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IMPLEMENTING ENVIRONMENTAL FISCAL REFORM: Income Distribution and Sectoral Competitiveness Issues

Proceedings of a Conference held in Berlin, Germany, 27 June 2002

This document contains the papers prepared for a conference on Environmental Fiscal Reform hosted by OECD and the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, held in Berlin, Germany, 27 June 2002 .

The document also includes a summary and the main conclusions of the conference -- prepared by the conference rapporteur.

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FOREWORD

OECD organised 27 June 2002, in co-operation with the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety of Germany, an open international conference on environmental fiscal reform, in Berlin, Germany.

The conference brought together tax and environment experts from governments, academia, non-governmental organisations, industry and the public at large. It focused on how, in practical terms, countries can progress on the two main obstacles to environmental fiscal reform, namely the fear of loss of sectoral competitiveness and the fear on negative income distribution impacts.

A background paper, prepared by Professor Flip de Kam of the University of Gronigen, the Netherlands raised key issues for discussion. A number of invited experts[1] from OECD Member countries had prepared written responses to issues raised in that paper:

- Klaus Bräunig, Federation of German Industry, Germany
- Alberto Cornejo Pérez, Ministry of Finance, Spain
- Xavier Delache, Ministry for ecology and sustainable development, France
- Andrew Field, HM Treasury, United Kingdom
- John Hontelez, European Environment Bureau, Brussels, Belgium
- Hans Larsen, Ministry of Taxation, Denmark
- Susan Scott, Economic and Social Research Institute, Dublin, Ireland

This document contains the issues paper and the written responses. It further contains the opening speech on Environmental Fiscal Reform in Germany made by Jürgen Trittin, Federal Environment Minister of Germany, and a paper giving a summary and the main conclusions of the conference, as prepared by Prof. Flip de Kam.

The presentations made at the conference and some additional material can be found at http://www.oecd.org/EN/document/0,,EN-document-471-nodirectorate-no-20-31320-8,00.html.

The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety presents material on the conference in German at http://www.bmu.de/oekologische-steuerreform/fset800.php.

The OECD Secretariat wishes to thank the German authorities for hosting the conference and the speakers and participants for their contributions to the debate.

1 . The experts were all invited in their personal capacity, and the opinions they expressed do not necessarily reflect the opinions of the institutions where they work. The Trade Union Advisory Council to the OECD (TUAC) had also been invited to prepare written comments and make a presentation at the conference.

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The fear of loss of sectoral competitiveness and the fear of negative income distribution impacts have been singled out as the most important political obstacles for governments contemplating undertaking an Environmental Fiscal Reform.

To address these issues, OECD hosted 27 June 2002, in co-operation with the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety of Germany, an open international conference, with invited experts from public authorities, academia, industry, trade unions and environmental NGOs.

The document *Implementing Environmental Fiscal Reform: Income Distribution and Sectoral Competitiveness Issues* contains an issues paper for the conference, written responses to that paper, and a summary and main conclusions paper.

… addressed the sectoral competitiveness …

Politicians in most OECD countries share worries of the business community that environmentally related taxes may have potentially large impacts on the competitive position of certain sectors of industry, even if no significant negative impacts of such taxes on sectoral competitiveness had yet been observed.

It is important to differentiate between the competitiveness of individual firms and sectors and the whole economy of a country. A company or sector is competitive if it is able to compete in international markets, with an adequate rate of return. For a country as a whole, the concept of competitiveness is more complex: at the economy-wide level, correcting for market failures provides an improvement in the overall economic outcome, and what causes increased costs for one firm of sector of industry may lead to reduced costs for others.

While opinions between participants differed, the following options for addressing the competitiveness issue could be used:

- Integrate Environmental Fiscal Reform with broader fiscal reforms;
- Phase out existing rebates and exemptions gradually;
- A two-tier rate structure, with lower rates for internationally exposed sectors, would be a better option than full exemptions for these sectors;
- Announce the introduction of new taxes and tax rate increases well in advance;
- Impose eventually full tax rates on industry, but channel part of the revenues back to industry in such a way that marginal abatement incentives are maintained;
- Unilateral efforts towards environmental protection could be strengthened through

greater co-operation amongst countries facing similar competitiveness pressures.

Progress on international policy co-ordination in the tax area is however slow, as many countries are opposed to what is perceived as restrictions to national sovereignty.

… and the income distribution obstacles to Environmental Fiscal Reform.

In response to income distribution concerns, governments may adopt various mitigation and compensation measures. *Mitigation* incorporates a reduction of the impact of the tax on low-income households by provisions in the tax legislation itself, while *compensation* entails reducing *other* taxes or introducing transfer payments.

Compensation options include tax credits and income-tested compensation schemes, based on average or actual tax payments. Tax credits are amounts deductible from tax payable – as distinct from deductions from the tax base. Two types are distinguished:

- "wastable tax credits", which are limited to the amount of the tax liability, and therefore *cannot* give rise to a payment from the government to the taxpayer; and
- "non-wastable tax credits", where any excess of the credit over the tax liability *can* be paid to the taxpayer.

The general opinion among participants was that compensation measures are to be preferred over mitigation measures, because the incentives are maintained. But the use of non-wastable tax credits requires that a sufficiently sophisticated personal income tax system be in place. In practice, the way income distribution concerns are addressed is largely a pragmatic question, depending on national circumstances. The personal income tax systems of most OECD countries do not include non-wastable tax credits. One can here (at least in the shorter run) combine compensation (by lowering other taxes, or increasing transfer payments) and mitigation measures (reductions of the environmentally related tax itself).

Lessons for policymakers

Proponents of environmental fiscal reform should:

1. Increase public awareness of environmental challenges. Sometimes voters and other policymakers are insufficiently aware of existing problems.
2. Stress the *environmental* impacts of an environmental tax.
3. Stress the advantage of using a tax instrument in terms of lower costs to society.
4. Recycle additional revenues fully or partly through reductions of other taxes.
5. Present an environmental tax as a tax "one can avoid" by changing one's behaviour.
6. Stress that also businesses *can* be taxed to some extent without significant negative impacts on sectoral competitiveness.
7. Underline favourable experiences with the tax instrument in other OECD Countries. This requires a well-structured international exchange of information.

OPENING REMARKS

By Jürgen Trittin
Federal Environment Minister, Germany

Environmental Fiscal Reform in Germany

The very composition of the OECD embodies quite particularly the prevalent guiding principle of development and the aim pursued by every country: To become an economy with a high proportion of industry and services, a society of growth which can afford a high consumption of resources for its business, lifestyle and comforts. The OECD thus follows the logic of Truman, who once divided the world into *developed* and *under-developed* countries.

We should ask ourselves whether **classifying countries as *developed* or *under-developed* is still appropriate today. My first argument** is that much of what for decades was considered to be developed is in fact a fatal development in the wrong direction. A faulty development particularly with regard to the squandering of finite natural resources and the pollution of the planet with wastes and emissions. A faulty development which *under-developed* societies should preferably not emulate.

OECD countries are not just called upon to correct their own mistakes in development. They also bear responsibility for the globalised One World – and for the societies of the South which are termed *under-developed*.

My second argument is as follows: only if OECD countries themselves set an example for a resource-saving business practice and lifestyle, can and will other countries copy or adapt this model. For only the OECD countries have the know-how, the necessary government capital and a sufficiently large, strong spending group to set this reversal of trend in motion.

My third theory is: an environmental fiscal reform is the alpha and omega of this reorientation. We will only achieve a self-perpetuating dynamic process moving in the right direction if the taxes and subsidies system and if prices reflect ecological realities and ecological common sense. For in a market economy, prices and taxes are the quintessential steering signal.

The OECD is urging its Member States in this direction. In Germany's Environmental Assessment Report for 2001, for example, the OECD rightly recorded that over 35% of subsidies in Germany are classified as environmentally harmful. Germany subsidises a good 50 000 jobs in the coal mining industry with around 4.3 billion Euros – about 81 000 Euros for each job, half a cent for each kilowatt hour. Quite apart from the ecological nonsense of this, it is a massive waste of tax payers money. **Instead of using the money to subsidise the coal industry, wouldn't it make more sense to spend it on real structural reform in the Ruhr area?! That would enable self-supporting, secure employment to develop in the region.**

The OECD also recommended that Germany use the two-yearly subsidy report to conduct an ecological assessment of its subsidies. This should definitely be undertaken in the next report in 2003. For if we have transparency regarding the environmental impact of subsidies and the extent to which environmentally harmful activities are promoted with tax revenues is made clear, the public will demand the withdrawal of these subsidies and call for corresponding tax reductions.

In other words, I welcome the OECD's support of, and demand for, the ecological modernisation of the economy which this Federal Government has initiated.

This Conference is concerned particularly with the impacts of an environmental fiscal reform on competitiveness and distribution. Opponents often name both these factors as reasons against such a fiscal reform. I feel these arguments are not plausible, and will use Germany as an example to prove their limitations.

Germany's new direction in energy policy proves that an environmental fiscal reform leads to international competitive advantages and at home distributes the burdens more fairly between large and small consumers of natural resources, between cities and their outskirts.

Above all, however, **ecological modernisation creates a large number of jobs**. In Germany, over 1 million people are already employed in the environment sector, 130 000 of which in the field of renewable energies.

In Germany we have already succeeded in pushing through important components of a comprehensive environmental fiscal reform. The ecological tax reform which we introduced in 1999 – that is, shortly after we assumed government – is particularly important. Such a measure was already introduced in Denmark, Sweden and the Netherlands, however, during Kohl's Government, at the beginning of the 1990s.

What is the aim of the ecological tax reform? We can only talk of a "market economy" if we all really do bear the full cost of our resource consumption ourselves – not if the costs are palmed off onto the taxpayer, onto nature or onto future generations. **The aim of having people live at their own cost rather than living as before at the cost of the next generation can only be achieved in a market economy which makes the wasteful use of natural resources expensive**.

Only ecologically true prices provide the incentive to enjoy and appreciate the scarce natural world instead of squandering it away.

Only ecologically true prices are an incentive to use natural goods economically and efficiently, and only this will encourage us to be inventive, to research, to optimise and to look for alternatives.

If we provide the right fiscal incentives, engineers will start competing against each other to find the best technical possibilities. This will accelerate cycles of innovation in favour of greater resource efficiency, which in turn will lead to cost reductions and increased competitiveness. Whoever is one step ahead will command the future markets for new, efficient and clean technologies.

Example of the new direction in energy policy in Germany:

We are world champions for wind energy. One third of the world's wind generated electricity is produced here, and ABB Mannheim recently won the contract for the largest wind park in North America, worth 1 billion Euros.

The German government has made a commitment – for example with the Act on Combined Heat and Power Generation (*Kraft-Wärme-Kopplungs-Gesetz*) and tax exemption for highly efficient gas-steam power plants – for greater power plant efficiency; California imports gas power plants from Germany which have a 90% efficiency factor.

Germany leads Europe in the solar power sector, and German solar energy companies have a good reputation and competitive advantage abroad. In photovoltaics, particularly inverter technology and electronic components, in concentrating solar power – especially storage and control technique

Germany's frontrunner role in climate protection and energy policies is also economically viable.

We can only take on the role of frontrunner because the eco-tax and the Act on the Sale of Electricity from Renewable Energies to the Grid introduced by the Red-Green Government have created massive incentives for ecological modernisation in energy supply. The aim of all this is not, however, to

provide permanent subsidies for renewable energies, but to achieve mass production and reasonable prices as a result of lower unit costs.

In future, when the Kyoto Protocol is finally ratified - as will happen in a few months - **competitiveness will be defined differently.** For, if the old countries of the North have to reduce their CO2 emissions under the Protocol, and are joined in the second stage by many other countries too, competitiveness will not only be gauged against production price, but increasingly also against

- energy efficiency
- the question of whether regenerative or renewable energies are used

Germany's climate protection policy furthermore ensures that efficiency improvements are not regularly swallowed up by increases in absolute consumption.

I would like to prove that specifically with a few figures:

We are using the eco-tax to finance *i.e.* a market incentive programme for renewable energies. In the last 3 years, this market incentive programme (200 million Euros allocated this year) together with the higher prices of heating fuel which are also linked to the eco-tax, has led to a **50% increase in the demand for solar collectors**. By the end of 2001, this had triggered **an investment volume of over 2 billion €,** with a corresponding positive impact on industry, specialised crafts and trade. The year 2001 alone saw an additional *900 000 square meters* of solar collectors. This makes a total of over **4.2 million square meters of solar collectors** in Germany (status end 2001). For the year 2002, a further installation of over one million square meters are expected. This is good for climate protection, for the companies concerned and for the jobs market.

Specialist craftsmen and small-to-medium sized companies benefit from this. Their jobs would be directly jeopardized if the financing source of these programmes – the eco-tax – ran dry. But it is precisely this which the right wing opposition in Germany proposes doing.

Another example is found in traffic and transport: the Ecological Tax Reform favours low sulphur and sulphur-free fuels, and has given an enormous spurt to research, development and the market introduction of new technologies. The automotive industry itself is now searching more intensively for low-pollutant alternatives: **some manufacturers experiment with fuel cells, others are introducing natural gas technology. This infrastructure will in turn lay the foundation for the introduction of solar-generated hydrogen technology**.

Trade and industry in particular must therefore have a particular interest in extending the eco-tax beyond the year 2003, and in developing it further into a comprehensive environmental fiscal reform. Primarily, indeed, on account of the competitive advantage offered to those who re-orientate at an early stage.

The Ecological Tax Reform is only one element of an Environmental fiscal Reform, albeit a very important one. But we have already implemented further elements – e.g**. the highway toll for trucks and the deposit on one-way drinks packaging**.

But the Government is not only making things more expensive, we also play a role in fostering environmentally sound institutions and measures:

We are promoting efficient co-generation energy, natural gas vehicles and public transport

Between 2001 – 2005, additional investments of over 5 billion Euros are earmarked for the railway

we have set up an ambitious assistance programme for the refurbishment of existing buildings, with an annual investment of another 200 million Euros.

Thirdly, we are fighting to eliminate environmentally harmful subsidies. This often comes up against considerable opposition from lobby groups. But taxpayers cannot be expected to support such subsidies, which make no sense ecologically. The savings the state will make by eliminating environmentally harmful subsidies together with the eco-tax revenues will be used in Germany for

- continued ecological restructuring
- creation of jobs
- tax relief for private individuals

We have, for example, introduced the distance flat rate regardless of transport type. **This will clearly improve** the position of environmentally sound forms of transport such as **the bicycle and the railway with regard to taxation**. Until the end of 2000, only car drivers received assistance through the flat mileage rate. They could write off around 36 Euro-cents per kilometre travelled from their income tax.

The reform also however raised the rate granted for journeys over 11 km to 40 cents. This rewards long-distance commuting, which makes no sense ecologically. The distance flat rate serves its true purpose in sparsely populated regions, or those with weak economic structures - in places where people cannot find work in their village and have to travel over 50 km to their work or place of training to avoid unemployment. We need **socially compatible solutions in these regions for people on low incomes**. The flat rate must not be simply an urban sprawl bonus for those leading a grand lifestyle in the countryside.

We have to systematically analyse the system of benefits and prejudices.

For instance, it makes no sense either ecologically or from the point of view of the market economy that Germany's long-distance rail transport (50 km or further) has to pay the full value-added tax of 16%. In contrast, in other European countries, the railways pay, on the contrary, no VAT at all, or only a reduced rate.

Air traffic is completely exempt. At present, the no-frills airlines, from *Ryanair* to *EasyJet* are luring customers away – not from Lufthansa, but primarily from the railway. The Germany Government has set itself the goal of transfering Germany's domestic flights passengers to the railways.

In times when you can fly even to Milan or Montpellier for 19 Euros, air travel is no longer a question of costs. It is unacceptable for this to be subsidised with a tax exemption, while the more environmentally sound rail transport has to pay the full rate of VAT, plus route costs.

I could therefore imagine that in future, long-distance rail transport will also only be subject to a reduced VAT rate of 7%, as already applies to local rail transport. That would relieve the railway by an annual amount of around 250 – 300 million Euros, an amount that could easily be financed by the withdrawal of subsidies for air transport.

Also in need of reform are the **structures and levels of the home ownership assistance for building projects**. That is the main Government subsidy in the housing sector, amounting to around *9.5 billion Euros per year. Of this, about 4 billion Euros are provided solely by the federal budget*. The current

practice makes little sense: buyers of existing buildings only receive half (€ 1.275) of the bonus which is granted for new buildings. **They are therefore at a disadvantage, in spite of ecologically correct behaviour**. In contrast, those commissioning the most of sealing-intensive, area intensive building projects – the one-family and two-family homes – are rewarded. **We must therefore at least harmonise the assistance granted for the purchase of an existing or of an new building.**

If we add up all the ecologically counter-productive subsidies – assistance for coal, the housing trade, transport and the agricultural industry – we reach a sum of over 20 billion Euros per year, provided solely from the Federal budget!

There is a massive potential here for tax reductions – and for lowering the government quota!

But from an environmental point of view, and often also from the point of view of fiscal policy, there is still a lot more to be done. This is particularly true for the EU level. Here we must finally achieve greater harmony in energy taxation. The European Council requires this for the end of 2002, and that should be the absolute deadline. For ten years, we have been discussing this issue with no result. Three times, a concrete proposal has been tabled by the Commission and each time that proposal has failed due to a lack of unanimous agreement. We urgently need to reform the EU Treaty, in order to allow the possibility to act via a qualified majority.

The Spanish presidency of the EU Council has laudably conducted very intensive negotiations in this regard. For the first time, there is a basic agreement of all Member States on the introduction and increase of the minimum tax rate. There is agreement, too, in many points regarding the fiscal structures. But now one Member State calls for the introduction of a new subsidy with a reduced tax rate for diesel fuel in the commercial sector. An EU harmonisation of energy tax at the lowest common denominator allowing again for exemptions does not live up to the EU concept.

I also disagree with the demand of a state to reduce the minimum tax rate for energy intensive companies– unless a binding *quid pro quo* and sanctions were agreed. The Federal Republic already practices this method: We combine the reduced tax rate for the manufacturing industries with German industry's controlled voluntary agreement on climate protection. **The companies were able to save 4 billion Euros of eco-tax last year, because they reduced greenhouse gas emissions by 35 %**. This subsidy will incidentally be mentioned in the subsidy report.

On top of the 20 billion Euros worth of environmentally harmful subsidies provided by the Federal budget, the EU grants – for the agriculture sector - only – at least another 5 billion additional Euros. From an ecological – and social – point of view, these subsidies are to be viewed in a very critical light.

I say this in particular against the background of the Lomé Convention, which is oriented in principle around the EU Free Trade Agreement with South Africa. There, for example, in Paarl, we can already observe how the domestic fruit-preserving industry is in the process of collapse. This is because preserves which, though more expensive to produce are heavily subsidised by the EU, are pushing South African products off the market, and robbing the – mainly female –workforce of their employment and income. They are forced into poverty and prostitution.

For the World Summit on Sustainable Development, the G 77 group have demanded that countries of the North should withdraw environmentally harmful subsidies which distort competition: They are right to do so. **Free trade is only fair and justifiable if subsidies in the North are removed**.

It is particularly provoking that some States – in particular the USA – are again expanding their agricultural subsidies instead of reducing them. Thus, the USA is granting another 3 billion US dollars

annually in agricultural subsidies. This is equivalent to an additional increase of 7% and gives a very cynical meaning to the phrase "Trade not Aid".

The example of the USA shows that along with the absolutely necessary national efforts, we also need a coherent international policy for withdrawing subsidies. The OECD plays an important and necessary role here.

At an international level - within the EU and the OECD, therefore - there are always countries which are frontrunners and those which lag behind. This makes it all the more important to force action with internationally binding agreements. The crisis in our eco-system will not allow us the time to wait for the stragglers. The OECD States are called upon to implement in practice, as quickly as possible, a new guiding principle for development which is viable for the future. An environmental fiscal reform would be the driving force behind such a development. I therefore strongly hope that this Conference will provide impetus, and stimulate the common spirit which we will need in a few weeks time in Johannesburg.

ISSUES PAPER:

Prepared by Professor Flip de Kam
Professor of Public Finance at Groningen University, the Netherlands

1.0 Introduction

1.1 Purpose of meeting and scope of paper

1. OECD countries face a range of well-known environmental challenges. Over the last decade, in policies aimed to meet these challenges economic instruments – including environmentally related taxes – have become markedly more prominent. These instruments have a number of advantages (see Box 1). While all OECD countries have introduced a variety of environmentally related taxes or fiscal measures, an increasing number of countries, in particular in the European Union, have implemented comprehensive "green tax reforms" where new or increased environmentally related taxes are "compensated" by the reduction of other existing distortionary taxes such as taxes on labour. In these countries, this implementation process is continuing.

2. Environmentally related taxes introduce a price signal that helps ensure that firms and households take into account the costs on the environment when they make production and consumption decisions. There is growing evidence on the effectiveness of these levies as a means to reduce damage to the environment.

3. The recent OECD report (OECD 2001) on environmentally related taxes, underlines that, whilst significant progress has been achieved in the introduction of environmentally related taxes and green tax reforms, further progress is hindered by two main obstacles: the fear of reduced international competitiveness (quoted as a "major obstacle") and the possible regressive income distribution impact of these taxes.

4. The purpose of the present discussion paper is to examine these obstacles and ways of overcoming them, so that their benefits in terms of environmental improvement and economic efficiency can be more fully realised[2].

Box 1. The advantages of economic instruments

Taxes are only one type of market based instrument available to policymakers. Other economic measures include tradable emission permits, deposit-refund schemes and environmentally motivated subsidies. But also the phasing out and restructuring of environmentally harmful subsidies is an important instrument in environmental policy. All these instruments differ from command and control regulation in that they provide an incentive to polluters to modify their production and consumption behaviour via price signals.

One of the theoretical advantages of economic instruments is that economic agents have the flexibility to choose how to respond to the price signal, and the assumption is that they do so at the lowest costs and therefore efficiently. In contrast, command and control regulation often takes the form of uniform emission standards across an industry because regulators lack the necessary information about firm-specific pollution abatement costs to design an efficient pattern of abatement among regulated firms, that is a pattern where the marginal abatement costs between firms are equalised (static efficiency). Another advantage of taxes and tradable permits is that they create an ongoing incentive to reduce pollution abatement costs (dynamic efficiency). To comply with command and control regulation firms must meet set emission limits or use specific technologies, but they have no incentive to reduce emissions beyond the set limits. In contrast, taxes create a continuous incentive for firms to further reduce polluting emissions, through innovations and restructuring.

[2] Large parts of this paper have been culled from the recent OECD (2001) report *Environmentally Related Taxes in OECD Countries: Issues and Strategies*. I thank the OECD for its willingness to let me use extensive parts of this report, and internal documents as well, when preparing the present paper.

