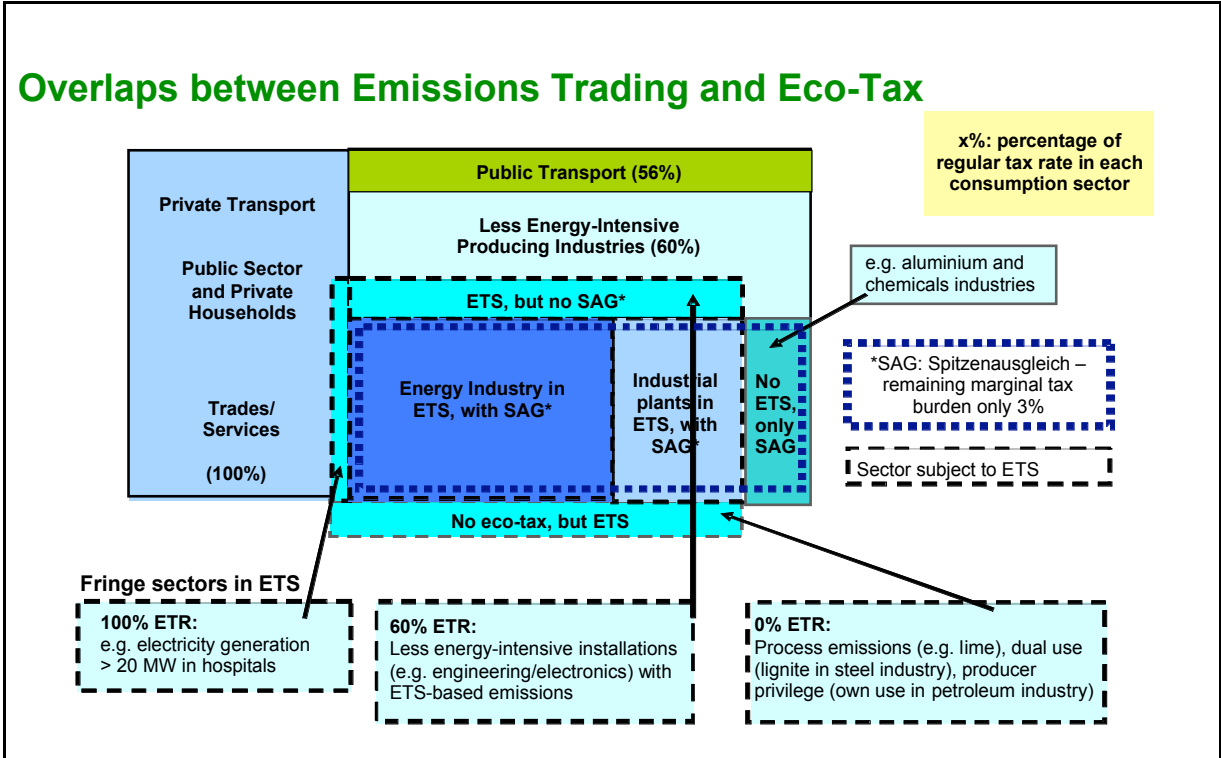
Firstly, emissions trading and eco-tax are based on differing methods of measurement. Emissions trading is based on CO₂ emissions caused by specific sectors of European industry. Germany's eco-taxes are levied on energy use in Germany. This means that emission reductions brought about by eco-tax are insufficient to bring permit prices down to match those of eco-taxation.

This is because all those participating in the emissions trading scheme profit from the lower permit prices (compared to the scenario without eco-tax) and, as a final energy tax, eco-tax is less effective in terms of CO₂ reductions than emissions trading or comparable CO₂ taxation. The reasons are that at present not all fuels are subject to taxation, energy content is used as the reference measurement and eco-tax is levied as a final energy tax as prescribed by the EU Energy Products Taxation Directive.

The combination of emissions trading which (by default) focuses on fossil fuels and eco-tax in the form of final energy taxation can result in a dual burden. This is especially the case as regards electricity: electricity generators are integrated into emissions trading while electricity users are affected by electricity tax. A dual burden arises among electricity users in that

electricity generators see permit prices in the emissions trading scheme as variable costs and thus increase electricity prices. Users are thus affected both by electricity tax and by higher electricity prices.

With both instruments, overlaps can occur in the energy sector and in energy-intensive industry. Although the energy sector is primarily affected by emissions trading, it is also subject to certain provisions of ecological tax reform such as those governing tax exemption and reductions for cogeneration and renewables, and also the special arrangements for producing industries. Emissions trading covers only those emissions released by an installation listed in Annex I of the Emissions Trading Directive. This largely involves industrial installations and fossil fuel-generated electricity which together cause around half of CO₂ emissions in Germany. As regards eco-taxes, these cover the use of petroleum products and electricity, both in industry and in transport, in private households and by small-scale users. As illustrated in the following diagram, some parts of industry are covered both by ecological tax reform and by the emissions trading scheme.



