HEINRICH BÖLL STIFTUNG
The Green Political Foundation

FÖS | GREEN BUDGET GERMANY
FORUM ÖKOLOGISCH-SOZIALE
MARKTWIRTSCHAFT

Greening the Budget: Pricing Carbon and Cutting Energy Subsidies to reduce the financial deficit in Germany

By Damian Ludewig, Bettina Meyer, and Kai Schlegelmilch
Green Budget Germany (GBG)

Edited by the Heinrich Böll Stiftung
Washington, September 2010

Editor: Arne Jungjohann
Design: Ines Hilde
Translation (German-English): Cathleen Poehler

This is a project of the 2-year-program The Climate Network.
For more information please visit our website at www.TheClimateNetwork.org

Heinrich Böll Stiftung

Washington D.C. Office
1638 R Street, NW
Washington, DC 20009
United States
T +1 202 462 7512 F +1 202 462 5230
www.hbfus.org

This program has been made possible by funding from the European Commission.
The European Commission is not responsible for the content of the program.

HEINRICH BÖLL STIFTUNG

Greening the Budget: Pricing Carbon and Cutting Energy Subsidies to reduce the financial deficit in Germany

By Damian Ludewig, Bettina Meyer, and Kai Schlegelmilch
Green Budget Germany (GBG)

TABLE OF CONTENTS

THE AUTHORS

Political economist, Damian Ludewig has been the managing director of Green Budget Germany since 2007. Previously, he was scientific assistant to two members of the German Parliament. He is a member of the steering committee of "Die Klima-Allianz" and since 2010 has sat on the board of counselors of the Institute for Social Modernity. Damian Ludewig was also formerly speaker for NAJU Germany (2003-2005) and member of the board of the German League for Nature and Environment (DNR) (2004-2008).

Political economist, Bettina Meyer is a member of Green Budget Germany's executive board and presently works as official for climate protection and economical instruments in the Ministry of Agriculture, Environment and Rural Areas of Schleswig-Holstein, a position she has held since 1997.

Banking professional and political economist, Kai Schlegelmilch vice-president of Green Budget Germany since 2002 and works as official in charge in the Federal Environment Ministry. In 2008 and 2009 he was a task force member of the China Council (CCICED) as GTZ Senior Consultant. He has previously worked for the Wuppertal Institute for Climate, Environment and Energy (1993-1998) and the European Environment Agency in Copenhagen (1996-1997).

GREEN BUDGET GERMANY (GBG)
FORUM ÖKOLOGISCH-SOZIALE MARKTWIRTSCHAFT e.V.
Schwedenstraße 15a • D-13357 Berlin • Germany
Fon/Fax +49-30-76 23 991-30/-59 • foes@foes.de • www.foes.de

Green Budget Germany (GBG) was founded in 1994 as a Non-Governmental Organisation. At the time, GBG focused on the introduction of an Environmental Tax Reform in Germany, a goal which now has been realized to a large extent. In recent years, GBG has extended its focus to include all elements of market-oriented ecofiscal policy: Environmental taxation, Emissions Trading, removal of environmentally harmful subsidies, promotion of renewable energies, green procurement and green growth. The work on the entire array of Market-Based Instruments for environmental policy has rendered GBG a competent voice in the MBI policy debate all over the world. One of GBG's prime concerns is to improve communication and public awareness of Environmental Fiscal Reform (EFR).

GBG's long-term goal is an eco-social market economy, where "prices tell not only the economic, but also the ecological truth" (Ernst Ulrich von Weizsäcker). To this end, GBG works with many other organisations, well beyond the borders of Germany and the European Union.

FOREWORD

Germany and the U.S., like many other developed economies, are confronted with several challenges. The financial crisis has driven whole economies to the brink with strained public funds. At the same time, the impact of climate change demands bold actions and investments in clean energies. In the past, environmental policy was directed at enforcing clean technical solutions. Stricter pollutant standards resulted in better filters on the chimneys of factories and in wastewater treatment plants. The use of these so-called end-of-pipe-technologies was an impressive success in limiting environmental damage and improving our air, soil, and water quality. However, this approach has shown its limits with regard to new environmental challenges such as climate change, loss of biodiversity, and desertification. The complexity and magnitude of these threats demand a smarter approach.

The combination of public debt and the complexity of today's environmental challenges makes it clear: We can't spend our way out of the financial and environmental crisis. A smart fiscal policy therefore has to aim at 1) consolidating the budget, 2) continuously providing public funds, and 3) stimulating private investments. As conflicting as these tasks may be, the Obama administration is pursuing this approach by pressing the G20 to end fossil fuel subsidies. This publication seeks to contribute to the debate with a European perspective.

The authors of Green Budget Germany evaluate the German experience of pricing carbon, cutting fossil fuel subsidies and shifting taxes from labor to energy. This last policy, Germany's so called ecological tax reform, kills two birds with one stone. On the one hand, higher energy taxes raise the price for fossil fuels thus providing incentives for more efficient use of coal, gas, and oil. On the other hand, revenues are being used to lower taxes on labor, which creates momentum for new jobs. The revenue-neutral approach of the environmental tax reform ensures that businesses and private households will not face a higher overall tax burden. With this public policy, Germany sets long-term price signals for private investments in renewable energy and efficiency technologies. Investors understand the connection between sustainable economics and profitable investments if the policy framework is set up accordingly.

Thus, it comes at no surprise that international investors have been expressing their frustrations with the further delay of climate regulation in the U.S. Deutsche Bank (DB), a major investor around the globe with green funds of an impressive $7 billion, announced in August 2010 plans to turn its back on the U.S. market; instead, DB will focus on regions that offer political clarity and investment certainty for low-carbon technologies: Western Europe and China. According to DB, without a national climate policy, the U.S. is not only lagging behind, but it hasn't even entered the race for a clean-energy economy yet. Indicative of that fact is that of nearly $7 billion in green investment funds that the German bank currently juggles, only about $45 million originated in the U.S. The essence of the European perspective is this: those economies that serve their citizens best on the basis of a low carbon economy can offer better, safer and more environmentally friendly jobs. Moreover, these will also be the economies better positioned to host more competitive industries. Sustainable fiscal policy has to play a crucial role in offering clearer prospects for consumers, workers and investors alike.