5. For the purpose of the present paper, an environmentally related tax is defined as any compulsory, unrequited payment to general government levied on a tax base deemed to be of particular environmental relevance. Taxes are unrequited in the sense that benefits provided by government to taxpayers are not normally in proportion to their payments. Fees and charges, on the other hand, are examples of requited payments to the government. They are levied more or less in proportion to services provided, for example the level of wastes collected and treated (OECD definition).[3]

1.2 Organisation of the paper

6. Section 2 of the paper discusses the context of environmentally related taxes. To that end, the subsection 2.1 summarises the standard view on key principles of tax policy; subsection 2.2 introduces the concept of green tax reform, and subsection 2.3 discusses briefly the use of revenues from environmentally related taxes. Section 3 takes a closer look at international competitiveness concerns. Section 4 reviews policy options to address these concerns. Next, Section 5 turns to income distributional concerns. Section 6 presents policy options to address distributional concerns. The final section concludes and advances some personal views to stimulate fresh thinking and contribute to a constructive exchange of views on the merits and limitations of environmentally related taxes and the phasing-out and restructuring of environmentally damaging subsidies.

2.0 Environmentally Related Taxes

2.1. Some Key Principles of Tax Policy

7. Governments of OECD countries have many fundamental economic and social objectives that require public spending. Public outlays must in turn be financed through taxation. Because taxation inevitably impinges on most aspects of economic activity, careful consideration must be given to the design of individual taxes – including environmentally related taxes – in addition to the overall tax level and hence the level of related expenditure. Three principles of taxation are especially important.

8. First, so long as taxation affects incentives it may alter economic behaviour of consumers, producers or workers in ways that reduce economic efficiency. These effects should be taken into account when the costs and benefits of public expenditure to be funded are being assessed. A useful guideline is that the tax system should be as neutral as possible, i.e. it should minimise discrimination in favour of or against any particular economic choices. In practice, this points to building tax systems substantially around broad income and expenditure bases and minimising differences in tax rates that can be applied. As a rule of thumb, in the absence of compelling considerations to the contrary, improvements in efficiency can be achieved by:

(a) broadening tax bases by eliminating exemptions and special regimes;

(b) flattening rate structures; and

(c) integrating or aligning different tax rate structures to avoid arbitrage opportunities.

9. However, neutrality need not always be an overriding consideration. Some other factors that can usefully be taken into account are:

[3] Detailed information can be found in the OECD/EU database on environmentally related taxes, available on: www.oecd.org/env/tax-database

(a) It may be desirable to use the tax system to enhance welfare by correcting market failure. This may involve taxing 'bads', such as alcohol and tobacco. Taxing polluting substances such as fossil fuels presents yet another example. Where demand for such goods is rather inelastic there will be substantial revenue benefits which allow distorting taxes elsewhere to be lowered.

(b) Allowing taxes to differ across local jurisdictions permits the supply of local public goods and services to be aligned with the particular, but differing, preferences and circumstances of their constituents – although there are different views across countries as to which taxes could usefully be decentralised.

(c) Tax systems influence the (personal) income distribution and may have a role to play in the pursuit of equity goals. The resulting loss in neutrality, *e.g.* due to progressive taxation, may involve efficiency losses but may also contribute to the perceived fairness of the system.

10. Second, the distribution of taxation's impact across the population raises issues of equity, or fairness, which must be given substantial weight even if it entails costs in terms of economic efficiency.

11. Third, the practical enforceability of tax rules and the costs arising from compliance are important considerations, the more so since these are both affected by, and have implications for, the efficiency and public perceptions of the fairness of tax systems. The key challenge for tax policy is to strike the best possible balance among these issues.

2.2 Green Tax Reform and the Role of Environmentally Related Taxes

12. Many fiscal policies can affect the environment. Environmental taxes can be instrumental in reducing pollution, waste and resource depletion, but other taxes, tax expenditures and direct subsidies also impact on the environment. The impact of government interventions on the environment should therefore be considered in the context of comprehensive reforms of existing tax and subsidy systems. Such reforms are sometimes referred to as green tax reforms or environmental fiscal reforms.

13. An increasing number of countries are implementing green tax reforms, while others are contemplating doing so.[4] Green tax reforms can be implemented by a series of complementary measures, such as restructuring existing taxes, for example on energy or transport, to reflect the polluting characteristics of various products and economic activities. Alternatively, countries may introduce new taxes, for example on water use, or beer and soft drink containers. It is similarly important that policy makers contemplate options to remove or adjust environmentally harmful fiscal provisions, such as tax exemptions or subsidies having detrimental effects on the environment, while giving due notice to the non-environmental objectives those provisions were meant to serve.

14. Currently, the revenue from (pollution oriented) environmentally related taxes averages roughly 2 per cent of GDP in OECD countries. Given that the total tax to GDP ratio in the OECD area is about 37 per cent, the share of 'green' taxes in the tax mix is still limited to some 6 per cent. In 1995, revenues from taxes on petrol, diesel fuel and motor vehicles accounted for 90 per cent of total environmentally related tax revenues.

15. When implementing environmentally related taxes, the environmental and other objectives of such policy measures should be clearly stated from the outset. Often environmentally related taxes can be usefully implemented as part of more comprehensive policy packages, that is in combination with other

[4] Barde and Braathen (2002, 14-16) provide a good overview of green tax reforms in OECD countries.

policy instruments such as scaling back public subsidies for goods that have detrimental effects on the environment.

2.3 The Use of Revenues from Environmentally Related Taxes and from Subsidy Reductions

16. Each country will decide on the use of revenues from environmentally related taxes – and resources freed through reductions in environmentally harmful subsidies – according to its specific economic, fiscal and environmental situation. Several options are available. The additional revenues from "green" taxes and spending cuts could alleviate a budget deficit, contribute to a budget surplus, or finance discretionary increases in other government expenditures. The revenues can also provide room for discretionary cuts in (other) taxes to reduce distortions (efficiency losses) in labour or capital markets, to address competitiveness concerns, or to increase public acceptance of environmental taxes. Certain forms of spending and tax reductions have the potential to undermine the polluter pays principle, and therefore require careful consideration.

17. A typical feature of environmental tax policy is earmarking of certain tax revenues for environmental projects or some other purpose.[5] In itself, this approach is a source of efficiency losses. If there are worthwhile projects, the *source* of finance should not be a motivating or constraining factor for realising them. Earmarking fixes the use of tax revenue in advance, which may create an obstacle for the re-evaluation and modification of existing tax and spending programmes. Therefore, the economic and environmental rationale of such measures should be evaluated regularly to avoid inefficient spending that would otherwise not be financed from general tax revenues. For example, allocating the proceeds from transport taxes to road construction may lead to over-investment in that sector.

18. Where the revenues are used to enable reductions in other taxes this can limit the efficiency loss generally incurred by the collection of tax revenues if the taxes being reduced are more distorting than the environmentally related taxes being introduced. This question depends on the final incidence of the taxes in question, where different taxes may have different tax burden effects.[6]

19. One particular, and often debated option, is a shifting of the tax burden from labour to pollution, with the expectation that a lower tax burden on labour would encourage work effort and thereby contribute to a decrease in unemployment, while improving the environment. This is the double dividend hypothesis. The term "double dividend" refers to the possibility that a revenue-neutral tax shift – from employing labour to polluting activities – could generate two possible benefits. The first "dividend" is in terms of a more effective environmental protection, while the second "dividend" arises from the reduction of other distortionary taxes.

20. A full discussion of the double dividend hypothesis is not the purpose of the present paper. However, it should be noted that the double dividend literature casts doubt on whether in each instance a double dividend will result from a shift away from labour or capital taxation in favour of environmental taxes. For example, with nominal wage rigidities, the introduction of an environmental tax that raises production costs and general price levels can have negative employment effects that offset positive employment effects stemming from a personal income tax or payroll tax reduction. The theoretical and

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5 The joint OECD/EU database on environmentally related taxes identifies the earmarking of 82 different taxes and 125 fees and charges in OECD countries.

6 All taxes, including taxes imposed on pollution, are ultimately borne by individuals as consumers, workers, employers or investors. However, final tax incidence – that is, how its burden gets passed on to individuals through some combination of higher prices, lower wages, and/or lower returns to capital – can differ depending on the specific tax and the characteristics of the affected markets.

empirical evidence for a double dividend is, however, not conclusive (OECD 2001, 37-39). Estimates of potential job growth are uncertain. Also, the primary aim of environmental taxes is to improve the environment and stimulate energy conservation, not to create jobs. Nevertheless, a number of governments are implementing revenue-neutral green tax reform, *inter alia* with the intention of realising a double dividend (OECD 2001, 51-52). If it could be demonstrated conclusively that positive employment effects follow from switching the burden of taxation from labour to pollution, this evidence could counterbalance the competitiveness and equity arguments used against implementing new or higher environmentally related taxes.

3.0 International Competitiveness Concerns

21. In many cases, a major obstacle to the implementation of environmentally related taxes is the fear of reduced international competitiveness in the most affected economic sectors, as underlined in OECD (2001). Where the introduction of environmental taxes forces higher prices on internationally traded goods, tending to make exports less attractive and imports more so, domestic production generally would be expected to decline, at least in the short run, implying job losses and other adjustments in the national economy. Potential job losses are also cited as an argument to continue public subsidies for the production of goods or services with detrimental effects on the environment.

22. The concept of "competitiveness" has several different levels. It is important to differentiate between the competitiveness of individual firms and sectors and the whole economy of a country. A company or sector is competitive if it is able to compete in international markets, with an adequate rate of return. For a country as a whole, the concept of competitiveness is more complex: at the economy-wide level, correcting for market failures provides an improvement in the overall economic outcome, and what represents increased costs for one firm of sector of industry may lead to reduced costs for others. A prime example is the introduction of higher energy taxes, if the revenue is recycled through lowering labour taxes. In this case the competitiveness of labour intensive production will improve.

23. Competitiveness concerns are likely to be strongest where an environmentally related tax is imposed on products or key factors of production where the goods are traded widely in the international market without import protection or other border tax adjustments. Substitution possibilities are also a critical factor, as limited scope for identifying and financing cleaner production technologies and processes implies an inability to substitute away from environmental taxes. In contrast, competitiveness concerns are likely to be less pressing where an environmental tax is levied on a product or service that cannot be readily imported or exported, and where substitution possibilities are feasible. Since the bulk of environmentally related taxes are levied on energy use and transportation, the impact of these taxes will to a great extent vary between different sectors according to their energy – and transport – intensity.

24. To date, environmentally related taxes imposed by OECD countries have not been identified as causing significant reductions in the competitiveness of any sector, although this can in part be due to the fact that countries applying environmentally related taxes have provided for total or partial exemptions for energy intensive industries. Indeed, the joint OECD/EU database shows that environmentally related taxes are levied almost exclusively on households and the transport sector.[7]

25. Exemptions and rebates (see Box 2) are one form of response to the competitiveness issue. The design of these measures tends to create inefficiencies in pollution abatement and to undermine application of the polluter pays principle. Indeed, blanket exemptions for polluting products along with rebates for

[7] The OECD/EU database is available at www.oecd.org/env/tax-database.

heavy polluting industries can significantly reduce the effectiveness of environmentally related taxes in curbing pollution and similarly reduce incentives for developing and introducing new technologies.[8]

Box 2. Exemptions and rebates in energy taxes

All countries have numerous exemptions and rebates in their energy and fuel taxes, or subsidise environmentally harmful energy sources (for example, coal) and economic activities (for example, heating of greenhouses in the Netherlands and Sweden). These provisions are introduced with a number of policy objectives in mind, but will generally reduce the environmental effectiveness of green taxes and other policy instruments. Some *examples* of exemptions and rebates in energy taxes include:

Germany: if payments on energy products exceed DEM 1,000 per year enterprises in manufacturing pay only one-fifth of the standard rate on electricity and of the tax increase for heating oil and gas. Further, if tax payments exceed by 20 per cent the savings made by reduced contributions to the pension insurance, employers can claim a refund.

The Netherlands applies both tax rebates and a "tax limit". The tax rate on electricity has three brackets, with the first 10,000 kWh of annual electricity use taxed at € 0.06 per kWh, the next 40,000 kWh at € 0.02 per kWh and consumption over 50,000 kWh at € 0.0061. The excess of electricity consumption over 10 million kWh (during a 12-months period) is completely exempted from taxation. A similar provision applies when consumption of natural gas exceeds 1 million m^3. The rate of the natural gas tax has also three brackets, with the first 5,000 m^3 of annual use taxed at € 0.124 per m^3, the next 165,000 m^3 at € 0.058 per m^3 and consumption over 170,000 m^3 at € 0.0107.

Norway exempts manufacturing industries from electricity taxes, and certain energy products only used by industry are taxed at lower rates – if they are taxed at all.

United Kingdom: Energy-intensive firms that have signed up to binding negotiated agreements on energy efficiency receive an 80 per cent discount on the "Climate change levy". The country is, however, somewhat special in that business use of energy is taxed, while household energy is use tax free.

Source: OECD (2001, 62); Belastingwetten (2002, 1138 and 1141)

26. Those strongly opposed to introducing environmentally related taxes on competitiveness grounds sometimes tend to forget that alternative policy instruments used to reduce pollution, such as regulations, also affect firm's costs and impact on the competitive position of individual sectors and the country as a whole. By enhancing the economic efficiency by which a given target is reached, properly designed taxes will help minimise adverse effects on competitiveness nation-wide – compared to e.g. direct regulation or "voluntary approaches".

27. Furthermore, the opposition tends to overlook that environmental taxes are one of a number of factors determining a firm's overall competitiveness. Research on economic performance shows that skills and capital investment largely determine sectoral competitiveness.

28. Lastly, where the competitiveness of certain firms is negatively affected and output is reduced and accompanying jobs are lost, it is important to recall that reduced domestic production and use of environmentally damaging products is an intended outcome of a policy decision to use taxes to ensure that the social costs of environmental degradation are reflected in market prices and behaviour. Where a given

[8] For example, a study by the Institut für Systemanalyse und Innovationsforschung, Karlsruhe, Germany indicates that the number of patents for energy-efficient products increases with the level of energy prices.

product can no longer be profitably produced as a result of a green tax reform, other sectors of the economy producing near substitutes would be expected to see increased demand for their output.

29. Unilateral efforts of national governments will be frustrated where environmental taxes can be avoided due to importing products from other jurisdictions which do not impose similar taxes or levy the green tax concerned at lower rates. In many cases, production in those tax free jurisdictions will entail substantial environmental damage, given that producers – in the absence of government action – do not have to take into account the (full) costs of environmental degradation associated with producing the particular good. As a result, unilateral efforts by an environmentally ambitious government may increase total damage to the environment, unless the 'leakage' of intended environmental impacts is stemmed, for example by introducing tax border adjustments, such as corrective import duties.

4.0 Addressing Competitiveness Concerns

4.1 Two strategies, four instruments

30. The OECD report *Environmentally Related Taxes in OECD Countries*, released in 2001, was prepared under the supervision of the two Committees most directly involved, i.e. the Committee on Fiscal Affairs and the Environment Policy Committee. The report amply demonstrates that at present all OECD countries that have introduced CO_2 and energy taxation apply differentiated tax rates and offer some sectors and products complete exemptions in order to mitigate any negative impacts on the competitive position of domestic industry. The OECD report suggests several options for a more effective imposition of environmentally related taxes without reducing the given country's competitiveness.

31. In addressing competitiveness concerns, countries can adopt two strategies (Barde and Braathen 2002, 20). The first is to wait and see whether other countries will take any initiatives. But if no country is willing to go ahead, no action is taken, even though all countries concerned may be convinced that the introduction of a new environmentally related tax would be the best way to tackle an urgent environmental problem. The second strategy is to introduce environmentally related taxes, but with special provisions to protect sectors vulnerable to international competition. Without exception, OECD countries that have introduced green taxes have also used one or more of the following instruments to soften the impact on sectors most affected: (1) revenue recycling; (2) exemptions for specific activities, sectors or products; (3) reduced tax rates for certain sectors, products or inputs; or (4) border tax adjustments.

32. *Revenue recycling* means that the revenues from the environmentally related tax are entirely or partially channelled back to the affected firms. Ploughing back revenues can take the form of targeted spending programmes, for example direct subsidies for energy saving or pollution reducing investments or R&D in pollution control technologies. Alternatively, countries may opt to give tax refunds to certain sectors or categories of economic activity.

33. *Tax exemptions* for specific activities, sectors or products take many forms and are widely used. Some sectors or industries may be fully exempted, in other cases exemptions can only be claimed if certain energy users or polluters meet additional requirements.[9]

34. *Reduced rates* or *zero rates* for certain sectors, products or inputs are also widely in use.

[9] Under the earlier German "coal penny", applied until 1996, a tax was levied on electricity. If the tax burden endangered the survival of a company, reductions could be granted on a case by case basis. Only a few dozen firms applied for such relief, although at the time the tax burden was higher than the electricity tax which applies today.

35. In certain markets, *border tax adjustments* can be usefully applied to soften the competitiveness impacts of unilaterally imposed green taxes. Normally, these adjustments would assume the form of imposing equivalent taxes on imported goods and waving the environmentally related tax on exported goods. Such taxes on imported goods could be based on product characteristics or − within certain limitations − on characteristics of the technology used to produce the goods concerned. However, import or export border tax adjustments tend to be imprecise. Similarly, the administrative and compliance costs with establishing border tax adjustments could be large. Countries may also be tempted to use border tax adjustment to favour domestic producers. In those cases the World Trade Organisation could eventually be asked to rule whether some of these measures constitute undue protection of national industries.[10]

4.2 Policy options for more effective green taxes

36. Revenue recycling, exemptions and reduced rates of environmentally related taxes are all instruments which tend to erode the effectiveness of these taxes. This subsection considers ways in which countries may stem the "leakage" of intended environmental impacts and thus work towards more effective green taxes.

37. The OECD (2001) report suggests several options for a more effective imposition of environmentally related taxes, without reducing a country's competitiveness:

(a) Integrate environmentally motivated reforms better with broader fiscal reforms (see paragraph 38).

(b) Announce the introduction of new taxes and tax rate increases well in advance, and phase out existing rebates and exemptions gradually, thus enabling a smooth adaptation of economic agents over a period of time.

(c) In instances where exemptions and rebates are currently given for competitiveness reasons: Impose full tax rates on industry, but channel part of the revenues back to industry in such a way that marginal abatement incentives are maintained; for example by providing subsidies to industrial polluters for R&D or investments aimed to reduce pollution levels.[11]

(d) The negative environmental effect of exemptions and rate reductions can also be limited by ensuring that firms that currently benefit from exemptions and reduced tax rates sign up to stringent mitigation measures.[12]

(e) A two-tier rate structure, with lower rates for more internationally exposed sectors, would be a better option than full exemptions for some sectors; for example, an energy tax could have higher rates for the health care sector and domestic building industry, and lower rates for the petrochemical industry.

38. Countries would benefit from exploring better integration of environmentally motivated reforms of their fiscal systems with broader fiscal reforms. It is the combined effects of these reforms that will

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10 Under the U.S. taxes on ozone-depleting chemicals, a wide range of imported products are taxed according to the amount of such chemicals assumed to have been used in their production. If importers can document that a smaller amount of ozone-depleting chemicals has been used in the production process, taxation will be based on the actual amounts. For a further discussion of U.S. experiences with border tax adjustments in environmentally related taxes, see OECD (2001), Davie (1995) and Hoerner (1998).

11 Another possibility is to base payments back to industry on some measure of production. For example, under the Swedish NO_x charge, power plants pay 40 SEK per kg NO_x emitted. All the revenues are, however, recycled back to these plants in proportion to their share of total energy output.

12 However, available evidence on the effectiveness of voluntary approaches is not conclusive (see OECD 1999).

determine the impacts on sectoral and nation-wide competitiveness. Possible negative competitiveness impacts on some sectors from the environmentally related part of a broader reform might thus be reduced. And while some sectors may face a net loss in competitiveness if countries expand environmentally related taxation unilaterally, other more environmentally benign sectors of the economy could improve their competitiveness. This will partly depend on how revenues generated in the reform are redistributed.

39. A number of governments have implemented environmentally related taxation in a revenue-neutral manner: revenues raised are fully recycled back to taxpayers. If revenue recycling is based on factors that are relatively independent of the current amount of environmental damage, the environmental effectiveness of the tax reform will be greater than in the case of exemptions and reduced rates, since the price signal to polluters is not diluted (the tax burden increases with environmental damage done).

40. Note that if revenues from environmentally related taxes are recycled back to polluters on the basis of their emissions in the past, this would be equivalent to allocating grandfathered emission permits under a tradable permits scheme based on historical pollution levels.

41. A further option open to governments is to press for international harmonisation of domestic environmentally related taxes. This option seems, for now, politically not feasible. It would imply governments giving up one of their basic sovereign rights: the right to tax in a way that best suits the political realities, economic needs and social values within each country. But countries should certainly explore the perspective for moving towards greater coherence in the design of their green taxes to reflect commonly agreed environmental objectives.

42. Unilateral efforts towards environmental protection could be strengthened through greater co-operation amongst countries contending with similar competitiveness pressures. Thus, one way to address international competitiveness concerns is for countries to share information, experiences and best practices as regards possible options and opportunities for expanding the application of environmentally related taxes. Countries should consider the important progress that may be achieved by giving up some of their autonomy in tax matters for the common goal of effectively tackling environmental challenges. One option would be to strive for a "gentlemen's agreement" under which all countries promise to introduce minimum tax rates on environmentally relevant tax bases. There are many other instances of successful international co-operation, both in the tax area (e.g. the sixth VAT Directive[13]) and in other areas as well (air control, postal and telephone services), that could serve as an example here.

5.0 Income distribution Concerns

43. Some environmentally related taxes are income regressive (OECD 2001, 87-88). That is to say, poorer households pay a disproportionate share of their income in these taxes relative to richer households. This has led the distributional incidence of environmental policy measures to become a key issue in the policy debate. In addition to impacting more on low-income households, environmentally related taxes can also increase regional income disparities. However, a complete assessment of distributional effects should also include the secondary impact of any compensation payments, tax reductions, and the induced employment effects. Furthermore, the distribution of the environmental benefits resulting from the tax should take into account. Environmental benefits as a result of government interventions might be identified and quantified using "hedonic price methods", for example by studying the variation in housing prices between areas of different environmental quality.

[13] The sixth VAT Directive was instrumental in harmonising the VAT tax bases of EU countries and introduced minimum VAT rates as a weapon against a potential 'tax race to the bottom'.