Source: FÖS 2004

Emissions trading largely covers sectors that profit either from paying eco-tax at a 40 percent reduced rate (meaning 60 percent of the regular taxation rate) or from a 97 percent reduction under the 'Spitzensteuerausgleich' compensatory mechanism contained in ecological tax reform (5 percent of 60 percent = 3 percent of the regular taxation rate) or, in the power plant sector, which are not subject to direct taxation under ecological tax reform.

A small number involve installations covered by the emissions trading scheme that do not receive tax reductions under ecological tax reform (e.g. heat and/or electricity generation in hospitals and other businesses or institutions from the services sectors, the military and transport) and have not been covered by eco-tax to date (process emissions in industry, dual use in metal production, producer privilege in the oil industry).

Private Households

Private households are primarily affected by ecological tax reform. The impact of emissions trading is felt at most through electricity prices.

Crafts and Trades, Retail and Services

Businesses in the crafts and trades, and retail and services sectors are really only affected by ecological tax reform. This has both positive and negative impacts. The only way they might also feel the impacts from emissions trading is through electricity prices.

There is thus great complementarity between the two instruments. While the energy industry and parts of energy-intensive industry are affected by emissions trading, crafts and trades, retail and services, transport and private households are primarily affected by ecological tax reform.

The following table shows where the two instruments impact on the respective sectors.

Table 1: Relevance and Impact (positive/neutral/negative) of the Instruments Based on the Criteria Applicable to the Respective Sectors

Criteria	Instrument	Sectors				
		Transport	Industry (incl. Energy Sector)	Private Households	Crafts and Trades, Retail and Services	State
Objective	ETR	++	++	++	++	++
	EU ETS		++			++
Structure and Sectoral Impacts	ETR	++	+	++	++	++
	EU ETS		++			+
Administrative Effort	ETR	-	+	--	+	+
	EU ETS		++			++
Finance Flows	ETR	++	+	++	+	++
	EU ETS		++			-
Social Acceptance	ETR	-/o/+	-/o/+	-/o/+	-/o/+	o/+
	EU ETS		++			
Legalities	ETR	++	++	++	++	++
	EU ETS		+			+
Overall Assessment	ETR	++	o	+	+	+
	EU ETS		+			+

Source: Authors' own representation

2.1 Better Complementarity Between the Two Instruments

Given that noteworthy overlaps between the two instruments only occur in the business sector, the following focuses solely on optimisation in industry.

Emissions Trading Approach

Small-scale installations taking part in the emissions trading scheme complain about the high level of administrative effort, which they believe bears no relation to the benefits they actually receive. Consideration should thus be given to removing small-scale installations from the emissions trading scheme. This must, however, be subject to certain conditions such as requiring them to introduce an energy management system. Additional tax concessions could also be granted. Tax concessions would thus be subject to specific requirements being met and would only be granted if a business actually implements and uses an energy management system. At present, businesses in producing industries receive lump-sum concessions based on their statistical classification as a business rather than their belonging to a producing industry.

The EU Commission has accepted the argument that for the most part, businesses in producing industries are equal to those whose industry associations voluntarily agreed to implement measures to mitigate climate change under the 2000 Declaration by German Industry and Trade on Global Warming Prevention (KSV) (earlier declarations were issued in 1995 and 1996). The Commission's attitude is, of course, understandable, especially seeing as it generally welcomes the fact that the larger EU Member States have finally implemented the instrument it has long promoted.

Nevertheless, the decision does not go entirely uncriticised or without objection. It rests after all on an after-the-fact justification and the business groups are only largely congruent, with a number of gaps still remaining. There is also an imbalance in the levels of responsibility between industry associations on the one side and businesses on the other. This is a critical issue because industry associations have no legal jurisdiction over their member businesses. And finally, the weak environmental demands contained in the declaration have attracted huge criticism from the scientific community (Wuppertal Institute, 1997).

The political will to enact the necessary amendment to the EU Emissions Trading Directive appears to be lacking. This seems less to do with content and more to do with the fear that it could quickly lead to a deluge of desired changes, and that this in turn could result in a complete, albeit reportedly only temporary, cessation of emissions trading (as jointly called for by the Federal Ministry of Economics and Technology (BMWi) and the Federation of German Industries (BDI) until a full impact assessment has been carried out.

Eco-tax Approach

In the past, the debate has largely focused on how businesses taking part in the emissions trading scheme could be made exempt from eco-tax. The following outlines the various options available.

1. Making businesses taking part in emissions trading generally exempt from eco-tax

General exemption from eco-tax for businesses taking part in the emissions trading scheme appears less than sensible because on the one hand, there is no evidence that they suffer any significant burden at this point in time and on the other, no great burden arises from eco-taxation. Most energy users affected by emissions trading are either not covered by eco-tax in the first place (coal users), are already exempt from eco-tax (e.g. users of fuels for electricity

generation or users completely exempt from tax based on the expanded list of tax exempt processes contained in the Energy Tax Act), or pay only a marginal rate of tax at 3 percent of the regular tax rate under a compensatory mechanism (Spitzensteuerausgleich).