This publication provides lessons on how greening the budget can combine fiscal with environmental responsibility needed for a sustainable future. In comparison to the original German version of the report *Nachhaltig aus der Krise*, this U.S. version elaborates more fully on the experience of the ecological tax reform. We hope you enjoy this latest report of the Heinrich Böll Stiftung North-America.

Klaus Linsenmeier
Executive Director

Arne Jungjohann
Program Director Environment

BACKGROUND AND RESULTS OF THE ECOLOGICAL TAX REFORM IN GERMANY

1. Tackling two challenges: A Financial and an Environmental Crisis

Like many other countries, Germany has been undergoing its most severe economic crisis since 1929. The financial market crisis has expanded into an economic crisis, which has and still threatens to seriously impact the labor market as well. In order to mitigate these effects, the German government decided to (once again) postpone plans for a budget consolidation, at least for the short term, and to, despite plummeting tax revenues, commit to exuberant public spending in the form of two stimulus packages. By taking these actions, the government has consented to the highest new debt load since German reunification in 1990. To supply two stimulus packages (I and II), the German government entered into financial obligations in the range of 107 billion euros. Additional spending for the labor market amounts to nearly 30 billion euros. Meanwhile, actual tax revenues are lagging behind budgeted revenues by approximately 42 billion euros. Significant uncertainty, especially in the banking sector, is generated by government guarantees and bonds in the order of 600 billion euros. For the year 2010, the German government is planning to incur new debts of 86 billion euros.[1] The German Institute for Economic Research (Deutsches Institut für Wirtschaftsforschung—DIW) currently estimates an annual structural deficit of 50 to 75 billion euros, even after a recovery from the recession, for the entire public budget of the Federal Republic, including social security contributions.[2]

Despite these circumstances, the German government does not want to lose sight of its goal of budget consolidation and plans to, within this legislative period, fulfill the Maastricht criteria[3] regarding government deficit and the debt ceiling of the German constitution (to be binding in the future).[4] At the same time, the new government is promising tax reductions. This could only be realized—if at all—if spending is drastically cut or if taxes or other revenues are increased in other areas.

In the meantime, the ecological challenges continue to be overwhelming. The already occurring climate change calls for a reduction of CO2 emissions by 80 to 95 percent in the next 40 years by the Western industrialized nations—a feat that would involve a radical restructuring of existing manufacturing practices and consumption habits. The problem of species loss—some 150 species are dying daily worldwide—remains unsolved, and Germany is no exception.

Even disregarding the above-mentioned climate and environmental challenges, the pressure to act is enormous. Non-renewable resources are becoming scarcer, while the global demand for them rises. In 2007, the share of petroleum in the global primary energy supply was, at just under 4 billion tonnes, at 36 percent,[5] with an upward trend in percentage as well in absolute numbers. In the coming years, the maximum rate of petroleum extraction is expected to peak.[6] This will result in enormous price pressure if demand continues to rise, or even if it stagnates. From a geo-political perspective, the dependency of an industrial nation such as Germany on an increasingly scarce fossil fuel is problematic.

In a market economy, none of these problems can be solved if existing financial incentives stand in the way. For example, as long as communities have to resort to allocating new land for development in order to finance themselves, the goal of the German government to decrease additional daily land consumption to 30 hectares per day by 2020 will be postponed into the far future.[7] Similarly, as long as the German government, through its act on the taxation of company cars, encourages the acquisition and operation of particularly energy-intensive new vehicles, Germany's vehicle fleet can hardly be expected to modernize significantly.

Nor has the German government made sufficient use of the opportunities for additional public spending on the ecologization of the economy. According to a study by GBG, a mere 13 percent of the expenditures of stimulus packages I and II can be considered as green and sustainable.[8] A new stimulus package with a strong focus on ecological modernization would thus be more desirable from an economic and ecological point of view; however, it would hardly be any more affordable. In the coming years, the challenge for Germany consists of incorporating climate protection issues into existing state spending schemes, especially national support programs. In particular, major efforts should be made to align research, the economy, transportation, and

1 German Parliament 2009

2 DIW 2009

3 The "Euro convergence criteria" or "Maastricht criteria" are the criteria for the European Member States to adopt the euro as their currency. The purpose of setting the criteria is to maintain the price stability within the Eurozone. With regard to Government finance, the criteria are 1) a national budget deficit at or below 3 percent of GDP and 2) a national public debth not exceeding 60 percent of GDP.

4 As of 2016, the German Constitution stipulates that the national budget deficit must remain at or below 0.35 percent of the GDP.

5 BP 2008

6 UKERC 2009

7 Currently, additional land consumption in Germany lies at 104 hectares per day. See also TAZ of November 13, 2009 "Beton frisst täglich 100 Hektar Boden,"
http://www.taz.de/1/archiv/print-archiv/printressorts/digi-artikel/?ressort=wu&dig=2009%2F11%2F13%2Fa0244&cHash=f818c262ed

8 GBG 2009a

agriculture programs with climate protection goals. This effort would start with an allocation of funds to the programs' respective core components. Moreover, corporations should be compensated for using climate protection technologies, or, the use of such technologies should be made a condition for receiving funds.

The financing of the newly created expenditures and the required budget consolidation should be pursued in ways that result in greater social justice and stronger ecological incentives. In short: Germany needs taxes that help solve problems, and not taxes that worsen existing or create new problems. As long as the purchase of ecologically and socially compatible manufactured products is more expensive than the purchase of junk goods that support the exploitation of humans and nature, any moral appeals and efforts to increase awareness have only limited effects. For this reason, Germany needs a comprehensive ecologization of its fiscal and financial policies.