44. In response to income distribution concerns, governments may adopt various mitigation and compensation measures. The OECD defines mitigation as an *ex ante* measure to reduce the effective rates of environmentally related taxes and therefore alleviate the tax burden for specific groups. For example, the Dutch regulatory tax on small energy users previously had a zero rate band (or "tax floor") for the first 800 m^3 per year for gas and 800 kWh per year for electricity. In 2001 the Dutch replaced these tax-free allowances by a fixed tax reduction for each household connected to the electricity network.[14] In many cases, households in the Netherlands with income equal to the official subsistence level do not pay municipal waste collection and sewage taxes either, for income political reasons. As part of the decentralisation effort, local councils decide whether this tax waver applies. The OECD defines compensation measures as basically *ex post* and outside the realm of the taxes as such, so they do not affect the tax base or rate structure of environmentally related taxes. Compensatory measures limit the initial negative impact of the green tax on household income. For example, the Swiss tax on the sulphur content of heating oil is refunded to households on a per capita basis.

45. The terminology adopted by OECD can lead to confusion, because in many cases compensating measures will be taken at the same time as a green tax is introduced, and not afterwards (*ex post*). What distinguishes the two strategies is a reduction of the impact of the tax on low-income households by provisions in the tax legislation itself (mitigation) or by reducing *other* taxes or introducing transfer payments (compensation).

Box 3. Income distribution based exemptions and rebates

Germany offers a 50 per cent rebate on the electricity tax for storage heaters, installed before April 1999. Such heaters are concentrated in low-income households.

The Netherlands has a tax on domestic energy use (natural gas, electricity) with a fixed tax reduction of € 142 (in 2002) per household connected to the electricity network.

The *United Kingdom* exempts domestic use of energy from its "Climate change levy".

Source: OECD (2001, 64)

6.0 Addressing Income Distribution Concerns

46. The preceding section shows that strategies to mitigate the impact of environmentally related taxes for low-income households include:

1. Establishing a consumption "floor" below which no tax is levied.
2. Introducing a dual rate structure with a reduced or zero rate for low-income households.

47. Mitigation measures in the form of a consumption floor and reduced tax rates for lower incomes to address regressivity concerns reduce the environmental effectiveness of the tax by cancelling out some or all of the incentives to change consumption and investment behaviour. The first option, establishing a consumption floor, also benefits higher-income households not in need of income support. The second option, introducing a dual rate structure, allows targeting the tax reduction to the group policymakers want to help foremost. However, the option of an income-tested green tax rebate has several drawbacks.[15] First,

[14] In 2002, the reduction amounts to € 142 per year (see Box 3). The recent policy change in the Netherlands represents an interesting example of a shift from "mitigation" to "compensation".

[15] The case for and against income-tested transfers to households is discussed in Garfinkel (1982).

in most cases the government agencies concerned will use taxable income as a point of reference. Taxable income may not always reflect ability to pay, notably in cases where households claim significant deductions (mortgage interest) and exemptions (tax-exempt capital gains). For households outside the tax net no taxable income can be established. Next, under the second option, as household income increases, the tax reduction is gradually phased-out implying an implicit tax on additional income. Thus, an income-tested tax rebate increases the "wedge" between labour costs to employers and the corresponding net take-home pay of employees. The economic literature associates a large wedge with less demand for labour because labour costs are higher and with reduced labour supply because – in net terms – work pays less. Reduced labour supply seems to be the impact of greatest relevance here. Finally, the determination of household income for the purpose of the green tax rebate will involve substantial administrative and compliance costs, especially in countries where personal income tax is assessed on an individual basis.

48. For all these reasons, governments should seek other, and more direct, measures if low-income households are to be given special treatment. Compensation measures can maintain the price signal of the tax, whilst reducing or eliminating the impact of the tax on household income (for average polluters). A compensation mechanism that retains the incentive effect of the tax is to use lump sum transfers within the tax and benefit system. In economic terms, these transfers are similar to a lump sum rebate of an environmentally related tax. However, using the tax and benefit system will often be more cost-effective, because the agencies entrusted with carrying out these programmes already possess much information about households that may be needed, for example to target financial compensation.

49. Three strategies to compensate low-income groups include:

(a) *Lump sum compensation*, calculated on the basis of average green tax payments per household, in the form of cash transfers or credits against income tax. Cuts in income taxation may not benefit groups of low-income households because they pay little or no income taxes (Smith 1998). To assist the households concerned, countries can use tax credits. Tax credits are amounts deductible from tax payable (as distinct from deductions from the tax base). Two types of tax credits are distinguished, those (referred to as wastable tax credits) which are limited to the amount of the tax liability and therefore cannot give rise to a payment by the government to the taxpayer, and those (referred to as non-wastable tax credits) which are not so limited, so that the excess of the credit over the tax liability can be paid to the taxpayer (OECD 2001a, 265). To compensate poorer households for the impact of environmentally related taxes, non-wastable tax credits are the preferred option because the revenue service pays out the excess of the credit over income tax due to qualifying households. The following example may illustrate how non-wastable tax credits work. Assume the government, after introducing or raising a green tax, wants to provide every household with compensation in the form of a reduction of the personal income tax by, say, € 150. However, for poor households, which pay no personal income tax, this tax credit would be ineffective, since there is no tax due from which the credit can be deducted. As a consequence, the tax credit is lost ("wasted") and poor households would receive no compensation. The alternative is that in such cases the tax administration pays out the credit of € 150 to the households concerned. Thus, the tax credit is no longer "wasted". It follows that non-wastable tax credits benefit all households, whether they pay personal income tax, or not. If a household were due, say, € 100 in personal income tax, € 100 of the tax credit would be offset against the tax due, with the remainder of € 50 being paid out to the household.

(b) *Income-tested compensation*, with two further options (see also Box 4). One way to calculate the amount in compensation would measure the green tax due by *average* energy users or polluters against household income. A second, more complicated mechanism would calculate the compensation by comparing *actual* green tax payments of households to household income. The rationale for this variant might be that poor households have sometimes limited options to reduce their energy use, such as in the case of block heating. However, if it were decided that households

need not pay more than say 2 per cent of their income in a given green tax, the price signal would be ineffective once a household had exceeded this threshold. The case for and against income-tested transfers was already discussed in paragraph 47.

(c) *Reduction of other taxes*, sometimes referred to as "tax shifting". In this situation, the regressive impact of an environmentally related tax is (partially) offset by a reduction in the marginal rates of other taxes, specifically taxes on labour. Box 5 describes the application of this policy mix in the Netherlands in the years 1996–2001.

Box 4. Income-tested compensation for green tax

Assume a country introducing an electricity tax. The tax base is kWh of electricity consumed. The tax rate is € 0.06 per kWh, which happens to be the current rate of the energy tax in the Netherlands. Given that households use on average 2,500 kWh of electricity per year, the lump sum payment through the national tax or benefit system should amount to € 150 if – on average – households are to be fully compensated. Furthermore, assume policymakers want to target compensation payments to low-income groups. Once annual household income is over € 10,000 the lump sum payment is therefore reduced at a rate of 2.5 per cent. Suppose the initial household income of € 10,000 rises by € 200. The tax credit would then be reduced by € 5 (2.5 per cent of € 200) to € 145. It follows that households with annual income over € 16,000 no longer qualify for compensation.

Policymakers may hold that some low-income households are not able to reduce their electricity consumption by very much, because they lack resources to invest in energy saving equipment. They might amend the programme so that households with income of € 10,000 or less and with an above average electricity bill receive full compensation for the energy tax. In the previous example, if electricity use is kWh 3,000, the tax actually paid (€ 180) would be fully refunded. This entitlement to extra compensation would similarly be reduced at a rate of 2.5 per cent as household income rises above € 10,000. In this case, qualifying households with above average energy consumption and income below € 10,000 would have no tax incentive at all to reduce their electricity consumption, insofar as they had any opportunity to do so. For households with income in the range € 10,000 to € 16,000 the tax incentive to save on electricity would be reduced (see table).

Annual income	Energy tax	Compensation	Net impact of energy tax
8,000	180	180	0
10,000	180	180	0
12,000	180	120	60
14,000	180	60	120
16,000	180	0	180

In the second case compensation can only be provided after the year has ended and actual electricity consumption has been measured. It is also clear that this programme design implies high administrative costs to deliver limited amounts of compensation to a relatively small group of households.

50. Compensation measures could be improved if they were targeted at low-income groups and other factors that cause the equity problems. For example, although low income is a factor that influences energy efficiency in households, there are other factors, like tenure (renting, not owning) and lack of capital to invest in more energy efficient heating and electrical equipment. Therefore, where the root cause is not low income, other policies, for example direct regulation and subsidies, might be more effective than mitigation and compensation measures.

Box 5. Case study: the Netherlands

In 1996 the Netherlands introduced a regulatory energy tax (RET) on the use of natural gas and electricity. In later years, the rates of the RET were raised several times. Box 2 reports the rates that apply in 2002. As RET-rates went up, the rate of the first bracket of the personal income tax was stepwise reduced by 2.5 percentage points, explicitly to redress in part the distributional impact of the RET. The table below shows the cumulative impact of the RET-PIT switch in years 1996–2001 on net disposable income of several socio-economic groups, including the average production worker (APW). At first sight, the numbers in the table suggest that all groups were made worse off. However, during the five-year period under consideration gross wage levels rose continuously and benefit payments were regularly increased. As a consequence, although the isolated impact of the RET-PIT switch was slightly negative, the large majority of Dutch households saw an overall increase of net disposable income between 1995 and 2002.

The administrative costs associated with this compensation mechanism were negligible, since the compensation measures were a part of the annual revision of the personal income tax rate structure. This revision takes place anyway, notably because the brackets lengths are fully adjusted for inflation every year.

Household type	Net disposable income (2001, in euro)	RET [a] (in % of net disposable income)	PIT [a]	Balance [a]
Workers (couple, 2 kids)				
• Legal minimum wage	14,855	- 2,6	1,1	- 1,5
• APW	20,870	- 1,8	0,9	- 0,9
• 2 x APW	33,000	- 1,6	0,6	- 1,0
Benefit recipient [b] (couple, 2 kids)	13,700	- 2,7	1,3	- 1,4
Pensioner [b] (couple)	12,210	- 2,2	0,9	- 1,3

[a] In percent of net disposable income.
[b] At "official" subsistence level.
Source: Ministry of Finance, Netherlands.

7.0 Conclusions and issues for debate

7.1 Competitiveness concerns

51. Dealing with international competitiveness concerns raises a number of difficult and complex issues that should encourage policymakers to rethink choices over appropriate environmental tax bases, tax rates and exemptions. In certain situations competitiveness arguments currently being advocated do not hold, and environmentally related taxes can be introduced unilaterally and without extensive rebates and exemptions, in particular where the taxed item is not widely traded. Even in those sectors where international trade is a factor, unilateral action can proceed where feasible options are available to affected firms to reduce their tax burden, for example by fuel switching in response to a carbon tax or investing in abatement technology and clean product/production development. Too often in such cases these responses are delayed by the granting of rebates and exemptions with no strings attached.

52. Phasing out rebates and exemptions and pre-announcing the introduction of new environmentally related taxes and tax rate increases are two policy options that would improve the environmental

effectiveness of these taxes in such circumstances.[16] As noted, border tax adjustments can be usefully applied to address competitiveness concerns in certain markets. Such adjustments may be based on characteristics of products or the technology used to produce them. However, technical, administrative and legal constraints may apply in using border tax adjustments, implying that such mechanisms cannot be relied upon in each instance to offset potentially negative impacts on the sectors in question from competitiveness pressures.

53. Various shortcomings with unilateral approaches in certain cases raise the prospect of considering a co-ordinated approach. For a start, countries should be encouraged to share information, experiences and best practices concerning options and opportunities for using environmentally related taxes and similar instruments to address common environmental concerns.

For discussion: Competitiveness implications

54. Please review and assess how your country has addressed international competitiveness concerns for major environmentally related taxes now in place. Discuss what political and administrative considerations have motivated policymakers to opt for measures currently in place to address such concerns. Have environmentally related taxes been blamed for any significant plant closures and/or relocations? Flag any environmentally related taxes under serious consideration, over the last five or ten years, that were not adopted, mainly or solely for competitiveness reasons.

55. An option is that countries give up some of their autonomy in tax matters for the common goal of tackling environmental challenges more effectively. Please explain and discuss the obstacles that must be overcome in the case of your country to achieve greater effective international co-operation in matters of environmentally related taxes.

56. Potential job losses are also cited as an argument to continue the application of environmentally harmful subsidies. Please review what considerations have motivated policymakers to introduce and continue the more important of these subsidies in your country until now. Discuss how a reduction of these subsidies might be achieved with limited negative impacts on employment.

7.2 Income Distributional Concerns

57. Although most studies show environmentally related energy and CO_2 taxes to be somewhat income regressive, it is possible to compensate the lower income groups. Indeed, in many cases the impact of environmentally related taxation has been softened by various mitigation and compensation measures. However, the impact of the tax alone is only part of the story, since a full assessment would also include the secondary impact of any compensation payments, tax exemptions, induced employment effects and the distribution of the environmental benefits resulting from the tax. Mitigation practices reduce the environmental effectiveness of taxes. In the case of regressivity, governments should seek other, and more direct, measures if lower-income households are to be compensated. Such compensation measures can maintain the price signal of the tax whilst reducing the negative impact of the tax on household income.

[16] However, a yearly focus on the "agreed" tax hikes can increase the political difficulties of undertaking the reform.

For discussion: Distributive implications

58. *Please describe and discuss how your country has addressed income distribution concerns for major environmentally related taxes now in place. What political and administrative considerations have motivated policy-makers to opt for mitigation and/or compensation mechanisms currently in place? Flag any environmentally related taxes under serious consideration that, over the last five or ten years, were not adopted, mainly or solely because of income distributional concerns.*

59. *Please comment on the conclusion of this paper that lump sum compensation through the tax and benefit system is to be preferred over mitigation measures in the environmentally related tax itself (exemptions from tax base, reduced or zero rates), because the latter reduce the price signal and thus the environmental effectiveness of the tax.*

60. *Please comment on the conclusion that lump sum compensation through the tax system will generally (1) lead to a greater number of households being compensated and (2) prove to be more cost-effective, given that the revenue service runs the most complete administration, unless the compensation is procured directly by the provider of the taxed product (energy) or service (waste collection and handling).*

61. *Do you agree that lump sum compensation in the form of non-wastable tax credits against personal income tax offers the best guarantee that all qualifying households are compensated for the environmentally related tax?*

7.3 The way forward

62. The recent OECD report (OECD 2001, 11) states that "one way to address international competitiveness concerns is for countries to share information, experiences and best practices as regards possible options and opportunities for expanding the application of environmentally related taxes. Countries concerned with competitiveness implications of adjusting certain environmentally related taxes on a unilateral basis could consider possible concerted policy options and changes, decided and implemented at the national level, but within a framework which provides for a multilateral dialogue."

For discussion: The way forward

63. *What kind of internationally co-ordinated and concerted action could be implemented to help overcome the competitiveness obstacle?*

64. *What type of action – and at what level – should be given priority?*

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COMMENTS ON THE DISCUSSION PAPER:

Prepared by Klaus Bräunig
Federation of German Industry (BDI)

Ladies and gentlemen

In response to the Issues Paper presented by Professor Flip de Kam, much of which has been taken up by the OECD, I should like to begin by making the following three important statements:

1. Effective protection of the environment is only possible where there is prosperity and economic growth. It is higher rather than lower economic growth that will lead to more environmental protection.
2. It is the environmentally harmful squandering of energy resources that needs to be controlled, not energy use as such.
3. As results achieved in Germany show, the environmental protection objectives set by the Kyoto Protocol are being achieved not with eco-taxes but with an agreement on climate protection drawn up between the federal government and industry.

The following detailed comments are relevant here:

Statement N° 1:

When discussing eco-taxes at this conference hosted by the OECD and the Federal Environment Ministry, we need to recognise that for country to be able to protect the environment it needs a sufficient level of industrial efficiency.

In simple terms, we know, for example, that environment standards are significantly higher in Japan and Western Europe than in Central and Eastern European countries, the CIS or China. In Japan and Western Europe, for example, average CO_2 emissions per 500 Euros of gross domestic product total only 70 kg compared with 625 kg in Eastern Europe, 900 kg in the CIS countries and as much as 1760 kg in China. China therefore releases 25 times as much CO_2 per 500 Euros of GDP into the environment. For Eastern European countries the ratio is 9:1.

However, this situation can change – either way – and how it changes will depend on economic growth. Germany therefore needs to keep pace with the world's other top industrialised nations so that its environmental standards do not fall behind those of other countries.

Eco-taxes cannot halt this development. Rather, higher prices tend to accelerate it, so that in the absence of economic growth eco-taxes fail to serve the purpose for which they were intended.

In this context, the failure of environmental policymakers and the OECD to take adequate account of economic policy is baffling.

The fact that industry needs to be able to operate in general conditions that ensure economic growth should be seen not as harmful to the environment but as a basic precondition for a sustainable environment policy.

As a result of technical progress the input required to achieve the same output steadily decreases, and energy efficiency therefore improves.

Consequently, we need to tackle this issue from three different angles so that economic, environmental and social concerns are taken into account.

German industry relies on its firms to take individual responsibility for climate protection, and it was in this spirit that back in 1995, long before the introduction of eco-taxes, it declared its commitment to reducing CO_2 emissions. The declaration was updated in 1997 and extended in 2000 on the basis of an agreement with the federal government. Mr Trittin, who spoke to us today and who favours eco-taxes, was one of the signatories to the agreement on climate protection, together with the Chancellor Gerhard Schröder and the Minister of Economics and Technology, Werner Müller.

It is essential that the OECD report take adequate account of this agreement on climate protection. Failing to do so would be to overlook a crucial and decisive part of Germany's environmental protection policy.

German industry has stated in the climate protection agreement that it is prepared to make a special effort to reduce its specific CO_2 emissions by 28 per cent by 2005 compared with the 1990 level. In light of the Kyoto Protocol objectives it extended its pledge to reduce emissions of six greenhouse gases, all listed in the Protocol, by 35 per cent by 2012. In so doing, German industry has taken on 30 per cent of the **overall** reduction target for the whole of the European Union under the Kyoto Protocol.

This is a truly mighty feat. Neither the OECD nor the Federal Environmental Ministry are in a position to prove that the same results can be achieved through eco-taxes. Indeed, the assumption that eco-taxes perform a controlling function is not based on any serious evaluation. Reference to price signals alone is not enough. The discussion paper confirms the lack of any intelligent comparison between the climate protection agreement and eco-taxes in terms of the results achieved. This means that eco-taxes are shown in a more favourable light, because the suggestion is that there is a need for urgent action. Thanks to industry's achievements in connection with the climate agreement, however, this is not the case.

Statement N° 2:

A recurrent theme of discussions about eco-taxes is the apparent contradiction between the tax relief granted to energy-intensive firms and the ability of the taxes to perform their intended controlling function. Even the OECD has mistakenly assumed there is a contradiction here.

The justification for taxing energy-intensive firms more heavily than others usually derives from the idea that energy use should be taxed irrespective of energy efficiency, and that penalties in the form of higher taxation should relate exclusively to consumption. However, this approach fails to take sufficient account of the objective of achieving a sustainable climate policy.

Firms should be penalised not for using energy but for their environmentally-harmful squandering of energy resources.

Penalties are only worthwhile in cases where energy savings are possible or likely to be possible even after account has been taken of economically-acceptable marginal avoidance costs and the prevailing conditions of competition.

On the other hand, in cases where it is not possible for energy users to make further energy savings because they have already exhausted all possible technical means or because of price pressures on world markets, it is economically and environmentally pointless to levy energy taxes.

The only possible remaining solution for achieving the aim of reduced energy-consumption would be to regulate business activity. Anyone who favours such a measure should bear in mind, however, that there is no justification in the German Constitution for such an approach to eco-taxes, since the payment of taxes can relate only to firms' efficiency.

With the introduction of eco-taxes, energy-intensive firms are therefore faced with a dilemma insofar as intelligent alternative courses of action, which the taxes are supposed to encourage, are simply not open to them.

Because of the high costs associated with energy as a factor of production, energy-intensive firms have always invested enormous sums of money in minimising their energy costs in the interests of operational efficiency. Statistics show, for example, that the cement industry has successfully reduced its specific fuel requirements by more than 60 per cent since 1950.

Would the situation have been any different with eco-taxes? Would they not just have meant more or less money in the government purse – depending on whether the German cement industry was still operating on the same scale.

I think that, realistically, it is fair to say that higher taxation of firms is not consistent with other aspects of environment and economic policy and ignores the nature of economic relationships.

With respect to firms' efficiency and ability to compete, their exemption from tax is an absolute precondition of a sustainable environment policy, quite apart from the fact that the objectives laid down in the climate protection agreement will never be met if funds firms use for investment purposes are taken away from them.

Consequently, it is not at all surprising that energy-intensive firms in all industrialised nations are largely exempt from energy tax.

Despite what the OECD claims, however, eco and energy taxes still distort competition, even now. Allow me to give two examples:

1. Last week the ECOFIN Council was unable to agree on guidelines in respect of the harmonised European energy tax because no solution has been found to the distortions of competition affecting the transport sector;
2. Natural gas is taxed in Germany but not in Belgium, France, Ireland, Luxembourg, Portugal, Greece, and other non-EU countries. Industrial firms in Germany that use natural gas therefore have to deal with distortions of competition.

Statement N° 3:

Mineral oil tax dates back to the Weimar Republic. In 1999 the red-green federal government coalition in Germany had the idea of increasing the mineral oil tax and introducing an electricity tax. It referred to these measures as its "environmental tax reform".

The purpose of this was to lend credibility to the notion that in addition to the creation of new jobs external environmental costs can be internalised and pollution levels reduced.

For various reasons, however, this internalisation of external costs and this idea with respect to taxation are impossible in practice. Experts point out that it is not possible to identify individual external costs and to express them in monetary terms. This also means however that the polluters who generate the external costs cannot be identified.

Furthermore, since public decision-makers do not know firms' avoidance costs and are not familiar with their practices, an eco-tax will always be arbitrary.

"Arbitrary" taxes are particularly unjustified when firms have attained levels of technical know-how that are amongst the highest in the world. They have no choice but to pay the tax because the avoidance costs are much too high. Consequently, the tax fails to perform its control function.

Eco-taxes are therefore an arbitrary means used by governments to influence prices. The success of such taxes cannot be determined because, unlike climate protection agreements, the results achieved with eco-taxes are not based on any specific targets.

This is a problem that should be addressed in the OECD Issues Paper.

Solo efforts by individual countries make matters worse for firms and lead to subsidisation of foreign firms, who remain free to offer their goods for sale on the German market at lower prices. In the context of globalisation, particular care therefore needs to be taken to ensure fair competition between firms. Customs duties, suggested as a way of overcoming this problem, are incompatible with the goal of a free market economy and have many other negative consequences besides.

The call for sweeping financial reform of the environment sector is like the call for a planned economy, where the government tries to disarm free market forces out of obedience to some overriding interest.