2. Businesses taking part in emissions trading continue to pay a reduced eco-tax rate while all other business pay the full rate

If emissions permits are auctioned in the future, consideration could be given to making these installations completely exempt from eco-tax.

Under the EU Energy Products Taxation Directive (Article 17b), tax reductions may be applied for energy-intensive businesses down to a level below the minimum tax rate if they take part in tradable permit schemes or equivalent arrangements.

3. Businesses taking part in emissions trading pay reduced eco-tax, those parts of the business not participating in emissions trading (administrations, etc.) pay the full eco-tax rates

Up to now, producing industries receive lump-sum reductions based on their statistical classification as a business rather than on their belonging to a producing industry. Hence it is difficult to see exactly why the headquarters of an energy corporation should be treated any differently in terms of taxation to the headquarters of a large bank.

4. Reductions in electricity tax for particularly energy-intensive industries

Some particularly energy-intensive industries, for example the aluminium industry, are not directly affected by emissions trading but feel the indirect impact of higher electricity prices. According to the EU Energy Products Taxation Directive, tax reductions may be applied if the tax burden from national energy tax is higher than 0.5 percent of the added value or the energy costs are higher than 3 percent of the production value. It may thus be appropriate to apply tax reductions for energy-intensive sectors. An otherwise general retention of electricity tax alongside emissions trading still makes sense because both instruments provide targeted incentives for more efficient energy use – emissions trading targets power plant operators while electricity tax targets end users.

5. Introduction of a comprehensive primary energy taxation system

From 1 August 2006, Germany's Energy Tax Act provides for energy tax to also include coal and lignite used for heating. Essentially, this means lifting the current restriction albeit not in its entirety as the amount of tax levied is in no way commensurate to the amount of energy used and no tax is levied on the use of coal and lignite in electricity generation.

This approach ensures neither efficient fuel substitution nor does it provide an incentive to reduce emissions through energy conversion. These inefficiencies could be partially avoided by, for example, fixing the amount of (energy) tax relative to carbon content and levying energy tax in accordance with environmental criteria.

2.2 Is Such Theoretically Desirable Optimisation Politically Wise?

EU Member States have the option to either reduce or completely do away with energy taxation (including eco-tax) for businesses who are affected by emissions trading. It must, however, be ensured that the emissions trading system achieves its goals – meaning that it provides sufficient incentive to save energy and to reduce emissions. This incentive should in turn be commensurate with the amount of energy tax that is either reduced or exempted. This

will not be the case, however, if the EU Member States distribute emission allocations under NAP2 as generously as they did under NAP1.

Also, energy taxes are usually of great fiscal relevance to the state budget so that their (partial) abolition could lead to huge losses in revenue. This could only be compensated for by emissions trading if permits are auctioned rather than being freely allocated as with the present system. Given that the opportunity to auction permits remains restricted (until 2012) to 10 percent of total emission allowances, compensation cannot be provided in the shorter term.

This makes such theoretically desirable optimisation less than wise in political terms.

3 Conclusions

This paper has shown that in the interaction between emissions trading and ecological tax reform, a number of overlaps can occur in smaller sub-sectors. However, the analysis has clearly shown that in its present form, emissions trading in no way renders ecological tax reform redundant. This applies in terms of revenue generation, impacts on employment, sectoral impacts, environmental efficiency and also as regards fostering innovation.

A potentially far greater overlap or even (at least theoretically) almost complete congruence between the two instruments could be achieved by structuring the emissions trading scheme to take an upstream approach that allows auctioning. Given that policy debate gives no consideration to this option at present, both instruments are likely to exist for quite some time to come. The best approach, therefore, would be to further fine-tune the areas where overlaps occur.

The greatest potential for inefficiency is seen in determining overall emission allowance quantities. By way of contrast, the inefficiencies and distribution effects arising from any overlaps and interactions between the two systems appear to be relatively low. Nevertheless, the potential loss of public benefit and the possible distribution effects, especially as regards electricity generation and use and taxation on the use of petroleum products in industry, should be carefully assessed and amended to incorporate the findings.

In sum, it can be said that ecological tax reform not only pursues environmental objectives but is also strongly linked to reducing wage-related costs and continues to be an important source of state revenue. In contrast, emissions trading is largely used to achieve climate targets that have already been agreed and are set out in policy legislation. The eco-tax catchment area is broadly structured and takes in industry, transport, trade and private households. Those participating in emissions trading are specific businesses within the energy sector and in industry as a whole. Industrial businesses are only affected by eco-tax through greatly reduced taxation rates, while the energy sector is only affected in isolated cases if at all. Further, it must be remembered that achieving emission reductions in industry as a result of eco-tax could allow the businesses concerned to sell their excess EUAs. They would thus profit from the incentives provided by eco-tax and also from those of emissions trading. Hence, there are no convincing grounds on which to justify making significant changes to or even completely revoking either instrument.

4 Literature

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