An ambitious international climate protection treaty must ensure that the industrialized nations provide necessary and meaningful financial services to threshold and developing countries. At the UN Climate Change Conference in Copenhagen, the EU ended up offering up to 15 billion euros per year by 2020 for climate protection measures. For Germany, this would translate into additional financial expenditures in the range of 3 billion euros.[9] Here as well, possible financial instruments could include revenues from market-based instruments to be levied EU-wide, e.g., auction revenues from emissions trading, an EU-wide contribution levied on flight tickets, or an EU-wide increase in energy taxes.

The authors support such additional financial commitments and their financing with market-based instruments. As it is currently not foreseeable whether and which revenue and financial packages will be implemented on an international level, financial instruments are included for arriving at an estimate of the national revenue potential only as far as they can be implemented as a national policy tool.

Tax bads, not goods!
The German government is still financed by more than two thirds through taxes and contributions from the labor sector, while taxes on resource use amount to less than ten percent of state finances. State financing should therefore be restructured: Instead of making what we want to promote (jobs) more expensive, we should tax what we want to reduce (resource use). Environmentally harmful subsidies in the form of ecologically counterproductive tax breaks or the direct financing of environmentally harmful behavior (e.g., hard coal subsidies) amount to, according to calculations of GBG, approximately 34 billion euros annually—in Germany alone![10] The German Federal Environment Agency (Umweltbundesamt) sets that amount even higher, at 42 billion euros[11] —a sum larger than government revenues from environmental taxes and nearly equal to the estimated new debt load of the government. Although we cannot do without command and control measures, the protection of the environment and nature can only be achieved through a massive rectification of these structural disincentives. The costs of environmental destruction must be charged to the polluter, which means that external costs must be internalized. In pursuing this goal, there is no lack of recommended actions to follow; however, in the absence of concrete models for their implementation, efforts in this area still amount to more talk than action.

Who should pay…?
The main question in the coming months will be how the German government will finance the enormous additional spending for the stimulus packages in the medium term. Can we expect further cuts in social spending, higher social security contributions, an increase in the sales tax, or higher income taxes? Or will the German government use the additional need for funds to implement intelligent fiscal policies that incorporate an "environmental steering effect" in the financing of the national budget, thereby killing two birds with one stone?

Tax or contribution increases or spending cuts should be enacted with the aim to:

- Strengthen the environmental steering effect
- Limit undesired social effects
- Stimulate economic development

9 EU-Info of 09-10-2009 "Klima-Millarden: Brüssel macht Vorschläge", http://www.eu-info.de/dpa-europaticker/158658.html

10 GBG 2008a

11 The fact that the German Federal Environment Agency arrives at significantly higher numbers is due to the different approaches of the studies. The Agency compiled all environmentally counterproductive subsidies without any prioritization as to which of these could be eliminated in the short or medium terms. The list of the Agency thus also includes subsidies that cannot, due to legal or competition-related reasons, be eliminated at the national level, such as energy tax breaks for kerosene and ship fuels, privileges for energy producers, non-energy usage, and sales tax breaks for international air passenger traffic. The aim of GBG was, by contrast, to develop a recommendation for the elimination of subsidies in the medium term.

This is in keeping with the "three pillars of sustainability," which seek to establish an ecological, social, and economic balance between our economy and our lifestyles. In this paper, the authors concentrate on concepts that are feasible at the national scale, as these are considered the real challenge. Of course, if other countries were to follow suit, more ambitious goals could be reached much more easily. However, Germany would still do well to independently engage in its own plan of action, among other reasons to motivate other countries to implement more ambitious environmental measures as well.

In order to enhance the environmental steering effect of the tax system and social welfare levies, Green Budget Germany recommends to eliminate environmentally harmful subsidies and raise taxes and levies on resource use. The possibility of offering social reimbursements for such levies does not seem feasible, as the stimulus packages have already been allocated any available budget funds. We thus propose paying special consideration to the social equity component when raising revenues for those stimulus packages. The benchmark for this should not be the status quo, but rather proposals for alternative tax increases or spending cuts, such as sales tax increases, higher non-wage labor costs, or social spending cuts. Even if eco-fiscal instruments appear partly regressive, they are still considerably more socially just than increasing the sales tax or cutting social spending. We nevertheless decided, with a few exceptions, to advocate eco-fiscal measures that tend to have a progressive effect, in order to achieve as much social equity and social acceptance as possible.

Through a gradual introduction process with long-term and clearly defined stages and goals, the economic compatibility of the measures and the planning security for industry can be ensured. The aim is to avoid jeopardizing investments that are already in progress, yet to provide incentives for additional investments and innovations and give existing investments an ecological orientation. An ecological financial reform has the potential to help companies obtain long-term competitive advantages by exposing them early on to the future demands of a world characterized by climate change and resource scarcity. Spending on energy imports can be reduced and replaced by intelligent engineering and industrial skills. This has short-term positive effects for the economy as a whole and provides medium- if not short-term relief for private households and companies through lower energy costs. Since prices for resource use will unavoidably rise over time no matter what, gradual and long-term price increases through eco-fiscal measures could be seen as preempting that rise, making it more easily calculable and mitigating the transition for the economy and for consumers.