This is a course that must not be taken. Instead, German industry's achievements in the context of agreements must be recognised. The European Council has already done this, and in the draft guidelines on the harmonised European energy tax environmental protection agreements are recognised as appropriate instruments. This should ring the knell of eco-taxes. The BDI advocates a consistent approach, whereby the operational efficiency improvements recorded in Germany should be recognised, and firms should be encouraged to act on their own initiative.

COMMENTS ON THE DISCUSSION PAPER:

Prepared by Alberto Cornejo Pérez
Ministry of Finance, Spain

The OECD, in co-operation with the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety of Germany, hosts an open international conference on environmental fiscal reform, 27 June 2002 in Berlin. It will focus on how - in practical terms - countries can progress on the two main obstacles to environmental fiscal reform, namely the fear of loss of sectoral competitiveness and the fear on negative income distribution impacts.

In this context, I have been asked to prepare a response to the discussion paper prepared by professor Flip de Kam for this meeting, focusing on the questions related to the competitiveness issue.

1. Synthesis of the Spanish position

We consider that the demand of energy products is so inelastic to prices that a rise in energy taxation that is transferred to energy prices would not reduce significantly energy use and therefore would not improve the environment. The Ministry of the Environment has not challenged this opinion.

An economic priority in this area of the present Government of Spain is not to raise taxes nor create new ones, because this can damage the competitiveness of firms, but to grant positive incentives (reductions of taxes) to those who make investments that are aimed at protecting the environment.

Examples of this are: reductions in corporate tax or personal income tax granted to corporations or individuals who make investments to improve production processes or to buy new vehicles with a better environmental performance; certain rate differentiations in the hydrocarbons tax; a reduction in the registration tax for the scrapping of old cars that can no longer use leaded petrol, etc.

These fiscal measures, though, have a limited impact in the budget (for example, the reduction in the corporate tax mentioned above it is forecasted for 2002 that will provoke a fiscal expense of 20 million Euro from a total tax and Social Security revenue of 181,680 million Euro). This is mainly because they have not been conceived in the context of a global environmental tax reform.

The Spanish position towards taxation of energy products has always been consistent with this philosophy. In fact, the compromise proposal that was presented in the beginning of 2002 under the Spanish Presidency of the European Union (EU), if eventually approved, would not provoke a significant increase in current rates in force, as can be seen in tables 1 and 2 (see annex).

This situation responds to the fact that environmental priorities in Spain (quantity and quality of water, desertification) are not exactly the same as those in other Member states of the EU. The Hydrological National Plan, approved by Law of 5th July 2001 aims at giving a solution to these environmental problems and has been a mayor challenge of the Environment Ministry.

Having said this, the true fact is that taxes that are considered environmentally related according to OECD definitions ("compulsory, unrequited payments to the general Government levied on a tax base deemed to be of particular environmental relevance"), do exist in Spain, of course. The introduction of these taxes took place many years ago, before environmental concerns were considered in the definition of fiscal policy, by purely fiscal reasons. We can only find declared environmental purposes in the philosophy that is behind some of these taxes, or in some relatively minor details, for example:

In the harmonised excise duty on hydrocarbons:

- The higher rate applied to unleaded petrol of high octane.

- Exemptions for biofuels in pilot projects for the developing of more environmentally friendly motor fuels.
- Exemption of used mineral oils burned under control.
- Lower rate for liquified petroleum gas (LPG) used in public transport.
- And in the Registration Tax:
- The already mentioned reduction for the scrapping of old cars that could only use leaded petrol, for taxpayers who buy, before December 31st 2003, a new car that will use unleaded petrol.

Without prejudice to what has been said for the national level (no creation of new taxes on energy or increasing existing ones, for environmental reasons), in the regional level, in the last few years, several taxes have been introduced with a declared environmental purpose. Examples of these are the Tax on equipment with incidence in the environment (Balearic islands and Extremadura); Fee in hotel lodging, to finance the restoration of tourist sites (Balearic islands); Tax on atmospheric pollution (Galicia); or the Tax on contamination and risks for the environment of Castilla-la Mancha.

Leaving aside the reasons why the national taxes were created or still exist, the fact is that competitiveness concerns do arise every time there is a discussion on the possible rise of tax rates or on a possible extension of the tax base (more products to be levied by the tax). The problem of competitiveness (or at least, the problem of higher production costs) arises even when the sectors affected are not particularly exposed to international competition (short-distance transport, agriculture), or when the rise in prices has nothing to do with taxation, as occurred when the prices of crude oil shot up in late 2000. In fact, the Government approved certain reductions in VAT and income tax to compensate for this on the most affected sectors.

In the literature we can find a differentiation of two concepts of competitiveness (see Ekins and Speck (1999)[17]): in the firm's level and for an economy as a whole. Firms with a relevant intensity in the use of energy will suffer from a rise in their costs if higher energy taxes are imposed. Their competitive position will be worsened for sure, at least in the short run, especially if imposed unilaterally. Instead of this, for the economy as a whole, the competitiveness depends on many other factors, mainly on the way revenue is recycled to the economy. Even in the case that a revenue recycling would soften the impact of the reform for the economy as a whole, it would imply an economic restructuring that could be very painful and politically unpopular.

As said above, Spain has not made a comprehensive approach to an environmental tax reform with a recycling of revenues (only exceptions of limited importance can be found: certain fees or charges, as the "canon de trasvase" cited above, because with their revenue, certain predetermined services are financed). The areas of income and expenditure remain intentionally separated in financial laws, as results from a financial tradition that imposes the principle that the tax revenues are intended to feed the general budget, or in other words, the principle of non-earmarking of tax revenues.

2. Possible solutions to this problem

The OECD discussion paper (31) lists the two strategies and four instruments that can be used to address competitive concerns. The first strategy, just to "*wait and see whether other countries will take any initiatives*" is obviously the only one coherent with the described philosophy. Anyhow, whenever Spain

17 . Dr. Paul Ekins and Dr. Stefan Speck. "Competitiveness and Exemptions from Environmental Taxes in Europe", [1999], Environmental and Resource Economics.

has introduced an environmentally related tax (leaving aside the reasons), instruments have been introduced to soften the impact on the most affected sectors (mainly exemptions or reduced tax rates).

2.1 International harmonisation

International harmonisation (at least via "gentlemen's agreements") is also cited in the OECD discussion paper (41) as a useful way to address problems of competitiveness. In fact, effects on competitiveness will only arise if environmental policy in different countries imposes different levels of costs in competing firms.

It is important to bear in mind that an agreement can only be reached between countries that share the same views about the possible solutions to the problem. And, of course, it must be based in voluntary participation.

In particular, within the EU, the general approach to environmental taxation is not shared by all Member states. Not every EU Member state considers the creation of new taxes or the increasing of tax rates in existing "environmentally-related taxes" a good way of tackling environmental problems. Other instruments, mainly positive incentives to those who invest in less environmentally harmful technologies, are considered more appropriate. On the other hand, a rise in energy taxation could be counter productive for certain economic priorities (growth, competitiveness, employment, price stability).

On the other hand, if minimum levels of taxation were to be introduced to harmonise taxation among different countries, differences between them should be taken into account (in unemployment rates, purchase power of citizens, and other structural figures).

This different approach to the problem is why Member states have not renounced to their sovereignty in this area, and are not willing to do so. In fact, the "establishment and functioning of the internal market" (article 93 of the European Community Treaty (ECT)) is still the only legal basis that has been used to harmonise indirect taxation. This was in fact the legal basis used by the European Commission for its Proposal for a Directive for the taxation of energy products (COM (97) 30).

The mentioned refusal to transfer sovereignty to the EU in this issue was repeatedly said when the Intergovernmental Conference under French presidency took place, and resulted in the Nice Treaty. The French and German delegations put forward several proposals to modify the ECT for this purpose. These proposals were aimed at making it possible for the Council to approve fiscal measures (directives) without the unanimity that is now necessary under article 93 of the ECT, when the objective of the directives in question was to tackle "*environmental problems concerning various Member states*". Probably they were referring to air pollution and climate change as global concerns, or at least as concerns that affect not only to one country. It was made clear in the discussions that some Member states wanted to keep the possibility of designing their own, independent, fiscal system.

The European Commission made public in the last Ecofin Council of June 6th 2002 its intention "to come forward with a proposal on the issue of professional diesel before the summer". This proposal aims at an approximation of rates applied to road transport in the EU, at a lower level than the level applied to private users, to prevent losses of competitiveness in this sector. This could be a possible way of harmonising energy taxation in a sector that is particularly exposed to international competitiveness problems, that would let Member states tax more heavily diesel used as a motor fuel by individuals, that nowadays benefit without justification from a low rate, that was initially fixed at a low level because in that time it was used almost exclusively by professionals.

2.2 Possible solutions to the problem of different taxation among countries

A) Border tax adjustments (BTA)

Within the EU, it is important to bear in mind that BTA can only be decided by the EU, not by individual Member states, and can only solve the competitiveness problem with products manufactured outside the EU with a high consumption of environmentally-relevant raw materials or fuels. Due to these reasons and the ones quoted at the beginning, Spain has no relevant experience in the use of these instruments. It is easy to understand, though, that this instrument has to face very serious problems, both legal (World Trade Organisation rules) and technical (determination of the environmental damage caused producing all goods that are imported or exported). Several studies have been made to try to solve these problems, as Majocchi (2001)[18], but still little progress has been achieved. On the other hand, some authors (Millet, 2001)[19] understand that these instruments reduce the capacity of countries to trade, and consequently to grow and develop, and this may be counter productive because poverty is considered to be the main cause of environmental harm (Bruntland report). Precisely the encouragement of international trade was cited in this study as a means of provoking economic growth, fight against poverty and as a result, prevent environmental degradation.

B) Revenue recycling.

A revenue recycling scheme is not in line with the general approach to the problem that has been previously exposed. However, we can find certain fiscal expenses in the Spanish fiscal system that could be considered a way of recycling revenue:

- Reductions in corporate tax or personal income tax for investments made to improve production processes or to buy new vehicles with a better environmental performance, cited above.

- Fees and charges earmarked for the purposes they were created for (something generally not accepted for taxes).

C) Exemptions and reduced tax rates

These have been generally applied and very likely will continue to be applied not only in Spain, but also in every EU Member state. In fact, the Directive 92/81/EEC that sets the common rules for the taxation of mineral oils, establishes compulsory exemptions for hydrocarbons:

- Different from heating fuels or motor fuels.
- Used in navigation by air or sea.
- Used in chemical reduction (blast furnaces of the steel industry).

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18 Alberto Majocchi. "Trade and Environment Are Necessarily Conflicting or Mutually Supportive?" [2001]. The Second Annual Global Conference on Environmental Taxation Issues, Experience and Potential. April 1 - April 3, 2001. Vancouver, B.C. Canada; Alberto Majocchi and Marco Misagllia "Environmental taxes and border tax adjustments: an economic assessment" [2002]. Third annual conference on environmental taxation. Woodstock, Vermont, USA.

19 Montserrat Millet. "La regulación del Comercio Internacional: del Gatt a la OMC" [2001]. Colección Estudios Económicos. La Caixa.

And also admits the possibility to exempt or apply reduced rates when hydrocarbons are used in:

- Production of electricity
- Rail transport
- Public works
- Agriculture
- Others.

Apart from all these, each Member state can ask for individual derogations of the obligation to tax hydrocarbons set in this Directive, for specific policies. Nowadays about a hundred derogations of this kind are still in force.

This situation seems to undermine the environmental justification of a tax on energy, and has been maintained in the compromise proposal presented by the Spanish Presidency of the EU. Discussions on this topic are now being held in the Council with the intention of reaching an agreement in the main guidelines for the taxation of energy products in the EU in the foreseeable future. Although some products not subject now to a harmonised tax, may in the future be taxed (coal, electricity, natural gas), a very similar situation with regard to the exemptions and reduced rates is going to be maintained. As an example of its latest versions, firms that use energy products as raw material may avoid taxation completely. And in cases where electricity accounts for more than 50% of the cost of an industrial product, it can be considered being used as raw material.

3. Conclusions

Some EU Member states have implemented, according to the demands of their electorate, environmental tax reforms in which the main element is a steep and continuous increase of energy taxes. This seems to have placed their industries in a difficult situation due to competitiveness problems. When exemptions or reduced rates have been granted to overcome this problem, the difficult situation comes from the European Commission's action regarding State Aid rules.

The easiest way to address these competitiveness problems in an internal market like the EU is to harmonise taxes in such a way that competing firms have to face similar production costs.

Countries that have undertaken environmental tax reforms should either moderate the gap that they have left between them and the low-taxing countries or implement ambitious revenue recycling systems that allow competing firms to reduce their overall production costs.

On the other hand, Spain does not believe in the effectiveness of an environmental policy that involves increases in energy taxes, mainly due to the low elasticity of the demand of energy products and the loss of competitiveness that this would imply. This belief is also based in the fact that actual taxes on energy products exempt so many uses of energy (to prevent competitiveness problems and for other reasons), that households and road transport sector seem to be the only ones to suffer from price increases.

Anyhow, even if it were to be implemented, the huge and painful restructuring that a reform of this kind would imply is not in the economic program of the democratically elected political party now in Government.

Reduction of existing taxes and not creation of new ones is, on the other hand, one of its main priorities.

COMMENTS ON THE DISCUSSION PAPER:

Prepared by Xavier Delache
French Ministry for ecology and sustainable development[20]

[20] This presentation does not reflect the position of the French Ministry for ecology and sustainable development.

Eco-Taxes and Competitiveness Issues: Lessons Learned from the Carbon-Energy Tax Project in France in 1998-2000

This paper intends to give some practical elements as a discussion of Pr De Kam's paper, especially on issues 3 and 4 on competitiveness. It will describe the project of energy tax prepared by the French government between 1999 and 2000, voted by the parliament in November 2000, and rejected by the constitutional court in December 2000. After a short description of the context of eco-taxes in France, it will describe the energy tax project itself, and make a few comments on how the issue of competitiveness was treated in the project and on the consultation process.

Following Pr De Kam's presentation, this project can be described briefly as:

- an incentive tax on energy consumption by the industry ;
- with high concerns on competitiveness addressed by tax rebates preserving the incentive of the tax;
- articulated with voluntary agreements ;
- with little distributive issues, since households were not affected directly ;
- in the general context of a tax reform that had, since 1999, moved from earmarked environmental taxes, to general budget funding, and finally, to re-use of taxes for social policies.

I. The context of ecological tax-reform in France

Eco-taxes have a rather long history in France, since the first water charges in the 60's, to air pollution taxes in the 80's and waste taxes in the 90's. A new step has been taken in 1999 through the concept of « Taxe Générale sur les Activités Polluantes » or TGAP. Its purpose was, in 1999, to unify and to simplify a set of five existing taxes:

- a tax on treatment and storage of special industrial waste,
- a tax on atmospheric pollution,
- a tax on oils,
- a tax on sound nuisances,
- a tax on domestic wastes.

The five taxes integrated in TGAP in 1999 were formerly managed in a decentralised way by a public agency called "Agence De l'Environnement et de la Maîtrise de l'Energie" (ADEME) whose purpose was to finance local authorities' projects. Now the funding of ADEME comes directly from the national budget and this funding is not anymore linked with the revenue of the taxes.

The revenue of the 1999 TGAP was 305 millions Euros.

In 2000, TGAP has been extended to new areas:

- detergents,
- extracted materials (graver),

- pesticides (used in agriculture),
- industrial classified facilities.

The law, dedicated to the funding of the national social security for year 2000, extended the TGAP : first of all, the rates of the existing taxes were increased ; in the second place, TGAP was extended to new sources of pollution; and in the third place, the all income of the TGAP was assigned to the reduction of social contributions paid by employers.

Extension to new products :

- a tax on detergents, every kinds of detergents but the rates depended on their phosphate content
- a tax on extracted materials (graver) ;
- a tax on pesticides used in agriculture. Pesticides are divided into 7 categories according to the toxicological danger they present.

The total revenue of the 2000 TGAP was 440 million Euros. The tax rates and revenues are detailed in Annex 1.

Besides the TGAP-group eco-taxes, one must bare in mind taxes on water pollution, that are collected since 1964. The national territory is divided into 6 watersheds. Each of these watersheds has his own administrative and political organisation. A public body (called « Agence de l'Eau ») decides the establishment and the rates of the fees whereas a representative body of every interested parties (the State administration, the local authorities and the « users ») must approve them.

Finally, the eco-tax system should be analysed within the broader energy-transport tax system, including the excise duties, which were the following at the time of the project (in Euros / Ton of Carbon):

Combustible / carburant	**Tax 01/2000 in € / TeC**
Supercarburant	973,84
Supercarburant sans plomb	897,16
Gazole	558,57
GPL carburant	118,15
Fioul domestique	114,79
Fioul lourd <2%	23,78
Fioul lourd >2%	29,42
Gaz naturel carburant	135,22
Gaz naturel industriel	21,19

II The 1998-2000 carbon-energy tax project

At the national level, the energy tax project was part of the previous ecological tax reform initiated in 1999. The government decided on the 20th of may 1999, after consultation with the different administrations, the principle of a new energy tax which was to be implemented in 2001. This decision was presented as the consequence of the French commitment in Kyoto's agreement. According to this agreement, France must reduce its emissions of green house gases to the level reached in 1990. This energy tax should have been on industrial consumption and its revenue (as the one of the other taxes included in TGAP) affected to the social contributions' reduction.

In the "*Programme National de Lutte contre le Changement Climatique*" (National Programme Against Climate Change) issued in January 2000, the eco-tax contribution to the reduction of GHG emissions was expected to be about 30% of the necessary reduction (16 Million tons of carbon) to cope with the Kyoto agreement and burden sharing. The rate of the energy tax according to the program should have been progressive, from *23 to 30 € per ton of carbon in 2001 and the first following years to 76 € in 2008-2010*. The programme also included the possibility to introduce tax relieves or reduction for energy intensive industry. Those arrangements should have been adjusted with the implementation of tradable permits.

After the White Paper published in July 1999, two working groups with the industry issued proposals in the first semester of 2000, and a joint preparation by the ministries for finance and industry, and for environment, finally elaborated the project, that was submitted to the parliament in fall 2000.

The scheme was a tax on tonnes-equivalent-oil used as intermediate consumptions of energy of firms whose consumption exceed 100 tons equivalent oil per year. Households were not covered. 40000 firms were to be taxed (out of a total of 2,8 million except agriculture). Agriculture, fishing, forest industry, administrations and the transport sector were exempted. New firms were exempt also during their first year of activity. Energy production should have not been taxed, neither energy used for heat production.

Fossil energies were to be taxed according to their carbon contents, on the level of 40 Euros per ton of carbon equivalent. Electricity production was to be taxed according to a predetermined content of carbon. Energy intensive firms (more than 50 MTEP per 150 000 Euros of added value) were eligible to tax reductions providing they negociated voluntary agreements with the administration. The design of this tax reduction, which was central in the discussion in parliament, is described below. The tax rates were the following:

Table: TGAP energy rates (December 2000 project)

	Rates in Euros
HTS Fioul	33.54 / 1000 l.
BTS Fioul	33.54 / 1000 l.
Domestic Fioul	28.81 / 1000 l.
Coal	26.53 / t.
GPL (for heating)	31.71 / t.
Industrial natural gas	1.98 / MWh PCS
Industrial electricity	1.98 / MWh

The expected revenue of this tax was 0.6 milliard Euros.

III Competitiveness

III.1. A brief assessment of competitiveness issues

The preparation process has raised the issue of competitiveness, put forward by many sectors, as early as 1998. However, it appears that the situation of various sectors is quite different towards competitiveness issue, which can be broken in two parameters : energy intensity and openness to international markets. On this last point, one should distinguish however, the issue of competition on the European market, which is supposed to be addressed by the burden sharing, implicitly setting a uniform

value of carbon throughout Europe, the annex 1 countries, whose commitment to Kyoto also sets a value for carbon, and annex 2 countries. The following table characterises the French branches according to their openness to competition :

Hardly opened	Little opened	Opened	Very opened
Printing, press	Wood, furnishing	Textile, clothing	Aviation and ship building
Agro-food industry	Paper	Mechanical constructions	Leather, shoes
Building materials	Rubber, plastic	Iron minerals and steel	Chemistry
Steel transformation	Glass	Non iron minerals and metals	
	Parachemistry and pharmacy	Electronic and electric devices	

Among sectors, industry shows a significantly higher energy intensity than other sectors.

Energy intensity (TeO / MEuros value added)	
Industrie	7,3
Tertiaire	0,8
Agriculture	2,4

Among industrial sectors, differences appear even larger :

Sector	**TeO/M EurosVA**
Minerals extraction	37,0
Steel	70,7
First transformation of steel	19,0
Non iron metals	36,2
Miscellaneous minerals	24,5
Cement	36,7
Other building materials	8,3
Glass	15,8
Fertilisers	62,0
Other mineral chemistry	31,8
Plastic production	33,6
Organic chemistry	14,1
Synthetic fiber	22,8
Para-chemistry and pharmacy	1,2
Electric and electronic devices	4,7
Automobile and transport equipment	1,0
Shipping and aviation	1,6
Steel works	2,2
Mechanical construction	1,9
Textile, leather, clothing	3,8
Paper	20,1
Rubber	4,4
Plastic transformation	4,8
Miscellaneous	2,90
Agro-food industries	5,03
Total industry	**7,32**

III.2. Addressing competitiveness issues

Addressing competitiveness issues with differentiated tax schemes would have led, in theoretical terms, to a "first best" system where tax rates would have been linked to the elasticity of demand, on the basis of a "Ramsey" pricing.

However, more practical considerations have led to imagine a system in which the marginal tax rate would be preserved, and competitiveness issue would be addressed through a "lump-sum" system of tax base reduction. This tax base reduction couldn't, for practical reasons, be designed by sectors (sectoral statistical identifiants have hardly legal value for discriminatory treatments), and was computed after the individual firm's energy intensity, in order to limit the "revenue" effect of the tax to 0,3% of value added.