2. Results of the ecological tax reform in Germany

A core concept of ecological tax reform is to levy environmental taxes (or charges) and use the subsequent revenue to reduce other existing taxes by an equivalent amount. This "revenue-neutral" approach ensures that the business sector and private households, taken as a whole, will not face a higher overall tax burden. Ideally, this method enables policymakers to reduce economic distortions that the tax system currently causes by reducing taxes that are considered harmful to the economy.[12]

With the German law introducing the ecological tax reform ("Act on the Introduction of the Ecological Tax Reform) of March 24, 1999,[13] the gradual introduction of the eco tax was in effect in Germany as of April 1, 1999. In order to reduce the environmentally damaging consumption of fossil energy, the tax reform rose taxes for energy sources (e.g. engine fuels, light fuel oil and gas) in small foreseeable stages and introduced a tax on electricity. This creates incentives for energy conservation, innovative energy-efficient technologies and the use of renewable energies. In this way, emissions of greenhouse gases and air pollutants can be reduced and oil dependence eased. The reform shifted the fiscal burden away from labor and toward natural resource use and accompanied these measures by a decrease and stabilization of the contribution rates to the pension fund. The revenue incurred is mainly used for a direct reduction of non-wage labour costs by lowering employers' and employees' contributions to the pensions fund. A smaller part is used as support for renewable energies and for the rehabilitation of buildings for energy saving purposes; tax reductions and exemptions are used to support energy-efficient power plants and public transport amongst other things. This killed two birds with one stone: It created incentives for energy savings as well as momentum for the creation of jobs.[14]

12 DIW 2001

13 "Gesetz zum Einstieg in die ökologische Steuerreform", http://www.foes.de/pdf/b199014f.pdf

14 Further information on the ecological tax reform may be found e.g. at http://www.bmu.de/english/ecological_industrial_policy/ecological_financial_reform/doc/4328.php and http://www.foes.de/themen/oekologische-steuerreform/?lang=en

The following table presents the gradual tax increases brought about by the ecological tax reform from 1999 to 2003. Over this period, the total volume of energy taxes rose from 34.1 billion Euros in 1998 to around 52.7 billion—an increase of 55 percent.

Petroleum tax plus eco tax stages Tax base	Petroleum tax until 03-31-1999	Petroleum tax plus 1st stage of the eco tax (04-01-99)	Petroleum tax plus 2nd stage of the eco tax (Jan. 2000)	Petroleum tax plus 3rd stage of the eco tax (Jan. 2001)	Petroleum tax plus 4th stage of the eco tax (Jan. 2002)	Petroleum tax plus 5th stage of the eco tax (Jan. 2003)	Share of eco tax 2003
Electricity (€ cents/kWh)	--	1.02	1.28	1.54	1.8	2.05	2.05
Fuels							
Diesel (€ cents/liter[1])	31.70	34.77	37.84	40.91	43.98	47.04	15.34
Gasoline (€ cents/liter[1])	50.11	53.18	56.25	59.32	62.39	65.45	15.34
Natural gas (€ cents/liter[2])	6	7	7	8	8	8	2
Liquefied gas (€ cents/liter[2])	6	7	7	7	8	8	2
Heating fuels							
Light heating oil (€ cents/liter)	4.09	6.14	6.14	6.14	6.14	6.14	2.05
Heavy heating oil (€ cents/liter)	1.53	1.53	1.79	1.79	1.79	2.5	0.97
Heavy heating oil (€ cents/liter)	0.18	0.344	0.344	0.344	0.344	0.55	0.37

Source: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety 2004a

1 As of 11-01-2001 for low-sulfur, as of 01-01-2003 for sulfur-free fuels.

2 In the framework of the reduction of tax breaks, the petroleum tax for natural gas and liquefied gas for fuels was increased by one cent for each 9 cents/liter implemented as of 2004.

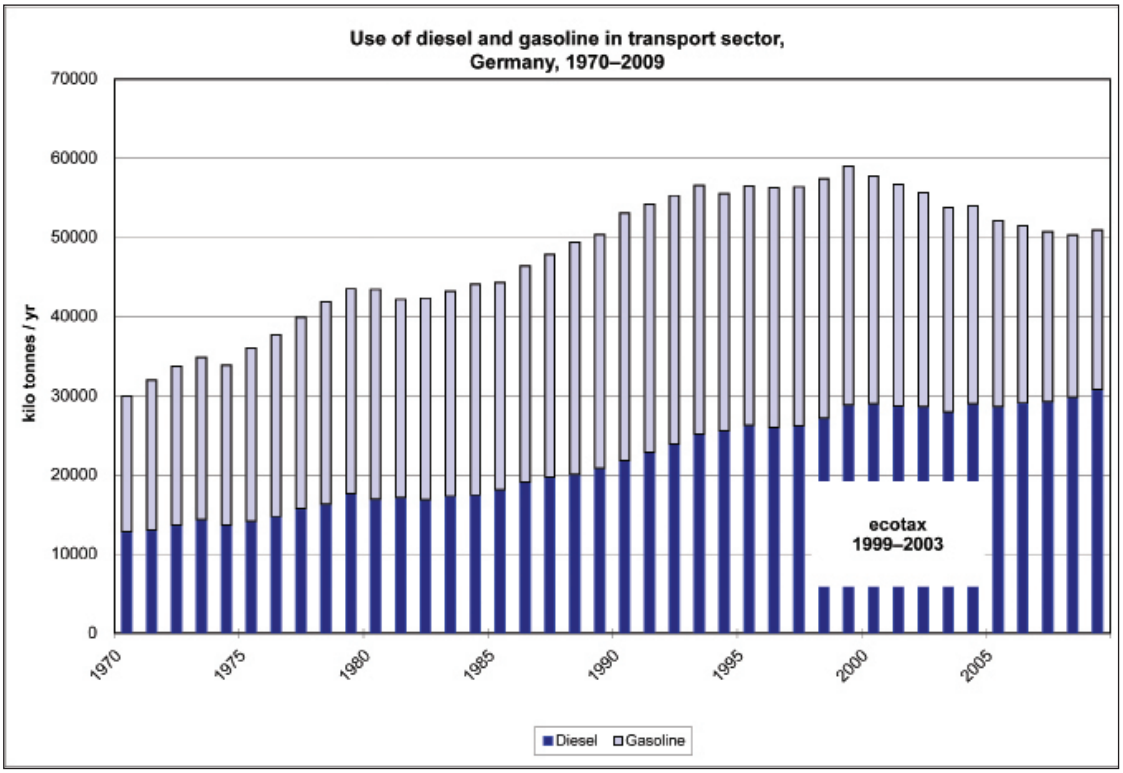
The ecological tax reform represents a historical turning point in fiscal politics in Germany. Prior to the reform, the petroleum tax was only increased for fiscal purposes, while wages were increasingly burdened with social contributions.