Tons oil equivalent per million francs of added value (A)	**Tax reduction (coefficient to 1)**
From 25 to 50 tons oil equivalent per million francs of added value	0,02 X (A – 25)
From 50 to 100 tons oil equivalent per million francs of added value	0,5 + 0,006 X (A – 50)
From 100 to 200 tons oil equivalent per million francs of added value	0,8 + 0,001 X (A – 100)
From 200 to 400 tons oil equivalent per million francs of added value	0,9 + 0,00025 X (A – 200)
From 400 tons oil equivalent per million francs of added value	0,95

1 Euro = 6,55957 Francs

This system led to a more homogenous "revenue" effect on sectors:

Sector	**Tax reduction**	**Tax / Value added**	**Tax / costs**
Minerals extraction	0,9109	**0,21%**	0,17%
Steel	0,9500	**0,41%**	0,12%
First transformation of steel	0,8249	**0,27%**	0,10%
Non iron metals	0,9096	**0,16%**	0,03%
Miscellaneous minerals	0,8612	**0,27%**	0,16%
Cement	0,9103	**0,39%**	0,32%
Other building materials	0,5326	**0,35%**	0,17%
Glass	0,8043	**0,30%**	0,21%
Fertilisers	0,9500	**0,53%**	0,12%
Other mineral chemistry	0,9272	**0,17%**	0,09%
Plastic production	0,9052	**0,27%**	0,06%
Organic chemistry	0,7580	**0,33%**	0,13%
Synthetic fiber	0,8496	**0,22%**	0,06%
Para-chemistry and pharmacy	0,0000	**0,09%**	0,04%
Electric and electronic devices	0,1219	**0,28%**	0,22%
Automobile and transport equipment	0,0000	**0,07%**	0,06%
Shipping and aviation	0,0000	**0,10%**	0,04%
Steel works	0,0000	**0,15%**	0,04%
Mechanical construction	0,0000	**0,13%**	0,08%
Textile, leather, clothing	0,0087	**0,30%**	0,13%
Paper	0,8324	**0,25%**	0,10%
Rubber	0,0889	**0,29%**	0,18%
Plastic transformation	0,1450	**0,22%**	0,11%
Miscellaneous	0,0000	**0,18%**	0,07%
Agro-food industries	0,1620	**0,35%**	
Total industry		**0,22%**	
Services	0,0000	**0,05%**	

This tax rebates for energy intensive industries (more than 50 ToE for 150 000 Euros of added value) was linked to the obligation to negotiate voluntary agreements with the administration. However, negociated agreements were not merely the counterpart of tax base reduction, they were also rewarded by additional tax reductions, according to the amount of carbon emissions reduced within the voluntary agreement. The price of carbon within the negociated agreement was proposed to be twice the one in the tax system (80 Euros), and the parliament raised it to 3 times the carbon tax.

Voluntary agreements were designed in order to cope with the "traditional" information asymmetry between the firm and the administration. A reference situation should first be approved by the administration, as a "business as usual" scenario for 5 years, taking into account individual situations and references in the sector. The reference situation was to be certified, to the expenses of the firm, by an independent expert under the conditions fixed by decree. Then, any annual carbon emission reduction from the reference scenario would be rewarded, ex post, through an annual reimbursement of tax, to the firm.

All carbon emissions, i.e. energy consumption, were, within the tax system and the voluntary agreement system, were to be declared by the firm, as an annex to their value added tax declaration, and could be controlled by fiscal authorities.

IV. Consultation process

The Prime Minister had fixed very early the framework of the discussion (an energy tax on industries excluding households). Then, the consultation process logically concentrated on a administration – industry relationship.

A first consultation was organised by the fiscal and the environmental administrations during summer 1999 in order to precise the design of this energy tax. The first part of this consultation, from July to October 1999, was a "public consultation" with 22 questions, organised on the basis of a *White Book, to* which every concerned actor was invited to answer :

- on the taxation method: according to the White Book, a classical system (a system of excises) as for tobacco and petrol was preferable; producers and importers should have been taxed;
- on the basis of the tax: the white book recommended that households energy consumption's should have been excluded. But some questions were left open like whether to tax or not the energy used in the energy production processes, the administration consumption, the question of renewable energies
- on the tax rates: the rates had to be sufficient to favour the reduction, but first of all, the substitution of energies
- on the treatment of energy intensive industries. Three solutions were submitted to discussion: tax relieves, tax reduction or tradable permits.

The point under discussion was still at the time the way to tax industrial energy consumption and especially *energy intensive industries*. After the consultation (organised on the basis of the White Book) two committees, composed of civil servants and industry representatives, went on working on the issue.

The first group looked into conditions of implementation of an energy tax on industrial consumption with regard to impact on competitiveness; environmental efficiency; judicial security; administrative management complexity.

The second group assessed the mechanisms of providing incentives to green house gas reduction (voluntary agreements or tradable permits) in energy intensive industries.

Each of those groups had to formulate and to assess various scenarios.

The first group formulated 11 scenarios, from taxation without any exoneration to taxation with total exoneration. According to the four criterions, two scenarios were considered as particularly relevant: taxes on non-process uses of energy (e.g. lighting, cooking, hot-water production, heating, low-voltage electricity), coupled with voluntary agreements and tradable permits to deal with high energy intensive processes.

The second group concluded that tradable permits (rather than voluntary agreements) would be suitable to complement taxation. Voluntary agreements generated, according to the report, too many problems of implementation (information unequally shared between public authorities and firms; modes of negotiation with small size companies, etc.). On the contrary, a tradable permits market allowed to reduce

the economic and administrative costs. The group of experts formulated 6 scenarios taking into account the different possibilities to link exemption and/or reduction of a CO_2 tax with the two system of flexibility.

During the consultation process, representatives from the industry have played a major role, namely *Entreprises pour l'Environnement,* which is a group of 41 major firms. Industry representatives have, in short, mainly put forward voluntary agreements and argued that they should be linked to tradable permits. This raised the issue of initial allocations of tradable permits and the link between a "negociated" phase of allocation on one hand, and the environmental effectiveness and cost-efficiency of a tradable permit market on energy intensive industry on the other hand.

As a conclusion, the consultation process mainly concentrated on a administration – industry relationship, whereas "experts" (economists, lawyers), consumers and tax payers, and NGO's were mainly out of the technical debate. Besides, technical constrains on the tax design (limited effect on value-added on sectors, equity towards taxation, exclusion of households, need for efficient negotiated agreements), led to a quite complex system. This consultation features and technical complexity might have led to some lack of shared expertise and consensus about the final project, and underline the need for proper consultation forum, probably based on the experience of green tax commissions.

I) - ASSIETTES ET RECETTES DE LA TGAP EN 2000.

Assiette	Tax rate (€/t)	Revenues 2000 (M€)
AIR		**26,68**
Oxydes de soufre	*38,11*	
Acide chlorhydrique	*27,44*	
Protoxyde d'azote	*57,17*	
Oxydes d'azote	*45,73*	
Composés organiques volatiles	*38,11*	
HUILES et PREPARATIONS LUBRIFIANTES	*38,11*	**25,46**
DECOLLAGES D'AERONEFS		**10,37**
Aérodromes du groupe 1	*10,37*	
Aérodromes du groupe 2	*3,81*	
Aérodromes du groupe 3	*0,76*	
DECHETS MENAGERS ET ASSIMILES		**226,39**
Décharges de déchets ménagers	*9,15*	
Décharges de déchets ménagers (hors périmètre du plan d'élimination)	*13,72*	
DECHETS INDUSTRIELS ET SPECIAUX		**25,76**
Déchets industriels spéciaux en centre d'élimination	*9,15*	
Déchets industriels spéciaux en centre de stockage	*18,29*	

Assiette	Tax rate (€/t)	Revenues 2000 (M€)
PREPARATIONS POUR LESSIVES		**75,27**
teneur en phosphates < 5% du poids	*71,65*	
teneur en phosphates comprise entre 5 et 30% du poids	*79,27*	
teneur en phosphates >30% du poids	*86,90*	
PESTICIDES*		**18,29**
Catgéorie 1	*0*	
Catégorie 2	*381,12*	
Catégorie 3	*609,80*	
Catégorie 4	*838,47*	
Catégorie 5	*1067,14*	
Catégorie 6	*1372,04*	
Catégorie 7	*1676,94*	
GRAINS MINERAUX NATURELS	*0,09*	**16,62**
INSTALLATIONS CLASSEES		***19,82***
Artisan n'employant pas plus de deux salariés	*442,10 €*	
autres entreprises inscrites au répertoire des métiers	*1067,14 €*	
autres entreprises	*2225,76 €*	
Tarif de base d'exploitation	*335,39 €*	
TOTAL RECETTES		**441,95**

COMMENTS ON THE DISCUSSION PAPER:

Prepared by Andrew Field
HM Treasury, UK

(Paragraphs in *italics* are quotes from the discussion paper.)

Competitiveness implications

54 Please review and assess how your country has addressed international competitiveness concerns for major environmentally related taxes now in place. Discuss what political and administrative considerations have motivated policymakers to opt for measures currently in place to address such concerns. Have environmentally related taxes been blamed for any significant plant closures and/or relocations? Flag any environmentally related taxes under serious consideration, over the last five or ten years, that were not adopted, mainly or solely for competitiveness reasons.

The UK has introduced two major new environmental taxes in the last two years – the climate change levy in 2001 and the aggregates levy in 2002. Both of these were designed in order to avoid adverse effects on the international competitiveness of industry.

Climate change levy

The climate change levy (CCL) is a tax on electricity, gas, coal and liquefied petroleum gas (LPG) used by the business and public sectors. The rates of levy are approximately equivalent to the following (in common units):

- Electricity 0.43 p/kWh
- Gas and coal 0.15 p/kWh
- LPG 0.07 p/kWh

The levy is a 'downstream' energy tax, applied at the point of supply of energy to end users in these sectors. It does not apply to energy used for non-fuel purposes or fuel used in 'dual-use' applications where the principal use is as a chemical reactant but heat is also given off as a by-product.

The levy is expected to raise approximately £1 billion revenue per year. This is recycled back to the non-domestic sector through:

- a 0.3 percentage point cut in employers' National Insurance Contributions (social insurance payments);
- a scheme of enhanced capital allowances (tax incentives) for investments in qualifying energy efficiency measures; and
- support for advice on energy efficiency and development of new low-carbon technologies through a new Carbon Trust, and support for renewable forms of energy.

Firms in energy-intensive sectors of industry which carry out activities covered by the Integrated Pollution Prevention and Control Directive are eligible for an 80% discount in the rate of levy if they enter into an agreement to meet energy efficiency targets. This arrangement has been approved by the European Commission as a state aid for a period of ten years. The levy package also contains a number of other discounts or exemptions:

- an exemption for most forms of renewable energy (except for large-scale hydro-electricity);
- an exemption for fuel used by good quality combined heat and power systems;

- a temporary five-year exemption for natural gas in Northern Ireland, to aid the development of the gas network there;
- a temporary five-year 50% discount for the horticulture sector.

The UK Government has recently proposed some further amendments to the levy:

- an exemption for all electricity produced by good quality combined heat and power systems or from coal mine methane (subject to EU state aids approval); and
- an exemption for energy used in certain secondary recycling processes which compete with primary processes that benefit from the non-fuel use or dual-fuel use exemptions.

The levy package as a whole is expected to be revenue neutral to the private sector as a whole, and broadly neutral between industry and services. However, the effect on individual companies depends on a range of factors including their energy efficiency, their labour costs, and the extent to which they take advantage of the opportunities for assistance with energy efficiency investments and their use of levy-exempt forms of energy.

One of the most important features of the levy package is the 80% discount for energy-intensive sectors, provided they agree to energy efficiency targets. The discount reflects the exposure of these sectors to international competition and the effect which the levy would have on their costs if it were applied at the full rate. However, these sectors must still improve their environmental performance as a result of the energy efficiency targets which they have agreed to. They also pay levy at a residual rate of 20% and this provides an additional marginal incentive to improve energy efficiency.

The negotiated agreements and targets were approved by the European Commission as part of the state aid approval process. The agreements contain targets every two years and if sectors or firms fail to meet their targets they will revert to paying the full rate of levy for the following two-year period. Participants can engage in emissions trading as one means of meeting their targets if they fail to meet them through their own efficiency improvements. This allows participants to make emissions savings at the lowest cost.

Aggregates levy

The aggregates levy is a tax on the commercial exploitation of virgin rock, sand and gravel for aggregate uses. It applies at a uniform rate of £1.60 per tonne and was introduced in April 2002. The levy is expected to raise approximately £305 million in 2002/03. The aim of the levy is to encourage more efficient use of aggregates and greater use of recycled construction products and other forms of waste such as waste tyres in place of virgin aggregate.

The rate of the levy was set following a contingent valuation study to identify the environmental costs of aggregate extraction. These costs include noise and dust as well as damage to biodiversity and visual amenity. The revenue from the levy is recycled to all of the non-domestic sector through a 0.1 percentage point cut in employers National Insurance Contributions (social insurance payments). £35 million per year will also be used for a new Sustainability Fund, which will support projects to develop alternatives to using aggregates, and to reduce the environmental impact of aggregate extraction.

The levy is applied to imported aggregate, while exports are relieved. These arrangements do not apply to aggregate in processed products (eg concrete products or asphalt). However, international trade in

these products is small, and the value of the levy is relatively low in relation to the value of the products themselves.

The levy is therefore expected to have limited effect on international trade in aggregates. However, there is an exception to this in Northern Ireland, along the land border with the Republic of Ireland. Here, there are many small quarries within about 30km of the border which might be under threat of competition from the Republic as a result of imports of processed products unless they had a greater period of time to adapt to the levy.

Consequently the UK Government has introduced a five-year degressive relief for aggregate used in processed products in Northern Ireland. The rate of levy for aggregate used for these products is zero in the first year, and will rise in 20% increments to the full rate over the next five years. This relief has been approved as a state aid by the European Commission.

Impacts on competitiveness

Neither the climate change levy nor the aggregates levy have been identified as having caused any significant plant closures or relocations. However, both taxes are cited by business as causing competitiveness pressures for certain sectors of industry, along with many other factors which affect business costs.

There are no other taxes which the UK has not adopted over the last five years because of competitiveness reasons. The other principal environmental tax which has been considered during this period is a possible tax on pesticides. The UK Government decided in 2001 that it would not go ahead with this, as the industry proposed a voluntary package of measures as an alternative which the Government decided would achieve similar environmental improvements as a tax.

State aids

When introducing environmental taxes which affect business, it is possible to reduce the impacts on competitiveness by recycling the revenue back to business through reductions in other taxes. There is no difficulty with doing this if these tax reductions apply equally to all the relevant taxpayers. However, if reductions are targeted at specific sectors, they will be likely to qualify as state aids. In the case of EU member states, any such state aids will need to be approved by the European Commission, and will be assessed by the Commission against the criteria set out in the guidelines on aid for environmental protection.

55. An option is that countries give up some of their autonomy in tax matters for the common goal of tackling environmental challenges more effectively. Please explain and discuss the obstacles that must be overcome in the case of your country to achieve greater effective international co-operation in matters of environmentally related taxes.

The UK Government recognises that tax is potentially an important policy instrument for addressing environmental issues, such as those raised by energy use. For example, the UK has recognised the economic and environmental benefits in taxing energy use in certain circumstances through its introduction of the climate change levy on the business use of energy in April 2001. For energy, the Government believes that there is a case for a common EU framework for the taxation of energy used by business. However, it believes that the framework should take the form of minimum rates of tax on energy used by business, rather than specifying the rates that member states should use.

The UK Government also remains opposed to the introduction of new taxes on energy used by households given the importance it attaches to addressing fuel poverty in the UK, and would therefore not support any proposal for a common EU framework that would require an increase in household energy taxation. The UK continues to play a constructive part in the negotiations on the proposed Energy Products Directive on this basis.

The UK also encourages other countries to introduce environmental taxes where there is a good economic and environmental case for doing so, and is willing to learn from the experiences of other countries in introducing environmental taxes. But the UK Government would not support proposals to give up any autonomy in tax matters.

56. Potential job losses are also cited as an argument to continue the application of environmentally harmful subsidies. Please review what considerations have motivated policymakers to introduce and continue the more important of these subsidies in your country until now. Discuss how a reduction of these subsidies might be achieved with limited negative impacts on employment.

The UK has a good record in reducing environmentally harmful subsidies. State aid is among the lowest of EU member states.

Distributional implications

58. Please describe and discuss how your country has addressed income distribution concerns for major environmentally related taxes now in place. What political and administrative considerations have motivated policy-makers to opt for mitigation and/or compensation mechanisms currently in place? Flag any environmentally related taxes under serious consideration that, over the last five or ten years, were <u>not</u> adopted, mainly or solely because of income distributional concerns.

The UK has not introduced any environmentally-related taxes which directly affect the domestic sector. For example, the climate change levy does not cover the domestic sector, given the UK government's objective of not introducing new taxes on domestic energy use and its commitment to addressing fuel poverty in the UK.

The UK government also reduced the rate of Value Added Tax (VAT) on domestic fuel and power from 8% to the minimum allowed level of 5% in 1997.

59. Please comment on the conclusion of this paper that lump sum compensation through the tax and benefit system is to be preferred over mitigation measures in the environmentally related tax itself (exemptions from tax base, reduced or zero rates), because the latter reduce the price signal and thus the environmental effectiveness of the tax.

A lump sum compensation mechanism may well be the most efficient mechanism for ensuring that the price signal of a tax applies to all units of consumption while compensating for the effect of the tax but it is not possible to base any comments on practical experience within the UK.

60. Please comment on the conclusion that lump sum compensation through the tax system will generally (1) lead to a greater number of households being compensated and (2) prove to be more cost-effective, given that the revenue service runs the most complete administration, unless the compensation is procured directly by the provider of the taxed product (energy) or service (waste collection and handling).

61. Do you agree that lump sum compensation in the form of non-wastable tax credits against personal income tax offers the best guarantee that all qualifying households are compensated for the environmentally related tax?

Lump sum compensation in the form of non-wastable tax credits may offer the best guarantee that all qualifying households are compensated. However, there may be complications in using this approach where personal income tax is assessed on an individual basis, as in the UK. A mechanism would also need to be in place to pay tax credits to those whose income falls below the thresholds at which tax begins to be paid.

For discussion: The way forward

63. What kind of internationally co-ordinated and concerted action could be implemented to help overcome the competitiveness obstacle?

64. What type of action – and at what level – should be given priority?

The UK Government's position is summarised in the response to the question in paragraph 55.

The UK remains willing to share experiences on environmental taxation with other countries, and is interested to learn of initiatives being proposed by others.

COMMENTS ON THE DISCUSSION PAPER:

Prepared by John Hontelez
European Environment Bureau

Introduction

The EEB very much welcomes the work of the OECD on Environmental Fiscal Reform (EFR) and the organisation of this conference.

Governments are very sensitive to the industry's arguments for preserving economic performance and job creation against any new environmental policy constraint, particularly taxation (but this reality applies too to regulation and legislation). This is what the OECD refers to as *the fear of reduced international competitiveness* (quoted as a "major obstacle"). As a result, and in the light of the lack of minimum harmonisation of energy taxes at EU level, European countries that have started implementing EFR granted important tax rebates or refunds to energy intensive industries. These rebates (or sometimes total exemptions) cause a problem of equity with other socio-economic sectors affected by the taxes (such as households), and considerably weaken the scope of EFR in its primary objective, environmental protection.

On the other hand, to a larger extent in some countries than in others, politicians and governments are sensitive too to the impact environmental taxes can have on household's purchasing power. *Income distribution concern* is the second perceived political obstacle against the introduction of strong EFR.

Business is generally vehement against EFR, many times without considering carefully all its effects. In "EFR", there is not just "Fiscal" (with the implication of increased taxation), there is also "Reform" (and, of course, "Environmental"). Yet, EFR, as a pragmatic economic instrument, is a business friendly policy tool to address environmental challenges such as climate change, pollution and the depletion of natural resources.

Households, through home energy bills and private transport, contribute significantly to paying the environmentally related taxes. For equity principle and environmental effectiveness, it is important that business proportionately contributes equally and thus that undue tax exemptions are removed. A comprehensive fiscal reform, with accompanying social allowances or other instruments, can easily offset any regressive impact on lower income households.

We welcome the fact that the OECD includes the removal of environmentally harmful subsidies as part of an environmental fiscal reform. The EEB has pursued the same logic and has included this demand to its EFR campaign, as we believe fiscal reform should encompass all aspects of taxation that have an impact on the environment.

In its campaign for Environmental Fiscal Reform, the EEB wants to show the significant benefits, mainly environmental, but also economical and social, that can be drawn from EFR.

Our position is formulated within the larger perspective of Environmental Fiscal Reform[21] rather than just environmentally related taxes.

[21] Tax shift from labour to environmental use, removal and reform of environmentally adverse subsidies, accompanying social measures, fiscal incentives for energy efficiency measures and for environment protection.

I. The fear of reduced international competitiveness

EEB Responses to the "competitiveness argument"

Some of the effects of EFR on particular sectors must be taken into account. However, the stubborn opposition of industrial lobbies to EFR is sometimes more emotional or ideological than rational. EFR is about reforming the tax system, not about increasing the overall tax burden. Many business sectors will actually benefit from the Reform.

a. Two main contra-arguments

Two main arguments to oppose the competitiveness argument are :

- **fiscal neutrality and tax shift**: presenting EFR as "increased taxation" is not correct. One of the main ideas behind the concept of EFR is fiscal neutrality. The revenue coming from new ecotaxes is used to decrease other taxes, preferably labour. The whole operation is revenue-neutral. There is no increase of the overall tax load, but a **shift in the tax base**. European countries with the most advanced EFR (Sweden, Denmark, Netherlands, Germany) have respected this principle, which is very important for the public and industry's acceptability of the fiscal reform.

  Figures indicate that on average, in the EU, environmentally related taxes amount to only 7% of total tax revenue, while taxes on human effort (social insurance contributions, income, VAT, profit etc…) represent 85% (OECD 1996). EFR is not about increasing general taxation: it is about shifting the tax base, in order to benefit both the environment and employment.

- **double dividend**: another essential concept is the double-dividend. The tax shift favours both the environment (by increasing taxes on natural resources) and employment (because the tax revenue is recycled towards the reduction of labour taxes). **Business directly benefits from cuts in social security contributions.** This is already a source of compensation for industry against higher energy bills. In Germany, after the first phases of EFR, pension contributions decreased (half for employers, half for employees): total social contributions went from 42.3% to 41.5% of wages[22]. The plan of the next phases is to get under 40%.

It is true that, although business as a whole will not lose out from EFR, the tax shift may produce winners (labour intensive sectors) and losers (energy intensive industry). But many business sectors will actually **gain** from EFR: all those sectors (services, electronics etc…) for which savings on social contributions will exceed extra energy tax costs.

In services, for instance, a sector that represents **over 50% of the EU GDP**, a German study[23] foresees an increase in output of 0.27 % and of employment of 1.29% in 2003, compared with the "non-

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22 On the 1st January 2002, as in every year since the introduction of ETR in 1999, motor fuel tax rose by euros 0.03 per litre, while electricity tax went up by euros 0.01 per kilowatt hour. As a result, an additional euros 1.94bn will come off employers' social security contributions in 2002.

23 *The effects of Environmental Fiscal Reform in Germany: a simulation study* (2001) www.gws-os.de or www.ecotax.info/DIWstudy.pdf by the DIW Institute, the University of Osnabrück and the GWS, and the University of Oldenburg

reform" scenario. A 1999 Danish study (Finance Ministry, 1999) and simulation "Evaluation of green taxes and industry" that assesses the Danish tax-shift package from 1995 until 2005 found that, for services, the gross results in fixed prices could be up 0.12 % in 2005[24].