Because energy savings and the expansion of renewable energies generally involve labor-intensive activities (e.g., heat insulation and energy retrofits; the development, production, installation, and maintenance of new technologies and their export possibilities; the expansion and restructuring of network structures; research and development; and new forms of agriculture), the ecological tax reform has also contributed to the reduction of unemployment. The lowered and stabilized non-wage labor costs also made the creation of new jobs less expensive. This was accompanied by an investment and innovation boost and a reduction of fossil energy imports, which had required foreign currency exports. With this money, domestic jobs can now be created, as oil imports and energy wastage are being replaced by intelligent engineering.

The ecological tax reform in Germany, in the context of rising world market prices for petroleum, has already had the following positive effects:

- The ecological tax reform makes an important contribution to the reduction of CO2 emissions and the reaching of the Kyoto climate goals in Germany. According to an expert report by the DIW, energy consumption went down significantly following the introduction of the eco tax. Moreover, the report anticipated that CO2 emissions could be reduced by 2 to 3 percent, representing 20 to 25 million tonnes, by 2010.[15]
- Since the introduction of the eco tax, gasoline consumption in Germany has continually declined—a first in the history of the Federal Republic. According to the German Federal Statistical Office, gasoline consumption in 2000 decreased by 4.5 percent compared to the previous year, and continued to decrease in 2001 and 2002 by 3.0 and 3.3 percent, respectively. The average annual reduction from 1995 to 2006 was 2 percent.

15 DIW 2001



Source: UPI (Umwelt- und Prognose-Institut e.V.)

- However, gasoline consumption is increasingly being replaced by the use of more diesel vehicles as passenger cars—not least because diesel is taxed 18 cents less per liter than gasoline in Germany. The consumption of diesel fuel by passenger cars rose from 1995 to 2006 by an average 8.5 percent per year. However, the overall consumption of all fuels taken together has been in steady decline since the year 2000; from 1995 to 2006, it decreased on average by 0.3 percent per year.
- The demand for energy-saving products is growing. For people buying new cars, efficiency has become a main purchase criterion: According to a representative survey of German drivers conducted by one of the main German consumer research associations, the Nürnberg-based *Gesellschaft für Konsumforschung*, 63 percent of all participants are influenced by high gasoline prices when making the purchase decision for their next car. In a survey conducted by the market research institute Emnid, eco-friendliness was ranked as the number one priority in the purchase of a new car by 89 percent of participants.
- The introduction of the ecological tax reform was also accompanied by the market launch of the 3-liter car (approx. 80 MPG). One-liter car models have also been tested and the number of vehicles that run on alternative fuels continues to rise steadily. The consumption of liquid petroleum gas, for instance, has seen an 89-percent increase between January 2008 and January 2009 alone. Nevertheless, the 300,000 liquefied-natural-gas(LNG)-fueled vehicles on the road in Germany in 2009 constitute only a small fraction of the country's 41.3 million registered vehicles. On the whole, gasoline consumption of the German passenger car fleet has decreased annually since 1998 by an average 0.1 liter per 100 km. In 1998, German cars used an average of 8.6 liters per 100 km. In 2003 that number shrank to 8.0, and in 2007 to 7.6. The decrease could have been even more rapid had it not been counteracted by a trend toward heavier vehicles and the purchase of optional features such as air-conditioning and electric windows, which increase overall energy consumption. For the same period of time, the cumulative fuel consumption of German cars has hardly decreased.[16] The tax measures were evidently not yet sufficiently large, i.e., not long-term enough, to effect more profound changes in the structure of German automobile construction. Mandatory CO2 standards for new cars, similar to the US CAFE-standards, are required from 2012 on in the EU.

16 In 1998, fuel consumption reached 48 billion liters. In 1999, it rose to a record value of 50 billion, dropping back to 48 billion in 2003 and to 46 billion in 2007. These figures include fuel consumption for the transport of goods, for passenger traffic, as well as air traffic and non-electric rail traffic. For more fuel consumption data, see the German Federal Environment Agency: http://www.umweltbundesamt-daten-zur-umwelt.de/umweltdaten/public/theme.do?nodeldent=2330

- Single-occupancy vehicle traffic stagnated in the past decade. Meanwhile, the number of passengers using public transport has increased steadily since the introduction of the ecological tax reform: Between 1998 and 2003, the annual number of passengers increased from 9.7 to 10.1 billion, and in the decade from 1998 to 2008, it increased by 10 percent to 10.8 billion.[17]
- According to data from the German Federal Association for CarSharing, the number of people who were members of a car-sharing organization grew by 26 percent in 2000, by 22 percent in 2001, and by 8 percent in 2002 (compared to the previous years). This trend continues, with annual growth rates of approximately 20 percent (2007: 14.5 percent, 2008: 22.1 percent, 2009: 18.1 percent).
- Producers of solar-thermal units for hot water generation are also experiencing double-digit growth rates—a boom made possible in part by the eco tax on heating fuels and by the market incentive program for renewable energies, financed with the eco tax. At the end of 2002, a total of 4.2 million square meters of solar collectors had been installed in Germany, and by 2008 that number had already reached 11.3 million. The ecological tax reform contributes to the gradual, structural transition of the German economy; to providing incentives for investments in energy savings; and to the development of more environment-friendly technologies. Furthermore, it enhances Germany's position as a world leader in the sector of environmental protection goods, which also creates new jobs. On the whole, this constitutes a modernization and strengthening of the German economy. According to the DIW, some 1.4 million jobs in Germany are now either directly or indirectly related to environmental protection.
- Without the eco tax, the contribution rate to the federal pension fund in 2003 would have had to have been set 1.7 percent higher. The DIW estimates that approximately 250,000 new jobs will be created due to the lessened burden of pension fund contributions.
- The ecological tax reform creates a strong incentive for transforming under-the-table work into legitimate employment. In 2003, illicit employment rates in Germany decreased for the first time in many years, by 1.6 percent. According to the Institute for Applied Economic Research (Institut für Angewandte Wirtschaftsforschung) this change of trend is due primarily to measures that reduce the heavy burden on labor in the form of taxes and contributions. The reduction of non-wage labor costs as part of the ecological tax reform is a good example of such a measure.
- The significance of the ecological tax reform goes beyond national borders. In particular with the introduction of the electricity tax, Germany is making a political statement and an important contribution to the efforts of establishing a Europe-wide energy taxation system. The Energy Tax Directive of the EU is a first step toward the minimum taxation of all types of energies in Europe.

Despite all these positive effects, the eco tax has not been particularly popular. Of the parties currently represented in the German Parliament, only Alliance 90/The Greens (Bündnis 90/Die Grünen) and, to a lesser extent, the Left Party (Linkspartei) have formulated a series of demands for an ecological financial reform in their platforms (e.g., reform of company car taxation, property taxes, phasing-out of hard coal subsidies, elimination of eco tax exemptions for industry, nuclear power tax, fees on airline tickets, reduction of sales tax for rail transport, and a gradual CO2 orientation of the motor vehicle tax).

This is presumably due mainly to the fact that the ecological tax reform was not well received by major segments of the population. As for the political parties, significant parts of the CDU/CSU and FDP parties waged a massive campaign, in collaboration with the ADAC (Germany's and Europe's largest automobile club) and Germany's biggest tabloid, the *Bild Zeitung*, against the eco tax. Even the Green basis was prone to accept the argument that eco taxes should be used for the environment and not for the pension fund. The slogan "Rasen für die Rente" (pushing the pedal for our pensions), issued by the pro-business FDP, brought this seeming absurdity to the point. Many people also considered the eco tax a "rip-off," despite the fact that the reform was largely revenue-neutral, and even though income and corporate taxes were lowered and child allowances and student aid increased at that same time. Representative surveys clearly show that the ecological tax reform was not well understood and was considered to be socially unjust. For example, some 43 percent of respondents agreed with the statement that the ecological tax reform is socially unfair and that it is simply a means to pull money out of people's pockets. Moreover, 69 percent of Germans are of the opinion that the eco tax makes no contribution to the solving of environmental problems, although 48 percent of respondents agreed that higher "energy taxes" encourage energy savings and thereby mitigate environmental problems.[18] However, on the whole, protests would presumably have been even bigger if the eco tax revenues, a proud sum of 20 billion euros, had actually been used for the environment instead of supporting the citizens in another area.

In addition to tax breaks and exemptions which the eco tax grants to certain participants of the economy, the not very intuitive name "eco tax" could also be responsible for its unpopularity, as it constitutes a significant break with the former convention of name-giving for various taxes. Petroleum, beer, and tobacco taxes are named according to the item being taxed. And most people are aware that the government increases those taxes with the intention of achieving a certain steering effect. However, with the "eco tax," this is apparently either not acknowledged or seen as negative by many people.

17 In 2004, the German Federal Statistical Office changed its data collection methodology. Nevertheless, the trend of a steady increase is undeniable. Sources: DESTATIS 2008a, 2008b as well as direct exchanges with employees from the Federal Statistical Office.

18 BMU 2004b

The eco tax seems to be taxing neither the environment nor ecological behavior. As most people associate environmental protection with the attribute "expensive" (e.g., costly organic foods and environmental organizations looking for donations), and as the daily experience of rising gasoline prices has a greater immediacy than a decrease or non-rise of pension fund contributions, the eco tax appears to be designed to raise additional funds for ecological measures of the government.

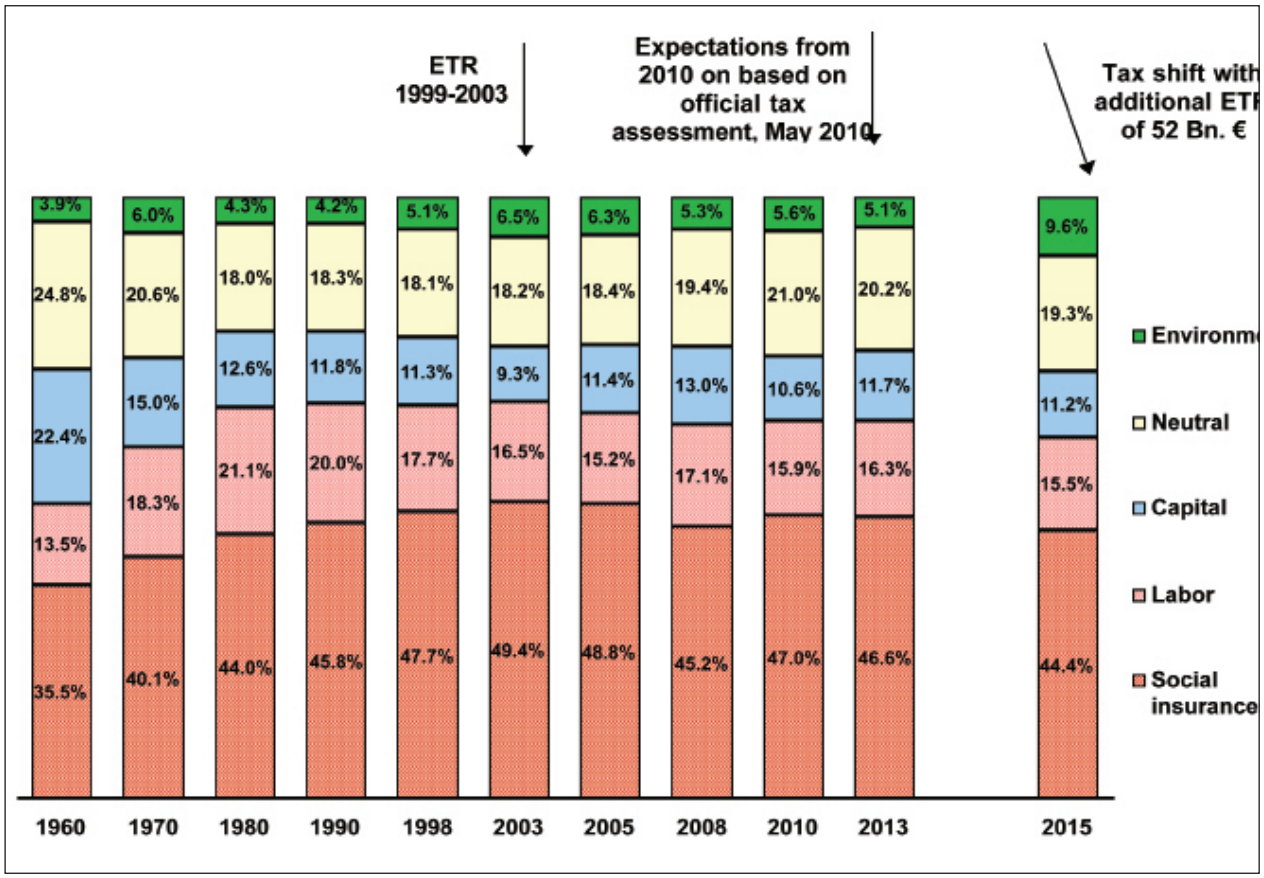
Accordingly, there was outrage that the eco tax revenues are being channeled into the pension fund. The fact that the existing ecological tax reform makes energy more expensive and human labor less expensive, thereby creating jobs, is only appreciated by 25 percent of Germans. That said, greater social equity could have been provided for in the reimbursement scheme for the eco tax. For example, tax reductions that were already in planning could have been integrated into the ecological tax reform. However, the use of eco tax revenues for the reduction of non-wage labor costs has a further decisive advantage: CDU/CSU, who have combated the eco tax since it was first tabled, would now, as they are leading a center-right coalition, not even think of repealing the eco tax as implemented so far. The pro-business FDP no longer wants to abolish the eco tax either, aiming rather to restrict its application or to lower it selectively (Electoral platform 2009). Otherwise the non-wage labor costs would have to be increased, something neither the CDU/CSU nor the FDP want to be responsible for.