Energy intensive industries may suffer some income losses. Yet, taxation is only one of many investment factors. Capital, skills, infrastructures are other determining investment considerations that can offset increase in taxation. Also, pollution abatement can be cost effective : increasing energy productivity, with a medium term trend of inevitable energy price increases, will give a competitive edge to industries that start doing the abatement now.

b. Mitigation measures

Many **mitigation measures** can be taken by governments to address any potential short-term competitiveness loss for energy intensive industries:

- These can include tax rebates. The EEB recommends only transitional tax rebates for few industries against firm commitment to cut energy use and pollution. However, too large exemptions deprive EFR of its main goal of reducing energy use and pollution, in some of the sectors where precisely big energy savings can be made[25]. This is why the EEB insists rebates and refunds should therefore be only temporary and limited, with the idea of just easing the transition for firms towards cleaner technology investment. They should be linked to clear commitments from beneficiary firms of voluntary actions to cut greenhouse gases emissions. Tax rates should gradually be brought to the full rate during such a transition period.

- A **gradual implementation** of EFR (with early policy announcements) is necessary to allow companies to adapt and invest in new technologies. Policy consistency is important too. All EFR countries adopted this phase-in approach, often with yearly tax increases over a planned period.

- **Regional aid policies** can help regions that concentrate energy intensive industries. Fiscal incentives for research and development can assist these industries in investing in cleaner technologies. These measures may actually be easier to take regarding EU state aid legislation than continued energy tax exemptions that seem to bring about more and more wrangles between the Commission and Member States. The funds of environmentally harmful subsidies can be re-directed towards economic and social programmes in affected regions. For instance, coal subsidies funds should be spent towards the inevitable re-structuration of the coal mining industry (economic and social programmes, training etc..) instead of going to the loss-making mining business.

24

	Changes in Employment (whole economy)	Gross results (services)	CO_2 emissions
1996	-0,3	-0,05	
1998	-0,3	-0,02	
2000	0,9	0,04	
2003	1,6	0,02	
2005	2,6	0,12	-5 to -10%

25 Moreover, these rebates cause a problem of equity with other socio-economic sectors affected by the taxes (such as households, transports, SMEs). And the complexity of these national exemption systems now makes EU harmonisation even more difficult.

- Another important mitigation possibility is international, or at least regional, **harmonisation.** In a world increasingly open to foreign trade and competition, firms would face similar environmental tax constraints if new energy/ carbon taxes were introduced in a co-ordinated manner, at least, to start with, in OECD countries. In this respect, the EU situation can be read in two ways. A pessimistic reading would underline the difficulties to get any minimum harmonisation, even inside an already rather integrated group of countries. An optimistic reading would highlight the way European countries have immensely influenced each other in the development of EFR, resulting in a world lead in EFR experiments. The EEB lobbies EU Finance Ministers so that they agree on the EU common framework for energy taxation. The EEB has also consistently called on EU governments to surrender part of their sovereignty in tax matters, so that Qualified Majority Voting in Council is extended to fiscal dossiers such as energy taxation that have a clear link with environment protection. The EEB supports the OECD views that *co-ordinated implementation* would ease the process of introducing green tax reforms for all governments and calls on the OECD to increase the exchange of information and best practises, not just at the level of environmental administrations (EPOC), but also in the economic and taxation Committees.

c. Other contra-arguments against the "competitiveness argument":

- One of them comes from the fact that EFR pushes firms to invest in cleaner technologies in order to save on energy taxes. **Development of R&D increases the overall competitiveness of firms in the medium to long term.** R&D pushes innovation that eventually gives a competitive edge to products and companies.

The potential competitiveness gain can indeed be illustrated by the fact that, inside the EU, countries with higher environmental regulations and taxation have never lost their innovative edge, in term of products, to countries that compete on more lax regulation and lower wages. On the contrary: Denmark, one of the leading countries in terms of EFR and renewable energy[26] development, is today the world's leading producer of wind turbines. A study estimated that the total employment effect of greening the Danish economy amounts to 28000 new jobs[27].

In Sweden too, another EFR frontrunner, a survey[28] has recently shown that environmental technology and services could become Sweden's "next major export industry". The investigation, carried out by the Swedish trade council and a network of 500 consultancies and suppliers working in water and waste treatment, waste management and air pollution control, estimates export revenues in 2000 at SKr8bn (Euros 847m), or 1% of total national exports.

In 2001, the German Environmental Protection Agency revealed that eco-employment now represented 3.6% of the entire workforce. According to consultants Prognos, climate policies, that include EFR, should for instance create 90000 new jobs in the construction sector by 2005, thanks to the new demand for energy efficiency equipment and public transport. Such activity boosts will compensate potential losses in other sectors and will give a competitive edge to Germany in a sector, energy efficiency, that has important future potential development.

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26 Renewable energies are exempted from new EFR energy taxes.

27 SID, *General Workers Union*, 1995.

28 See Swedish environmental technology network www.swedentech.swedishtrade.se.

- By saving on energy consumption, industry in the end will save not only on tax, but also on energy consumption. Total energy bills may therefore go down, in relative terms, in the longer term.

- Cutting on energy consumption and pollution will improve the business image of industry.

- Regarding energy prices, industry should also be reminded that it has always benefited from very advantageous prices. Often stemming from governments' industrial policy when most electricity suppliers were still state-owned, these **low prices** are not justified by mere bulk purchase discounts. They amount to true energy subsidy. Figures indicate that average EU electricity prices were 5.4 US $ cents per kWh for industry in 2000, compared to 12.5 for households[29]. Moreover, the price decrease trend of the nineties is much stronger for industrial prices than for household prices. In the EU, this trend is pushed further by the liberalisation of energy markets.

Also, energy prices have fallen in real terms since the 50's and do not reflect the scarcity of fossil fuels in the short to medium term.

- It must never be forgotten that the primary aim of EFR is to move towards a better internalisation of environmental external costs: therefore the savings[30] thanks to **external costs reductions** must be taken into account too. In the end, even the industry will benefit from a better quality of life, the reduction of external costs and a more sustainable development.

- EFR can be the opportunity for a large **reform of the fiscal system**, making it more modern and more efficient. In Sweden, Denmark, the Netherlands, and Germany, governments have implemented EFR within an overhaul of the taxation system. The fiscal system usually comes out of these reforms more business-friendly. Countries that suffer from high tax evasion may take advantage of EFR to increase indirect taxation, which is more difficult to evade.

- Environmental taxation will allow to make savings on regulation and its costly administrative costs. The more ecotaxes, the less need for anti-pollution regulation and legislation.

EEB conclusion on the "competitiveness argument"

Politicians, governments and business should not get intimidated by the loud voice of the strong and well-established lobbies of heavy industry. The latter know very well how to influence politicians with the « competitiveness », and therefore the « job argument ». Yet other essential economic sectors, such as SMEs and services know little about EFR and how they can benefit from it. The « competitiveness argument » is exaggerated. Most business sectors will benefit from EFR, from the tax shift from labour to natural resources and from the fiscal reform. The change to less polluting economies must happen anyway. But frontrunners, for instance countries that have already started green tax reforms, will gain a competitive edge.

29 IEA 2001.

30 The amplitude of which naturally depends on the scope of EFR, but it could be in « billions ».

Should some energy intensive industries be really affected by the new energy taxes, some mitigation measures can apply. But this should not be a reason to generalise large rebates and exemptions to sectors where, precisely, a lot of energy saving can and must occur.

OECD discussion points

55. The EEB would like to point out to governmental representatives that the first action that can be taken to facilitate international policy co-ordination in environmental taxation would to extend Qualified Majority Voting in EU Council to those environmental areas still subject to the unanimity vote requirement, notably for fiscal matters. Heads of governments failed to agree on this agenda item of the December 2000 Nice Summit. But discussions must carry on. Governments know very well that the prospect of the enlargement will require more QMV so that effective decision-making can continue in the Union, particularly in the environmental field. The EEB will call on the Convention for the Future of Europe to consider this point of reform.

Such a move would boost international policy co-ordination. By allowing for minimum harmonisation in the EU (to the benefit of environmental protection, but, also, of single market efficiency), QMV would reinforce the international profile of energy taxation (and even of Environmental Tax Reform[31] at large), thanks to the pioneering role of many EU countries in this policy. If QMV for fiscal matters in environmental policy already existed, the 1997 Energy Taxation directive proposal, in its original version[32], would certainly have been adopted long ago[33], resulting in probable reduction of 2% of EU total CO2 emissions[34].

Outside EU OECD members, we call on non-European members to make a real effort towards more sustainability, and particularly energy sustainability. Road fuel taxes must be increased in Australia and New Zealand and particularly in the US and Canada. Government speeches on sustainable development coming from these countries will have little credibility as long as this minimal step of increasing motor fuel taxes is not taken.

56. It is now widely accepted from a rational economical point of view that production subsidies artificially maintain jobs, at a cost that, if saved or spent better, would help creating much more jobs. Many international and national economists, including the OECD, have long pointed out that the removal of environmentally harmful subsidies, notably in transport, energy and agriculture, not only would improve environment protection, but also increase economic efficiency by abolishing market distortions, thus favouring job creation. The 2000 van Beers and de Moor study estimated at 950 billion US dollars the total amount of environmentally harmful subsidies in the world (of which 325 for agriculture, 225 for transport, 205 for energy etc..). Three quarters of government subsidies occur in OECD countries and this corresponds to approximately 3.6 % of their GNP.

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31 The Commission proposal contains a recommendation to use the tax revenue towards cuts in labour taxes.

32 More ambitious than the version being negotiated now

33 Only a minority of Member States has always blocked the text

34 According to a Commission study Commission working paper "Presentation of the new Community system for the Taxation of Energy Products" 23/05/97 SEC (97) 1026. This 2% cut must be considered also in light of savings in emission increases. Another study (by the Centre for a Sustainable Ecoomy) showed that the 1992 Energy/CO2 tax proposal (now abandonned) would have achieved a 4.4% cut yet in 2001.

The EEB does not take a political stance against subsidies as such. But it advocates the removal of subsidies (direct payments or fiscal rebates) that have a direct negative impact on the environment. In some cases, a reform is better suited than total removal: EU agricultural subsidies can for instance be re-oriented towards organic farming and Good Agricultural Practise. Social considerations must be taken into account too when removing some subsidies, so to avoid important short-term job losses. The removal of coal subsidies for instance, can particularly affect the mining regions. The EEB advocates a gradual phasing out, during which the subsidies funds would be re-directed towards social and economic programmes for those employees and regions hit by the phasing out.

II. Addressing income distribution concerns

Environment protection is the prime objective of Environmental Fiscal Reform, but it can also have important income distribution impacts.

There are fears, sometimes justified, that EFR brings about regressive effects to households, as these will have to bear higher energy bills, which may cut into their purchasing power. Also in some countries, EFR is seen as incompatible with the fight against "fuel poverty".

The EEB is very much aware of this problem, particularly since most EFR countries have put most of the energy tax burden onto households, transport and SMEs, while giving tax rebates to energy intensive industries. This is not equitable, and industry tax rebates must be only temporary.

Moreover, we make recommendations regarding the best revenue recycling options to avoid social regressive effects. These include:

- **reducing social security contributions equally between employees and employers**, as done in Germany. This option offers the advantage of compensating both parts, which brings about more consensus. It can help reducing unemployment thanks to the cuts in labour costs for employers, and it compensates workers for their higher energy bills.

- **concentrating social security contributions' reductions on lower wages**, as in Germany. This helps compensating the disproportionate impact energy taxes (and indirect taxation) have on lower income households.

- cuts in income tax bottom revenue brackets: some countries that do not suffer from high unemployment do not need to prioritise labour cost cuts. They can spend the EFR revenue in income tax cuts, particularly for lower income groups, as was done in Denmark and Sweden.

- for households who do not benefit from lower social contributions or lower income tax (unemployed, students, some pensioners): we advocate, in our main demands, specific social compensation schemes, such as **increases of some social allowances** (unemployment benefit, housing benefit, income support, state pensions, student grants, child allowance)**, tax credits** (lump sum payments)**, or income tax rebates for lower income brackets.** But they must be designed in such a way that these households are still motivated to make energy savings. The link between this social benefit increase and the Environmental Fiscal Reform should be clearly explained so that people also know that they benefit from the Reform.

Tax free allowances should be limited and temporary. We advocate rather tax credits, but no energy tax exemption. Furthermore, tax free allowances based on a consumption floor can favour high

income households too. Incentives for energy savings must remain : this is why the EEB does not recommend energy tax rebates.

Increases in other allowances will compensate households, while maintaining the incentive to save on energy.

The EEB recommends to increase social allowances or to issue tax credits that will compensate in priority non-wage households, such as housing benefit and lump sum payments. In Environmental Fiscal Reform, wage households will indeed be compensated by reductions in social contributions.

These social benefit increases can be implemented in a separate policy. However, if we want to maintain the fiscal neutrality of EFR, the EEB recommends that social allowances are financed by the money saved from the removal of environmentally adverse subsidies that we also campaign for. This removal can save millions in public expenditure.

- In the Netherlands, income distribution is "fine-tuned" every year through the fiscal system (also as shown p.14 of the Conference Issues Paper). Economic and social data, as well as new policies, are taken into account for the annual adjustment of the income tax and the fixing of social allowances. For instance, the introduction of the Regulatory Energy Tax in 1996 was accompanied by income distribution adjustments in income taxation and social policy. The EEB recommends, wherever possible, such adjustments notably also for counter-acting the increase in indirect taxation, that is often "regressive". Many administrations, at the end of the fiscal year, refund excess tax payments to tax payers. Fiscal administrations can refund parts of the energy taxes to the lower income households. **Annual tax refunds** maintain an incentive to save, as individual energy bills are not affected.

- Special allowances to improve housing energy efficiency can also be introduced. In the Netherlands, a big part of the energy taxes is recycled towards **home energy efficiency programmes**. This is coherent both in terms of income compensation and of environmental protection. Furthermore, it establishes a clear environmental link with the energy bill increase.

It also leads in the medium term to savings on the energy tax and bills for households. Low income households and tenants do not always have the necessary capital, motivation or capabilities to cut consumption through investment in energy efficiency equipment. These "energy efficiency allowances" can take the shape of zero rate credits, or grants based on income. Such policy can be a good way for governments for fighting fuel poverty. The energy taxes of the higher income households can be used to improve the quality of the housing stock. When this quality is improved, taxes can be gradually introduced to all households.

- It must not be forgotten that most households will also benefit from the **positive effects of EFR on employment and on the environment**. Studies[35] have shown that, because they are often situated in more degraded areas, lower income households benefit directly from general environmental improvements.

Regarding **fuel poverty**, the EEB recognises the importance of the problem, especially in a country like the UK where the topic (and therefore also the issue of home fuel prices) is politically sensitive. However, fuel poverty should not be used as an excuse for governments not to act on energy efficiency and savings. On the contrary, fighting fuel poverty and ETR can be compatible: part of the ETR

35 Ex: *Unevenly distributed benefits from reducing pollutants* Wüppertal Institute, 1998.

revenue can be used, like in the Netherlands, for home energy efficiency programmes. While their housing is improved, lower income households can be temporarily exempted from the new energy taxes.

Regarding the **increase in indirect taxation**, trade unions and social NGOs fear that EFR will increase the importance of regressive indirect taxation (excise duties etc.). They also argue that the reduction in social contributions is not progressive. Social contributions are not regressive. In most countries, employees pay a fixed part of their income, which mean that the more you earn, the more you pay. On the other hand, social contributions are not as progressive as income tax (of which rate generally increases according to income). Therefore, decreasing social contributions can favour higher incomes more than lower incomes, as the former will save more than the latter.

This could be remedied by increasing the progressivity of social contributions and income tax (adjustments of income and contribution brackets), or by the specific social benefit increases that we advocate for lower income households. Another solution is, as we already saw, to concentrate social contribution cuts on lower wages.

EFR is more efficient when accompanied with a fiscal overhaul, as done in Sweden, Denmark, Germany etc. This overhaul can include a revision of fiscal brackets and of the social contributions scale.

Regarding the impact of EFR on **social security and social policy** : some unions, social and environmental NGOs and political parties fear that lowering social contributions will decrease the social security budget and will have an inevitable effect on social allowances.

But the EEB insists EFR has nothing to do with reducing the social security budget, and even less with reducing social allowances. It is revenue neutral for this budget (as for the state budget). Social contributions are reduced thanks to the transfer of funds coming from the new ecotaxes' revenue. EFR has nothing to do with any weakening of social allowances and social policy.

Countries that have started implementing ETR (Sweden, Finland, Denmark, Netherlands, Germany) have not decreased social allowances. On the contrary, they have increased them in many cases to compensate for the rise in home energy bills (Denmark: cuts in bottom income tax rates, increases in social allowances / Germany: decreases of pension contributions for employees, increases in child benefits, student grants etc…).

Another issue is the **possibility for consumers to switch** to more sustainable patterns of consumption. Indeed, a mere increase of energy and transport taxes without accompanying measures will make the reform unpopular, unpractical and inefficient. If people are asked to use their car less, they must be able to switch to other types of transport. Yet, our societies are increasingly based on car use and there are vast areas where access to public transport is very small, unpractical or non-existent. Many aspects of policy must take this into account (public transport, territory planning etc..). Ambitious public transport policies are essential so that people can switch their mode of transport wherever possible. Measures to encourage a significant shift from road to rail, for passengers as well as for freight, must be put in place.

According to the study by the German DIW Institute and the Universities of Osnabrück and Oldenburg[36], the fear that the environmental fiscal reform might interfere with the goals of social and income-distribution policy is found to be largely unjustified.

[36] *The effects of Environmental Fiscal refrom in Germany: a simulation study* (2001) www.gws-os.de or www.ecotax.info/DIWstudy.pdf

The tax shift alone can have regressive effects. This is why we advocate accompanying measures. Social measures, and the removal or reform of environmentally adverse subsidies, are part of our main demands. These are accompanying measures that we demand for EFR, so to avoid regressive effects and to make EFR environmentally and fiscally more coherent. We call all these demands together **Environmental Fiscal Reform.**

OECD discussion points

59. The EEB agrees that "separated" financial bonuses (a lump sum payment, or increases of already existing social allowances) are better than energy tax rebates or tax-free energy allowances, because the price-signal induced by the tax for energy savings must remain. The purpose of an ecotax is to act as an incentive to save: so, naturally, removing it removes this incentive altogether. Tax rebates and exemptions must be used only at last resort, only in cases where they are unavoidable (*fuel poverty*) and only for transitional periods.

60. The EEB agrees that, regarding lump sum payments, *non-wastable* tax credit is a better option to compensate households than *wastable* tax credits. The EEB campaigns for EFR, that includes cuts in social contributions. Households with wages will be compensated for the increases in home energy bills by cuts in social contributions[37]. We are therefore most concerned with those households that would not get such compensations (unemployed, some pensioners, students etc…). *Non-wastable* tax credits are the best option for lump sum payments, because they would cover all households (and not just those who pay income tax).

They also offer the advantage of being cost-effective, as the revenue administration already has the information on households and revenues. *Non-wastable* tax credits are one of the tools that can be used by the revenue administration to "fine tune" income distribution, as done in the Netherlands.

Another relevant benefit to use as mitigating tool is *housing benefit*. Indeed, in most countries where it exists, housing benefit is distributed mainly to non-wage or lowest wage households. Increasing this benefit is therefore likely to target those households who would not benefit form the cuts on social contributions. Moreover, it is cost-effective: the housing administration already has the information on households and housing. Furthermore, this administration is best placed to link the increases with programmes/education on EFR and energy efficiency.

61. The EEB agrees with this statement to a large extent. However in some countries, such as France, where income tax is not levied directly on wages, and were many households are exempted from income tax (because income tax is only payable above a certain level of net income), the tax credit could miss some households. Many of these households (unemployed, students) may not even declare any revenue any more to the fiscal administration, and yet receive housing benefit.

Increasing housing benefit will target all these low income households.

The way forward

63. The EEB calls on EU governments to extend Qualified Majority Voting at the EU Council to fiscal matters in environmental policy (see p. 6).

[37] Especially when, as we recommend, cuts in social contributions are concentrated on the lower wages.

Further than that, the EEB welcomes the exchange of information and best practises done within the OECD. The EEB calls on the OECD to intensify these outside the EPOC, notably in the economic and taxation Committees. Moreover, we would like to see the debate in the OECD focus on Environmental Fiscal Reform at large, as a full economic environmental instrument, rather than *environmentally related taxes*. This will help increasing the knowledge and impact of this market-based instrument for sustainable development, particularly for OECD members outside the EU.

The EEB welcomes the fact that the OECD included further work on Environmental Fiscal reform and environmentally harmful subsidies in its 2003 Work Programme. The EEB also encourages the OECD to join forces with the UNEP and the UNDP in the demonstration that types of subsidies can be harmful to the environment and to development. Removal and reform of harmful subsidies should be discussed further in the economic and taxation Committees, in a view to push OECD governments to reduce them.

We also insist that non-EU OECD members, particularly Northern American, make more efforts towards implementing concrete tools for climate change policy. Sustainability is a world challenge and more must be done, by all parts, to reduce the energy intensity of the economy. Tax rates on unleaded petrol are 5 to 15 times higher in most OECD countries than in two important other members: the US and Canada[38]. Such low taxes lead to a waste of energy and efficiency, to an over-use of natural resources and do not send the right signal to consumers. We call on the OECD to also foster **policy co-ordination on motor fuel excise duties**, as a base for further co-ordination on EFR.

64. Environmental and sustainability issues require global action. The Kyoto Protocol, although not yet fully in force, showed that environmental global policy-making is possible. What is possible for emissions trading can be applicable for Environmental Fiscal Reform. Natural resources must be used in a more rational way at world level. It is time governments across the planet start using taxation to favour both the environment and employment. Industrialised countries' governments should show the way.

The OECD can also use its presence in Johannesburg at the WSDS to promote international policy co-ordination on green tax reforms and harmful subsidies reform.

The EEB is grateful to the OECD for helping to design the best policy tools for a successful Environmental Fiscal Reform. Some issues, such as effects on income distribution and the fear of competitiveness loss, are still pending. Further research will always be useful. However, this should not preclude any action taking place right now.

The current situation of completely unsustainable production and consumption patterns, of fast depletion of natural resources, and rising pollution, is unacceptable. It is time we make the market work for the environment.

[38] The most extreme example is the tax difference between the UK and the US for unleaded petrol: 14.

COMMENTS ON THE DISCUSSION PAPER:

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The Danish Tax Reforms in the 1990's

During the 1990's Denmark introduced 3 tax reforms, which reduced the taxation on labour and increased the taxation on environmentally harmful behaviour and the use of resources.

1993 Tax Reform

The 1993 tax reform was phased in from 1994 to 98 and concerned mainly households. The main features of the 1993 tax reform were a gradual reduction in marginal tax rates on personal incomes, an increase in existing green taxes and introduction of new green taxes.

The existing green taxes were increased sharply in the 1993 tax reform on fossil fuels (petrol, diesel and coal), electricity and waste. The new green taxes introduced in the 93-tax reform were on piped water, wastewater and plastic and paper carrier bags.

The increase and introduction of green taxes were broadly offset by a gradual reduction in the tax on personal income. There were introduced compensations for persons with low incomes who could not be sufficient compensated by the tax reduction. Families with children got an increase in the family allowances. Pensioners, students and recipients of cash benefits were also ensured compensations for the green taxes.

The impact of the tax reform in the total change in disposable income for 6 categories of households from 1993 to 1998 appears from the following table.

Table 1: Change In Households' Disposable Income From 1993-1998 Due To 1993 Tax Reform

	1993-1998 tax reform included change[1)]	Green taxes	Change (1) + (2)	Local income tax raises to 31,9 per cent[2)]	Total change (1) + (2) + (3)
	DKr, 1993 prices				
Single with one child in rented accommodation. 150.000 DKK income, 8.500 DKK allowance, district heating, no car.	6,497	-2,085	4,412	-1,724	2,688
A couple with two children in an owner-occupied accommodation. 300.000 DKK income (170/130), 500.000 DKR property values, 15.000 DKK interest expenses, 20.000 DKK allowance, oil/natural gas heating, 15.000 mileages.	13,342	-4,560	8,782	-3,278	5,504
A couple with two children in an owner-occupied accommodation. 450.000 DKK income (225/225), 800.000 DKK property value, 25.000 DKK interest expenses, 20.000 DKK allowance, oil/natural gas heating, 15.000 mileages.	25,477	-4,560	20,917	-5,548	15,369
A single receiving unemployment benefit in rented accommodation 8.500 DKK union contingent, district heating, no car.	4,768	-1,675	3,093	-1,501	1,592
A single pensioner without other income in rented accommodation, district heating, no car.	2,853	-586	2,267	-946	1,321
A couple pensioners without other income in rented accommodation, district heating, no car	3,043	-1,290	1,753	-1,108	645

Source: Calculations by the Ministry of Taxation.

1) Including the pre tax value of old age pension and increase in child support.

2) The changes local income tax increases from 30,2 in 1993 to 31,9 per cent in 1998.

Note: The changes in disposable incomes are counted as the sum of personal tax change, contribution to labour markets' funds, pensions, unemployment benefits, green taxes and child support.

All six categories of households ranging from the single mother, double income families with children to old age pensioners faced a positive gain in their disposable incomes as a result of the tax reform. This holds even taking increases in local taxation into account.

The tax reform was revenue neutral. The revenue loss in 1998 due to the reductions in the personal income tax equals 45 billions DKK. The tax reform was under financed in the first years because of a depression in the economy but was fully financed in 1998 by revenues from increased and new green taxes by 12 billions DKK, from pay roll taxes by 22 billions DKK and from broadening of the tax base by eliminating special privileged tax arrangements by 11 billions DKK. The revenue at 11 billions DKK raised from broadening the tax base was only liable to tax payers already privileged before the tax reform by lower taxes, tax exemptions or due to tax fraud.

1995 Tax Reform

The 1995 tax reform was phased in from 1996-2000 and concerned the energy consumption in industry and trade. The background for the 95-tax reform was that it was realised in the mid nineties that if the Danish target of CO2 reduction should be realised in a cost efficient way it was considered necessary to extent the green taxes to industry and trade. It was considered that there was great and cheap energy saving

possibilities in this sector, which the households could only accomplish by expensive measures. Industry and trade had not been burdened with energy taxes since all VAT registered enterprises could get a reimbursement of the energy tax. From 1993 industry and trade had been burdened with a modest CO2 tax where the most energy intensive enterprises could get all the CO2 tax reimbursed if they entered voluntary agreements on energy savings with the Danish Agency on Energy.

The objective with the tax reform was to reduce the CO2 emissions from trade and industry but in such a way that the Danish reduction was not just replaced by increases abroad.

The solution was a differentiated CO2 tax which was formulated so that that the lowest rates were used for the most energy intensive processes but in such a way that the tax burden per unit produced continues to increase with the energy intensity. In spite of the low marginal taxes on the most energy intensive processes the average tax burden per unit produced will therefore be greater than for the less energy intensive processes. Furthermore some of the tax concessions are made conditional on the companies having an energy audit carried out. The tax relief was carried out as a differentiated reimbursement system depending on whether the energy is used for light or heavy processes or whether the company has entered a voluntary agreement with the state in respect of energy saving. There is no refund on the CO2 tax or the energy tax for energy used for space heating. When the CO2 tax was revised in 1995 it was decided that the increased revenue should be transferred back to industry and trade. It was carried out that by giving reductions in the social security contribution (paid as a proportion of labour cost), supplementary pension payment and by giving investment subsidies for energy savings.

There was also taken other considerations than the international competitiveness into account when the CO2 tax was designed in 1995. It was important that the competitive relation between domestic companies should not be deteriorated. Companies should not be able to obtain tax- relief by changes in their organisation No enterprise should have a net benefit after the general recycling of the tax revenue. There should also be reasonable distributional effects. Finally, it should be possible to get the whole package approved by the European Commission according to the state aid rules.

1998 Tax Reform

The 1998 tax reform was phased in from 1998-2002 and concerned mainly the households. The energy taxes and the tax on petrol were increased by 15-25 per cent. The increase in the energy taxes was intended to contain the real value of the energy taxes. It was introduced at a time where there had been a drop in the oil prices on the world marked.

The 1998 tax reform implied reductions in the personal income taxes for lower and medium incomes. It implied also compensations for pensioners and other recipients of transfer incomes. The total effect of the adjustments in the tax and benefit system was a considerable redistribution in favour of people with lower incomes.

The following table shows the effect of the tax reform for some households with lower incomes.

Table 2: Change In Households' Disposable Income From 1999 – 2002 Due To 1998 Tax Reform

	Income tax Reductions		Green taxes *
	1999	2002	1999-2002
	DKK		
1. Single in rented accommodation. 158.400 DKK income. Trade union contributions 8.700 DKK	927	2.620	110-310
2. Single in rented accommodation, 210.000 DKK income 5.000 DKK interest expenses. 9.500 DKK trade union contribution	917	4.692	525-865 (815-1.350)
3. Single in owner- occupied accommodation 450.000 DKK income . 1.000.000 DKK property values. 60.000 DKK interest expenses. 9.500 DKK trade union contribution.	-2.648	36	145-420 (735-1385)
4. A couple in owner-occupied accommodation 175.000/150.000 DKK income. 700.000 DKK property values. 35.000 DKK interest expenses. 2 x 9.500 DKK trade union contributions	664	2.099	655-1.205 (1.045-1.850)
5. A couple in rented accommodation 275.000/175.000 DKK income. 10.000 DKK interest expenses. 2 x 9.500 DKK trade union contributions 40 km daily transport.	1.925	9.727	170-495 (760-1.465)
6. A couple in owner occupied accommodation 350.000/200.000 DKK income. 1.300.000 DKK property values. 75.000 interest expenses. 2 x 9.500 DKK trade union contributions. Free company car	-2.926	1.223	895-1.555
7.a A couple in owner occupied accommodation 600.000/250.000 DKK income. 1.500.000 DKK property values. 80.000 DKK interest expenses. 2 x 9.500 DKK trade union contributions 50 km daily transport	-3.479	3.268	1.110-1.905 (1.990-3.355)
7.b Like 7.a but with a max payment of capital-pensions (2 x 33.100 DKK)	-7.900	-2.797	1.110-1.905 (1.990-3.355)
8. Single recipient of daily benefits in rented accommodation 139.880 DKK daily benefits. 9.500 DKK trade union contribution.	410	1.863	110-310
9. Single pensioner in rented accommodation 93.216 DKK pension and 7.000 DKK ATP	345	1.799	465-755
10. A couple pensioners in rented accommodation. 134.760 DKK pension	783	2.695	545-900

* In brackets are included expenses for households with car.

All households with smaller and medium incomes faced a positive gain in their disposable incomes as a result of the reform.

The revenue impact in 2002 was a revenue loss in income taxes equal to 10 billions DKK and a revenue gain from green taxes by 6 billions DKK and 7 billions from property taxes. In the longer run the tax reform was neutral because of some once-for-all effects.

Competitiveness and Income Distributional Concerns

When the tax reforms were designed it was considered how the negative effect on the competitiveness of industry and the distributional effects could be overcome.

The Competitiveness Concerns

The international concerns for the environmentally taxes has been addressed by a differentiation of the taxes between households and enterprises and between enterprises and branches. The reason for that is that the consumption is very uneven between households and industry but also between individual enterprises and branches. It has been taken into consideration that the enterprises with the highest

consumption of e.g. energy compared to value added will also often be in keen international competition and they are unable to shift the tax on to the prices. It was also taken into consideration that a share of the tax burden could involve a considerable fiscal element, which it was not reasonable to charge on the enterprises.

According to economic theory a uniform tax rate should be used in all sectors. But in a small open economy like the Danish there is no doubt that that a high uniform taxation would result in a reduction in the CO2 emission from Danish territory but emissions abroad could be expected to increase correspondingly. This reduction in the Danish CO2 emissions would therefore not give a welfare gain but rather a loss of efficiency, because production would be located in areas other than where the costs are lowest.

This loss of efficiency with a uniform taxation is assessed to be much greater than the loss of efficiency with a differentiated taxation where there may be a welfare loss if consumption of energy intensive goods (like cement) is increased at the expense of low energy intensive goods (like hairdressing). The possibilities of substitution between domestic cement and imported cement are much greater than between domestic cement and hairdressing also in the longer run.

After an evaluation of the environmentally related taxes on industry and trade in 1999 it is still the opinion that the environmental effect is much greater with a differentiated tax system than it would have been if a uniform tax rate had been used corresponding to the average tax burden. It was also the conclusion from the evaluation report that the energy package had only a slight effect on employment, private consumption, the balance of payments etc. There is no knowledge to plant closures or relocations, which can be attributed to the CO2 tax. Further when the CO2 tax was adopted there were no other exemptions than the obligatory exemptions in the Mineral Oils Directive.

If international agreements are entered about CO2 reductions or if tradable permits are introduced internationally there will no longer be the same reason for differentiated tax rates for the industry in international competition, because there will no longer be the same leakage problem as we have to day. It will no longer be a possibility to locate production in tax-free or quota-free areas.

Income Distributional Concerns

Green taxes like many other excises on e.g. cigarettes have a regressive income effect, which may be alleviated by various mitigation and compensation measures. There has been some political concern in Denmark about the distributional effects of the green taxes but it has been possible to solve these problems in connection with adjustments in the income tax and benefit system in a satisfactory way. There has not been green taxes, which has not been adopted solely because of income distributional concerns.

There has from time to time been some discussion about introduction of mitigation measures in the green taxes instead of compensations outside the green tax system. After the implementation of the tax reform in 1998 a committee was set down to evaluate possible mitigation measures for some of the green taxes (in particular electricity and water) The committee should evaluate the possibilities of designing a model with a zero rate band (or tax floor) that would reduce significantly the effective green tax burden on low income households. The committee found that it would be impossible to design a good mitigation measure that redistributed the tax burden from households with low consumption to households with a high consumption. The distributional effect was that low incomes families with children and households with more persons would benefit from a zero rate band solution and that households with a single person and single pensioners would loose. Further the committee found that the compliance costs were considerable,

because the electricity companies and the water works were not in position of the necessary information about the individual families to be able to calculate the tax payment. Most of this information was available at the income tax authorities and the welfare institutions and other public bodies.

Therefore it was recommended not to introduce a mitigation measure but to maintain the compensation system, which was adopted in connection with the 1998 tax reform.

Therefore there is no disagreement with conclusion in professor de Kam's discussion paper that lump sum compensation through the tax and benefit system is to be preferred over mitigation measures in the environmentally related taxes because of the reduction in the price signal and thus the environmental effectiveness of the tax. Normally excises are not well suited as an income distributional instrument because they are levied by enterprises, which shift the tax on to the consumers, and they have no special knowledge of the income and family size of the final consumer. It is not a task for the enterprises to take care of distributional effect of the excises.

The overall distributional balance can better be solved in the income tax and benefit system according to Danish experience. Therefore there are only few examples of mitigations measures for low incomes groups in the Danish excise system. The same applies for the VAT system where there is only a single rate. The motor vehicles registration tax is a progressive tax where the marginal tax rate increases from 105 to 180 per cent when the taxable value exceeds 50 000 DKK. Previous there was a low rate for kerosene in 10 litre jars used for heating purposes. The tax reduction was, however, abolished because the incentive was so that people replaced supply of gas oil in tanks with kerosene in 10 litre jars. Previous disabled people could get a car without registration tax but this has been changed so that the tax is paid to the tax authorities but the disabled people can get the tax refunded by the social authorities. In this way the question can be solved in a more competent way than it could be done by the tax administration according to the tax law.

There is also agreement on the conclusion that the lump sum compensation through the tax system will be more cost efficient and it will have a similar distributional effect as a mitigation measure. In Denmark almost all households pay income tax and can easily be compensated. For income groups, that are not compensated satisfactory through the tax reductions, a lump sum compensation could be granted by the relevant social benefit or pensions system. Such compensation has the same effect as a non-wasteable tax credit.

COMMENTS ON THE DISCUSSION PAPER:

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Income Distribution Concerns in relation to Ireland

Introduction

This paper addresses the points for discussion under income distribution concerns listed in the Discussion Paper[40] by de Kam (2002). The two topics under review, competitiveness and income distribution, are crucial where implementation of environmental fiscal reform is concerned. We need only remember the transport demonstrations of 2000 and also, as shown below, the reaction to charges for environmental services in Ireland that were perceived to be (and probably were) unfair.

In this paper, charges are considered alongside environmental taxes. This is because in some countries charges faces similar difficulties with regard to implementation and they are a similarly critical issue for the environment.

Meanwhile, looking on the bright side, Ireland has just introduced the plastic bag tax. Though it may be too early to say, I'll venture that it is the only popular tax I know. One can certainly fault the tax in several ways: it is unjustifiably high by economists' measures and it caused extra work for shops and the Revenue Commissioners, but a good thing about it was the manner of its introduction, which promoted acceptance, see Box A.

Box A: The plastic bag tax

To prepare people for the tax, a short brochure was available in shops, in a question and answer format:

Question: Can one avoid this tax?
Answer: Yes, you can avoid the tax by using a long-life bag.

Note: *This is not the exact wording, merely a paraphrase.*

Unfortunately the introduction of all environmental taxes is not so simple. The plastic bag tax did not have strong implications for competitiveness or income distribution to contend with, but at least there is now an encouraging precedent for the introduction of eco-taxes and this may make people somewhat receptive to EFR in Ireland.

This paper concentrates on income distribution issues that arise in implementing environmental fiscal reform and considers the topics for discussion as they are listed in de Kam's Discussion paper.

Addressing distribution concerns in Ireland

The Discussion Paper (paragraph 58) asks for a description of how Ireland has addressed income distribution concerns. Areas where Environmental Fiscal Reform is worth discussing lie in the fields of

[40] Flip de Kam, 2002. *Discussion Paper for Conference on Environmental Fiscal Reform,* OECD and BMU, Berlin 27 June.

energy and carbon taxes, agriculture and fertiliser taxes, and environmental services including water and waste water and solid waste. The implications will be different depending on, for example, whether there is to be a new tax, or whether the existing way of paying for environmental services is to be reformed. Only a few examples will be highlighted here.

Water

The discussion paper asks us to flag non-adoption as a result of income concerns. A prominent example must surely be the Irish domestic water charges. A good illustration of how income distribution issues are ignored at one's peril, it would be hard to find a clearer endorsement for paying serious attention to mitigation and compensation options.

In brief, the abolition of domestic water charges was conceded during the run-up to an election campaign in 1996, on foot of an electoral threat to a government seat from an "abolish water charges" candidate. The water charges operating at the time were unpopular in some quarters, probably for several good reasons. Being unmetered they were unrelated to quantity, the bill was infrequent and therefore large (arriving at financially awkward times for some families) and the method for dealing with vulnerable families was not standardised and perhaps not always adequately addressed. Some local authorities had expressed a desire for centralised information on the problem, which was not forthcoming. Because the income considerations were not adequately addressed, Ireland slid into what can only be called Negative Environmental Fiscal Reform and abolished domestic water charges altogether. This has had many serious side-effects.

Since abolition, new house-building has added a quarter to the housing stock. While bye-laws are gradually tightening up on water-using equipment, without the 'hidden hand' of metered charging, bodies that undertake monitoring and house-owners will not be encouraged to check or think seriously about the water using characteristics of new dwellings. Under the 'absent hand', a generation of people is growing up without any inherent feel of water as valuable and expensive to deliver. Investment calculations are misled. Some public sector establishments have also not paid water charges, and it is known that one proposal to invest in recirculation of 'grey water' in a third level education establishment was turned down because correct (or shadow) prices are rarely incorporated in the sums. With excessive water use being encouraged, Ireland is climbing up the marginal cost curve more quickly than necessary, owing to wastage by customers and suppliers. Higher investment than necessary will be indicated, or investment will need to be undertaken sooner than otherwise. Either way, extra costs will be incurred.

Carbon taxes

The introduction of these taxes has generally been resisted because of sectional interests and perceptions or otherwise of the harm to competitiveness. Despite the more than adequate revenues available to reduce the impact on low-income households, reform is also thought to be regressive. In addition people have felt unable to trust governments to recycle the revenues. The authorities have not been inclined to give carbon taxes serious consideration[41] until recently in the *National Climate Change Strategy* of 2000 and, until even more recently, researchers have had difficulty in obtaining funding to investigate income and competitiveness issues.

[41] A selection of papers from a decade of work on economic instruments by J. Fitz Gerald and S. Scott at the ESRI and by F. Convery at UCD are listed in the references.

Solid waste

Costs of providing municipal waste services are increasing because higher standards are being applied. Charges for municipal waste services are rising accordingly and also because subsidies are being reduced. In many areas the services are being performed by private companies which charge realistic fees. There are also the beginnings of charging by volume. In order to head off resistance from the same quarters that resisted water charges, income tax relief was introduced. This relief amounts to a flat-rate amount that can be availed of by taxpayers. It does not really address income distribution concerns because low-income households that pay no tax cannot benefit from the relief, as things stand.

Where these low-income households that cannot avail of tax relief are concerned, the Department of the Environment does not have information as to what mitigating or compensating methods are used. The Department says that centralised information or advice on this is unnecessary, because under the Act it is left to the authority. One would need to contact each local authority to find out what procedures are used. Some authorities, such as Dublin Corporation, grant waivers.

Where the service is operated by the private sector, it is unlikely that a waiver is granted, but this is not known for sure. Perhaps there is recourse to the Health Boards. Given that the issue simmers from time to time, some attention to the distribution effects is warranted. At the recent general election a small party mounted an "anti-bin charges" and "anti-local charges" campaign, see Box B. Given that the costs of waste disposal will rise as higher standards are applied, the issue of compensation flagged[42] since 1997 could grow in prominence. In the UK the private (water service) operators cross-subsidise from rich to poor customers. Arguments against this solution can be made on the grounds that, emergencies apart, utilities (or indeed energy suppliers, in the case of a carbon tax) may not be the best bodies to undertake tasks that fall under the remit of social welfare. It may not be ideal for companies to be distracted from concentrating on providing an efficiently run service. Again, short-term emergencies apart, government departments of social welfare would tend to have more focused expertise and routines for dealing with inability to pay and vulnerable households.

Box B: Election literature, 2002

ABOLISH

THE BIN TAX

NO TO DOUBLE TAXATION

The issue of compensation versus mitigation

The Discussion Paper invites comments in paragraph 59 on the conclusion that lump sum compensation through the tax and benefit system is to be preferred over mitigation measures. The reason given is that mitigation, through exemptions or reduced or zero rates, reduces the price signal of the tax.

Where feasible, compensation is indeed to be preferred to mitigation because price signals need to be strengthened, in order to encourage technology change as well as behaviour.[43] It is the absence of

42 Scott and Lawlor, 1997.

43 In addition to the Discussion Paper's example from ISI of the technology-inducing effects of high energy prices (footnote 8), Popp (2002) looked at patent data to study the impact of energy prices on energy saving

such price signals that has contributed to the environmental degradation in the first place. People have been allowed to use the assimilative capacity of the environment and invest in lifestyles without thought of paying for the external costs that they impose, as if it belonged to them.

However, systems obviously have to be in place for emergencies, if for some reason the compensation mechanism has broken down. Emergency relief procedures need to be worked out for vulnerable families. Routine mitigation would be a mixed blessing to them at best. It would do a dis-service to people by masking the truth and ill-preparing them, children especially, for when they are confronted with correct pricing, elsewhere perhaps. That said, it has to be acknowledged that in the real world such an approach may sound somewhat glib if the compensation route is not adequately prepared.

Lump-sum compensation?

In paragraph 60 the Discussion Paper invites comments on various strategies to compensate households, and in the lead-up discussion, three options are given: (1) lump-sum compensation, (2) income tested compensation and (3) reduction of other taxes or "tax shifting". These raise several conflicting issues.

There is an argument in favour of (3) tax shifting, such as replacing or reducing pre-existing distorting taxes like labour taxes, because this makes the economy function better and thereby provides an added bonus (the term "double dividend" is to be avoided unless one is sure that it really is double). But lifting the economy does not guarantee that "all boats" are lifted and diversion of at least some funds is required to compensate vulnerable households. In fact Barker and Köhler (1998) found that it would lift all boats but rich ones higher that poor ones. The tax shifting investigated would be "weakly regressive".

Income-tested compensation (2) can be administered through the benefit system in Ireland at the risk perhaps of affecting the "replacement ratio" (the relative wage that employers have to pay to entice a person to work) or the supply of labour. The risk would depend on the magnitudes and thresholds. Other forms of compensation might be desirable, such as improvements to the heat retention of the house and the efficiency of heating equipment.

Compensation by (1) lump-sum transfers via the tax-benefit system has the disadvantage of foregoing the benefits of tax shifting but the advantage that it risks less upset to incentives than under (2). It has the potential for being efficient in application and perceptibly "fair". The question is what type of lump-sum transfers?

Lump-sum non-wastable tax credits are the best guarantee?

Finally, paragraph 61 of the Discussion Paper asks whether lump-sum compensation in the form of non-wastable tax credits against personal income tax offers the best guarantee that all qualifying households are compensated.