Overall, experiences during the first five years of the German ecotax refute the main counter-arguments of its opponents, some of which are still being voiced. Opponents to the ecotax should perhaps take this opportunity to at least dispense with some of their arguments …Six years after the most recent increases of the eco tax, the tax has already been largely neutralized again.

BALANCE SHEET AFTER FIVE YEARS OF THE ECOTAX: COUNTERARGUMENTS AND FACTS	
Opponents' claim	Actual development
"Ecotaxes are just an excuse to raise tax ratios and public spending."	Despite a 55 percent increase in **energy taxes**, the overall tax ratio fell by more than four percent between 1999 and 2003.
"A successful ecotax would soon exhaust itself, because the tax base is eroded."	It is true that high energy taxes lead to a reduction in energy consumption. On balance, however, **tax revenues increase**, because taxes increase at a higher rate than the basic volume is reduced by. Unfortunately, we are still a long way from achieving a genuine 'erosion' of energy consumption.
"Ecotaxes cost jobs."	In fact, the opposite is true. The reduction in ancillary wage costs, the innovative impact and the easing of pressure on the manufacturing industry and services mean that existing jobs are protected and additional ones are created. In a comprehensive study, the DIW anticipates **up to 250,000 new jobs** as a result of the ecological tax reform by 2003.
"Ecotaxes just mean that we are paying for pensions when we put petrol in the car."	Thanks to the ecotax, for the first time, **all non-defined benefits** totalling 60 to 80 billion Euros will be **funded from taxes**. Without the ecological tax reform, pension contributions today would be 1.7 percentage points higher. Actual pension contributions have been cut by 0.8 percentage points. Independently of this, long-term reforms have been introduced to reduce pension expenditure.
"Ecotaxes do not do anything for the environment."	This is incorrect. For the first time since the Federal Republic of Germany was founded, fuel consumption has fallen for four years in succession, whilst over the same period the use of public transport has increased. **CO2 emissions have been cut by between six and seven percent.** The demand for fuel-conserving cars and equipment has risen, and part of the ecological tax reform revenues are also used to promote renewable energies under the market incentive programme.
"Ecotaxes disadvantage German industry in international competition".	Thanks in particular to reduced ecotax rates, the manufacturing industry overall has cut its tax bill by **almost one billion Euros (net)**. Compared with the regular tax rate, the manufacturing industry has in fact benefited from a tax break of around 4.8 billion Euros per annum. The incentive effect for developing energy-saving vehicles and equipment also helps German industry to gain an innovative lead in exports.
"Taxes should not be used for steering purposes—ecotaxes are anti-constitutional!"	In 2004, the Federal Constitutional Court unequivocally **confirmed the admissibility of ecotaxes with steering purposes**. From an economic viewpoint, there is no such thing as a tax without some kind of steering effect, merely those with economically desirable and undesirable steering effects.
"Germany has been the only country to introduce ecotaxes".	Most of the EU15 nations have now introduced national ecotaxes, and most of them in fact did so before Germany. Since 2004, as a result of the unanimously adopted EU Energy Tax Directive, all EU25 nations must comply with rising minimum energy tax rates. Hence, similar approaches to ecological tax reform have become established throughout the EU, and many non-EU countries have also emulated this successful model.

The share of environment-related taxes of all taxes and contributions in Germany rose from 5.2 percent in 1998 (the year before the introduction of the ecological tax reform) to 6.5 percent in 2003, when the most recent increase was implemented. Since then, however, is has been in continual decline again. In 2008, it was only at 5.3 percent, i.e., nearly the same level at which it started in 1999.

The development of the tax and contribution system is illustrated by the following diagram. It takes into account public revenues on national and regional (German "Länder" and municipalities) level.