Not only could non-wastable tax credits offer the best guarantee of comprehensive compensation but they could also be the best way of making the introduction of environmental taxes or charges acceptable. Before, however, discussing some drawbacks, a recently calculated hypothetical example for compensating households for the re-introduction of water charges in Ireland is summarised here.

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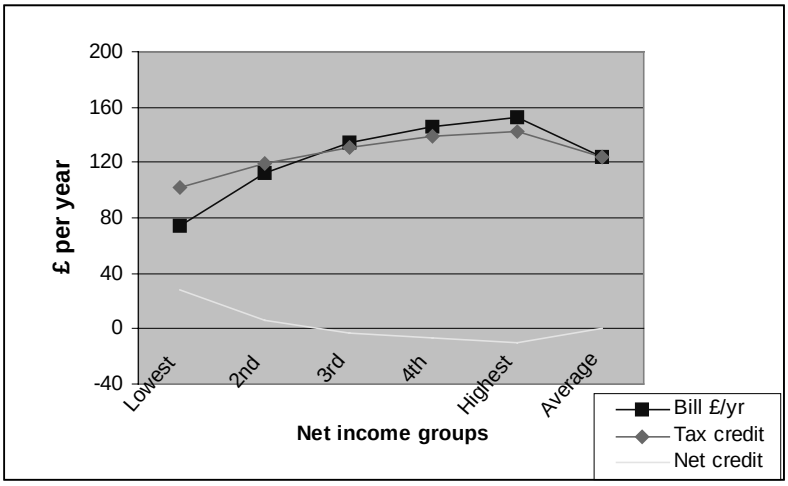
technology, which were found to have a strong positive effect. The research also suggests that innovation needs such encouragement.

Metered water charges: An example of how revenue could be recycled as lump-sum compensation

This example takes account of actual ownership of water-using equipment in Ireland by income group. It further takes into account the fact that use per head declines with increasing numbers of inhabitants in the household, and it uses UK water usage patterns. It assumes that only current costs of water and waste water services are charged for. Evidently the charge on its own would be regressive, with amounts per household being in the region of 1.5 per cent of net income of households in the lowest income group (quintile), falling to 0.35 per cent for households in the highest income group.

So, to be progressive and fair, compensation is assumed to relate to average water use per head *relevant to the household size*. Compensation calculated on this basis is shown in Box C as the line called 'tax credit'. The bill paid is called Bill £/yr. It can be seen that the credit starts at a level that is higher than the bill in the case of low-income households (on the left-hand side) and then crosses it. Comparing the two lines, households in the lower income quintiles are more than adequately compensated by this method, and those in the higher quintiles are under compensated - a progressive and possibly satisfactory outcome. The net effect, the difference between the compensation and the bill is shown as 'net credit' at the bottom of the figure. For the average household, shown on the right-hand side, the net credit is consequently zero.

Box C: Hypothetical calculation of the annual household bill for water services, tax credit and net change in the household's financial situation, by income group



Note: Magnitudes are based on UK consumption and Irish ownership of water-using devices, and are illustrative only.

This outcome can only be achieved if a system of non-wastable tax credits were in operation (called refundable tax credits in Ireland). In addition to the need to set up such a system there is the task of obtaining the numbers of inhabitants in each household. Numbers are required in order to allow the calculation of "credit due" in a way that takes account of higher usage per head in households with few inhabitants, to make the system really fair.

The recently introduced system of tax credits in Ireland brings closer the possibility of granting non-wastable tax credits, and hence the awarding of lump-sum compensation, which would be a simple and progressive way of redressing the regressive effects. At present however, tax credits can only benefit those households that are paying tax. Non-wastable tax credits are currently under investigation by a working group under the programme for government. They hold out the hope of being able to address

comprehensively the gaps in using the current social welfare and tax systems to compensate for the introduction of environmental taxes.

The issue of equity competing with efficiency, as was seen in relation to discussion of carbon taxes above, still remains. What on balance are the benefits foregone by not reducing distorting taxes?

Conclusions - the way forward

There is often a world of difference between the ideal and the practical. Furthermore what one person sees as a logical and practical way forward is often viewed by another as simply self-seeking. However, returning to the recent encouraging experience with the introduction of the plastic bag tax, it would suggest that if you can avoid a tax by good behaviour the tax will be perceived as being reasonable. Public acceptability might in fact require going back to mitigation of sorts in certain cases. Something along the lines of 2-tier rates may still need to be considered, for example, allowing everybody a certain quantity of carbon emissions, water, waste services *et cetera* for free. While these approaches are not ideal, it is probably important to keep an open mind on them if others cannot materialise.

International action to overcome competitiveness obstacle (paragraph 63)

Turning to the issue of competitiveness, the World Trade Organisation has a role to play in this. The question should be asked: is not failure to internalise the costs of environmental, and especially global, damage a trade-distorting measure. If a country has a competitive advantage because its exports are "subsidised" by virtue of not having to pay for the sinks or absorptive capacity offered by the globe's atmosphere, does this not constitute unfair trading? This is asking no more that that markets be required to operate correctly.

Priority type and level of action (paragraph 64)

To help to deal with concerns about income distribution, a priority would be to develop and operationalise the system of non-wastable (or refundable) tax credits.

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APPENDIX

A question on charges in surveys undertaken in 1993 and 2000 was posed as follows:

Finally, to meet EU obligations regarding the protection of the environment, it will be necessary to improve our methods of waste disposal and other services. These improvements will have to paid for, one way or another. This may be through higher taxes such as income tax, VAT etc., or through fixed service charges on households or by charges based on the amount of the service a household or firm uses (for instance, by metering water and charging per gallon used. In relation to each of the following services, how do you feel it should be paid for?

	Increases in taxes	Fixed Service Charge	Charge for amount used
Supply of drinking water……	□	□	□
Dealing with household garbage through recycling, treatment or disposal……	□	□	□

Answer: Chosen method of paying for water

Method of paying	**1993 survey**	**2000 survey**
Increase in taxes	2	12
Fixed service charge	51	26
Charge for amount used	46	56
"No charge, government should pay"	-	6
TOTAL	100	100
Number of respondents	919	1176

Answer: Chosen method of paying for the service dealing with household garbage

Method of paying	**1993 survey**	**2000 survey**
Increase in taxes	3	13
Fixed service charge	53	38
Charge for amount	44	45
"No charge, government should pay"	-	4
TOTAL	100	100
Number of respondents	925	1176

Source: ESRI (1994, 2000)

SUMMARY AND MAIN CONCLUSIONS:

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Introduction

Over the past ten to fifteen years, significant progress has been achieved in the introduction of environmentally related taxes and – to a lesser degree – in the abolition of environmentally harmful government subsidies.

The authors of the recent OECD report on *Environmentally Related Taxes in OECD Countries* (Paris, 2001) recognise that further progress in this area is hindered by two main obstacles:

1. the fear of reduced international competitiveness and the associated loss of jobs;
2. the possibly regressive income distribution impacts of environmentally related taxes.

Purpose of the Conference

The German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and OECD organised a conference on this issue 27 June 2002 in Berlin, Germany. The purpose of the conference was to examine the mentioned obstacles and to discuss ways of overcoming them, so that the benefits of 'green' taxes and of cutting harmful subsidies, in terms of environmental improvement and economic efficiency, can be more fully realised.

Organisation of the Conference

A paper reviewing the main issues had been prepared by professor Flip de Kam of Groningen University, The Netherlands. During the morning session, participants in the Conference discussed competitiveness concerns. During the afternoon session, the group reviewed the impact of environmentally related taxes on household income and looked at ways in which policymakers might address income distribution concerns. During each session, several experts gave invited responses to professor De Kam's paper. These presentations were then followed by an open discussion. All prepared responses and the presentations made at the conference can be found at http://www.oecd.org/EN/document/0,,EN-document-471-nodirectorate-no-20-31320-8,00.html.

The Conference was attended by about a hundred participants. They included representatives from several governments of OECD countries, from academia and major industrial sectors, environmental NGOs and from private think tanks. The meeting was chaired by Ken Ruffing, Acting Director of the OECD Environment Directorate.

Opening speech by Minister Trittin

Mr. **Jürgen Trittin**, the German Federal Minister for Environment, opened the Conference. In his speech the Minister stressed the need that taxes and government subsidies reflect ecological realities. He outlined the 'ecological modernisation' of the German economy in recent years and pointed out that over 1 million people are now employed in the environment sector, 130,000 of which in the field of renewable energies. Minister Trittin reminded the audience that nowadays over one-third of the world's wind-generated energy is produced in Germany and over 5 million square meters of solar collectors will be installed by the end of 2002. He also stressed the first environmentally positive impacts of the Ecological Tax Reform in Germany, introduced in 1999. Hence, the Ecological Tax Reform should be continued and

further developed into an Environmental Fiscal Reform as fiscal incentives proof to be a very effective instrument. The Minister also reviewed various other policies with significant environmental impact, including investment in the national railway system. He concluded by identifying areas where future policy initiatives are wanted, notably a reassessment of ecologically counter-productive subsidies in Germany, currently amounting to over 20 billion € per year. He announced that the bi-annual reporting system of the German Government on subsidies should be used to make those transparent and include environmental evaluations.

Presentation by Mr. Nils Axel Braathen

By way of introduction, Mr. **Nils Axel Braathen** of the OECD Environment Directorate gave an overview of environmental fiscal reforms in OECD countries. While there are very few examples of a systematic removal of environmentally harmful subsidies, all OECD countries have some form of environmentally related taxes, and a number of countries have recently engaged in revenue-neutral green tax reform. Available estimates indicate that the price elasticities for environmentally relevant tax-bases are significantly different from zero – but generally lower than 1 in absolute value – meaning that a tax increase *will* normally lead to clear environmental improvements. No significant negative competitiveness impacts of existing environmental taxes have been found for any sector – but this is largely due to a long list of exemptions and refund mechanisms currently in place. Due to these exemptions, etc., the costs of other sectors increase, if a given target is to be met. Recent economic theory indicates that a "double dividend" (both an environmental improvement and a reduction in unemployment) is not likely to result from a green tax reform.

International competitiveness concerns

Four invited responses to Professor De Kam's paper focused mostly on the competitiveness issue.

Andrew Field of HM Treasury explained the particulars of the Climate Change Levy, introduced in the United Kingdom in April 2001. This levy applies to businesses only, not to households (in view of its distributional impacts), and its revenue is recycled largely through a cut in employers' social security contributions. Negative competitiveness effects are mitigated through a discount of 80 per cent for energy-intensive sectors, provided they enter into an agreement to reduce emissions. Mr. Field also spoke about the Aggregates levy, introduced in April 2002. This is a tax on rock, sand and gravel for aggregate use. Imports are taxed and exports exempted, effectively eliminating any competitiveness concerns. Mr Field concluded that the design of green taxes needs to take account of competitiveness (and other) issues. It is easier to tax products with little international trade. Revenue recycling is important, but national governments need to be aware of EU rules governing state aid.

To this Mr. Field added that the UK government believes that a common EU framework for the taxation of energy used by industry should take the form of minimum tax rates, rather then specifying the rates that Member states should use. The UK government also remains opposed to new taxes on energy used by households, given the importance it attaches to addressing 'fuel poverty' in the UK. He thought that greater formal co-operation in these areas would be difficult. But informal co-operation through sharing of experiences and building on the example set by leading countries may help.

The discussion clarified that the UK government is indeed concerned about significant adverse effects of green taxes on the competitive position of the country, but that it does not overestimate the fears of losses of competitiveness and that adequate design can take into account these fears. Mr. Field stated that no significant negative impacts on the competitiveness of businesses had been observed to date.

Concerns about 'fuel poverty' are explained because in the UK 4-5 million households spend over 10% of their disposable income on fuel and power. Both Mr. Field and Mr. Larsen from Denmark confirmed that the European Commission allows the imposition of environmentally related taxes on imports (from other Member States) if applied in a non-discriminatory way.

It was also suggested that the World Trade Organisation has a role to play regarding the issue of sectoral competitiveness. Is not failure to internalise the costs of environmental damage a trade-distorting measure?

Alberto Cornejo Perez, of the Spanish Ministry of Finance, explained that his government is opposed to introducing environmentally related taxes on energy. The demand for energy products is thought to be so inelastic to price changes that taxes would not significantly reduce energy use. The government is intent on granting positive incentives in the form of lower taxes, to stimulate investments aimed at protecting the environment, but these have little impact in budgetary terms.

The discussion made it clear that the introduction of 'green' taxes is politically unpopular in Spain, because they raise the costs of firms and households and because the public is not interested in changing the tax mix.

Some participants raised the 'double dividend' issue. As yet, the empirical evidence on its existence is inconclusive. If workers demand higher wages after the introduction of environmentally related taxes, wage costs will not fall, even if – for example – employer social security contributions have at the same time been reduced. Also, 'green' taxes play as yet a minor role and thus have a limited impact on the revenue mix and wage costs.

Klaus Bräunig from the Bundesverbandes der Deutschen Industrie (the Federal Organisation of German Industry) launched three propositions.

1. Effective protection of the natural environment requires economic growth; it follows that policies aimed to protect the environment should not harm the economic development of highly industrialised countries. Progress in technology allows more fuel-efficient production to expand.
2. Not energy use as such, but only environmentally harmful waste of energy, should be tackled. Firms employing state of the art energy-saving technology and/or confronted with prices set in world markets can only reduce their energy use further by cutting back existing production levels. This is counterproductive; see the first proposition.
3. The example of Germany shows that the environmental goals embodied in the Kyoto Protocol can be realised through voluntary agreements concluded between government and representatives of industry. Between 1990 and 2012 emissions of six greenhouse gases from German industry will be reduced by 35%. In its report on environmental tax reform, the OECD should have paid attention to the potential of this instrument.

During the discussion several participants stressed that taxes, given the associated price signal, are a more efficient and effective instrument than voluntary agreements. Taxes would thus be more tailor-cut and effective in a market economy. For example, relative prices (reflecting different tax rates) trigger fuel substitution effects that need not arise within the setting of voluntary agreements. Also, inefficiencies will result if marginal abatement costs vary across firms. Other participants identified a serious 'free rider' problem: once a sector or branch of industry has committed itself to a reduction in energy use or emissions, it is very attractive for individual firms not to join the common effort because they will enjoy a significant cost advantage.

Comments on Mr. Bräunig's first proposition included the observation that economic growth also creates environmental problems. Pollution per produced unit may go down, but absolute pollution levels might increase, given higher production levels. Mr. Bräunig replied that, generally speaking, policymakers should not aim for less economic growth because of environmental targets.

Xavier Delache from the French Ministry for Ecology and Sustainable Development presented the context and particulars – and the eventual failure – of the 1998-2000 Carbon tax project of the former French government. The effect of carbon taxes on the relative competitive position of industry sectors is determined by the energy intensity of the production process and openness to international markets. The government proposed tax reductions for industry, with the reduction varying with the energy input relative to value-added for each individual firm. Tax rebates were linked to an obligation to negotiate voluntary agreements with the administration. In the end, however, the Carbon tax as adopted by the Parliament was found unconstitutional by the Constitutional Council.

Income distribution concerns

There were three invited responses to prof. De Kam's paper addressing income distribution concerns.

Sylvain Chevassus presented comments on behalf of the European Environment Bureau (EEB). For equity reasons and to increase environmental effectiveness, the EEB deems it important that business contributes proportionately. Mr. **Chevassus** stressed that environmental tax reforms constitute a shift in the tax base and that business benefits directly from cuts in other taxes, while acknowledging that individual firms in energy-intensive sectors may lose. Extending qualified majority voting in the EU Council to include environmental and energy taxation would greatly facilitate policy co-ordination. The EEB also advocates the removal or re-direction of subsidies with a direct negative impact on the environment, whether they are in the form of direct expenditures or tax expenditures.

The EEB very much welcomes the exchange of information and activities of the OECD and asks that economic and taxation committees of the organisation spend more time on these.

The EEB pushes for cuts in social security contributions on a 50-50 basis, and suggests compensating households for instance by increasing housing benefits. It was pointed out that in many countries employers and employees currently pay different shares of aggregate social contributions and also that in most countries not all poor households receive housing benefits. All this points to a country-specific design of compensation measures.

Susan Scott of the Economic and Social Research Institute, Dublin, flagged that the abolition of domestic water charges in Ireland in 1996 as a prime example where income concerns overtook sensible environmental policymaking. The solid waste charge ('bin tax') is also in the line of fire. She agreed that, generally, compensation is to be preferred to mitigation, in order to encourage technological innovation and foster behavioural change. Lump-sum non-wastable tax credits have the potential to redress any regressive impacts of 'green' taxes, but in Ireland, at the moment, tax credits can only benefit those households that are paying tax.

During the discussion it became clear that, at this moment, the personal income tax system of most OECD countries has no non-wastable tax credits. In these cases, households not paying income tax cannot be (fully) compensated through the personal income tax, and it may be necessary to opt (at least in the shorter run) for a combination of compensation (by lowering other taxes, or increasing transfer payments) and mitigation measures (reductions of the environmentally related tax itself).

Hans Larsen of the Danish Ministry of Finance introduced the Danish tax reforms implemented during the 1990s, with environmentally related taxes being levied on both households and businesses. Under the Tax Reform of 1993, existing green taxes for households were increased sharply and new environmentally related taxes were introduced. They were broadly offset by a gradual reduction in the tax on personal income. Additional compensation was offered to low-income individuals who could not be sufficiently compensated by the tax reduction. Similarly, the Tax Reform of 1998 concerned mainly households. Energy taxes and the tax on petrol were increased by 15-25%, the personal income tax was reduced for medium and lower income groups with added compensation being paid to pensioners and other recipients of transfer incomes. The total effect of the adjustments in the tax and benefit systems was a considerable redistribution in favour of households with lower incomes.

In Denmark, a committee has studied the viability of mitigation measures in water and electricity taxes. The committee found that it was impossible to design measures which redistributed the tax burden from low-consumption to high-consumption households. Furthermore, it found that the compliance costs were considerable. The Danish experience thus confirms the conclusion in professor De Kam's paper that lump sum compensation through the tax and benefit system is to be preferred over mitigation measures.

During the discussion participants noted that the case of Denmark clearly illustrates how effective an instrument environmentally related taxes can be. For example, revenue from the sulphur tax fell from 500 to 100 million, as a result of the shrinking tax base.

The position of labour unions was discussed. Unions advocate a just transition to greener tax systems, asking for accompanying measures to facilitate unavoidable industrial restructuring. The position of some particular regions may require temporary exceptions being made, for example if no alternative to car use is available. Generally, unions are in favour of a decrease of labour costs to be achieved through lower social security contributions.

Main conclusions of the Conference

The role of tax instruments

A range of policy instruments is available to governments to achieve various environmental policy goals. Several OECD countries have successfully introduced 'green' taxes. Participants reviewed examples set by Denmark, Germany and the UK. However, the role of such taxes often remains limited, as is illustrated by recent experiences in France, Ireland and Spain. The context of the Conference was to explore why 'green' taxes are not more often used to limit emissions and reduce energy consumption.

During the Conference, nobody questioned the theoretical argument that taxes are the most effective instrument to internalise social costs in the form of environmental degradation and excessive energy use. Similarly, nobody disputed that taxes foster dynamic efficiency, in the sense that polluters and energy users have an enduring incentive to limit emissions and reduce further their energy consumption. That said, politicians in most OECD countries share worries of the business community that 'green' taxes may have potentially large impacts on the competitive position of certain sectors of industry. These competitiveness concerns have been addressed in the UK by all five measures identified in Section 4.3 of the OECD Report on *Environmentally Related Taxes in OECD Countries*. Contrary to arguments often put forward, no significant negative impacts on sectoral competitiveness had yet been observed.

Representatives of the business community felt that the approach in the OECD Report was too narrow, because the instrument of voluntary agreements between the government and industry organisations is hardly mentioned. Such agreements play a role in Germany and the UK. From the

discussions it emerged that many participants were doubtful that voluntary agreements can be a major instrument in environmental policymaking, because the price signal is not used, and given problems of asymmetrical information and enforcement, including 'free riding'.

Experience from OECD countries suggests that, at the time of their introduction, environmentally related taxes should be part of well-designed policy packages, including measures addressing competitiveness and equity concerns.

The prospects for active international policy co-ordination in this area are not uniformly good. Progress is often slow, as many countries are opposed to what is perceived as restrictions to national sovereignty in tax matters. Within the European Union, the current 'unanimity rule' (co-ordination in tax matters requires support from all Member States) often functions as a major obstacle. Possibly, this rule will not survive the coming enlargement of the EU. Participants agreed that, even if steps forward are often at a snail's pace, countries should keep learning from each other's experiences.

There was a broad consensus that incomes of especially the lower-paid can be protected with marginal incentives kept to change behaviour. The general opinion among participants seemed to be that compensation measures are to be preferred over mitigation measures. But the use of non-wastable tax credits requires that a sufficiently sophisticated personal income tax system be in place. In practice, the way income distribution concerns are addressed is largely a pragmatic question, where national circumstances should be taken into account.

Lessons for national policymakers

Proponents of enlarging the tax basket to include green taxes should consider the following strategies:

8. Increase public awareness of environmental challenges. Sometimes voters and a majority among policymakers are insufficiently aware of existing problems; see the case of the water charge in Ireland.
9. Stress the environmental impacts of the 'green' tax.
10. Stress the advantage of using the tax instrument in terms of lower overall costs to society. This may mobilise the political will needed for change.
11. Include new environmentally related taxes into much broader reform packages, to demonstrate that additional revenues are fully or partly re-cycled through reductions of other taxes, and introduce 'green' taxes gradually. Popular acceptance of 'green' taxes will increase if they can be presented as a tax "one can avoid" (by changing one's behaviour).
12. The example of the Climate Change Levy in United Kingdom demonstrates that also businesses can be taxed without significant negative impacts on sectoral competitiveness.
13. The failure of the French Carbon tax does however underscore how important it is that the taxes are designed with great care.
14. Underline favourable experiences with the tax instrument in other OECD Countries. This requires a well-structured international exchange of information.

The role of the OECD

Participants agreed that the OECD should continue its work on environmentally related taxes that is currently being carried out under the aegis of the Committee on Fiscal Affairs and the Environmental Policy Committee. The OECD can play a vital role in the international exchange of information on

environmentally related taxes. The Organisation is also a natural forum to report on good country practices. Through the OECD, Member countries can apply peer pressure where appropriate.

It seems useful that the OECD devote some resources to further analysis of the pros and cons of voluntary agreements between government and industry to reduce emissions and energy consumption, as an alternative or as a complement to the imposition of environmentally related taxes.

Participants requested that tax experts at the OECD collect relevant information on the practice of non-wastable tax credits in those Member countries that have introduced these in their personal income tax systems. Countries which have adopted such tax credits are clearly in a better position to target compensation for environmentally related taxes.