The following factors have been identified as having played a role in this development:

- The ecological tax reform was very successful with regard to its steering effect for climate protection. The rise of petroleum prices, the increasing use of bio fuels (fully tax-free until the end of July 2006), "fuel tourism," i.e., the practice of driving across the border to neighboring countries to obtain fuel at cheaper prices, and economically difficult years likewise contributed to lowering the revenues from fuel. Although the consumption of fossil fuels had grown steadily in Germany since 1950, it decreased by 18 percent between 2000 and 2006.
- The share of diesel fuels grew considerably, while that of gasoline decreased. This is also the main explanation for the reduced tax revenues, as the diesel tax rate lies below the gasoline tax rate by 18 cents per liter.
- The level of social security contributions continues to be high, although it was subject to some fluctuations.
- In 2006, total tax revenues increased by 8 percent and in 2007 by 9 percent. The reasons for this were the sales tax increase, the economic upswing, and changes in the tax law that stabilized the corporate taxes that had been on the decline between 2001 and 2004.
- While high-revenue taxes, in particular income tax and sales tax, are designed as value taxes, i.e., price-based taxes, the consumption of natural resources is, if taxed at all, taxed on a quantity basis. While value-based taxes grow nominally along with inflation, resulting in total real revenues that remain equal, real revenues from quantity-based taxes decrease, since they do not grow along with the economy and continually decrease in value due to inflation. This is because their bases are not monetary amounts but physical units (e.g., liters for petroleum, kWhs of electricity). By contrast, most taxes on labor, capital, and sales grow dynamically with the GDP, such that their contribution to the overall tax revenue likewise grows. This leads to the paradox of a continuous, self-propelling "anti-ecological tax reform."

To avoid this effect, environment-related taxes would have to be designed as value-based taxes. However, this solution has disadvantages; for example, value-based environmental taxes would intensify world market price fluctuations, while quantity-based taxes mitigate those fluctuations. The alternative would be to implement gradual increases over the long term in order to counteract the devaluation of quantity-based taxes.

In this context, the idea of tax indexing merits consideration. For example, legislation could provide for an annual increase of the quantity-based tax to compensate for inflation. By contrast, the so-called "ratchet effect," i.e., when the dynamic tax rate increases as soon as the price drops below a previously defined limit, would not contribute to a solution. This is because participating oil producers and suppliers would tend to orient themselves to those limits, which would, although ensuring that prices do not drop under this limit in recession phases, result in revenues that would not accrue as planned to the national budget. It must be said, however, that this mechanism is in operation in various other European countries, and that those experiences merit further examination before a final evaluation is issued.

HARMONIZING ECO TAXES WITH EMISSIONS TRADING

In 2005, an EU-wide Emissions Trading Scheme (EU ETS) was introduced and celebrated as "EU's flagship climate policy tool." Through the scheme, Germany is providing, aside from the ecological tax reform and other mechanisms,[19] a further market-based incentive tool to apply the "polluter pays" principle and the efficient reduction of the country's CO2 emissions. This section discusses the relationship between the EU emissions trading scheme and the ecological tax reform, with a focus on Germany.

The concurrent application of the two instruments raises the question of whether both instruments are needed in order to reach the political climate targets. In other words: Has the introduction of emissions trading made the eco tax superfluous? A further question is whether the use of both instruments and the resulting regulations leads to double taxations that are acceptable, or whether the dual system creates loopholes, with individual areas falling through the cracks.

Although, in theory, one of the two instruments would suffice to reach climate protection goals, we take the position that the two instruments are not mutually exclusive or contradictory. On the contrary, through their interaction, weaknesses in the practical implementation of each can be counterbalanced and a larger-scale overall application can be achieved. The dual system also avoids excessive focus or dependence on individual measures, something which would incur excessively high macro- and micro-economic costs.

1. Objective

The eco taxes on electricity and energy sources (i.e., fuels and heating fuels) introduced in Germany led to a direct increase of the prices of the taxed energy (see previous Section). In the German emissions trading system, participating facilities are obliged to ensure that their emissions certificates correspond to the actual quantity of their CO2 emissions. The Germany-wide cap on emissions and the trade with the corresponding certificates generate a market price that is expected to lead to cost-savings measures and that is partly passed on to the end consumers. Theoretically, both instruments can effect the internalization of external costs and generate the incentive to reduce energy consumption, i.e., emissions.

While the ETS is primarily motivated by climate politics, the ecological tax reform also pursues the goal of tax reallocation. Here, the tax burden is to be shifted away from labor and onto undesired aspects such as energy and resource consumption and pollution. The revenues from the eco taxes are allocated to allow for the reduction of pension fund contributions, in turn leading to the reduction of non-wage labor costs. The overall tax burden therefore remains the same, but the structure changes to provide different incentives: It is now more profitable than before to employ people than to fire them. Now, it is superfluous kilowatt hours of energy consumption that are being "fired," thereby lowering costs and increasing competitiveness.[20] The eco tax moreover promotes environmental technologies through its differentiated taxation of energy carriers. In this way, the ecological tax reform promotes innovation, technology, and exports in addition to advancing climate protection and the creation and securing of jobs.

The objectives of the ecological tax reform are by far more ambitious than those of the emissions trading scheme. Both pursue goals such as the cost-effective reduction of CO2 emissions, resource protection, efficiency increases, and incentives from innovations. However, in addition to these goals, the ecological tax reform also pursues the transformation of the tax structure, the general financing function of the public budget, further environment-related goals (e.g., the internalization of external costs generated by the emission of pollutants related to energy consumption as a whole and not only to CO2 emissions), and the implementation of incentives for additional employment through the reduction of social security contributions.

An evaluation of the two instruments therefore requires special consideration of the overlapping yet differing goals.

2. Steering effect

Combining two or more instruments carries the risk of generating unnecessarily high costs for the participating actors, as well as inefficiencies due to competing application areas. In theory, both emissions trading and the eco tax are in a position to, on their own, contribute effectively to the reduction of greenhouse gas emissions and to thereby realize climate protection goals. In emissions trading, this steering effect is dependent on the quantity of emissions allowances and the underlying reduction targets, while the ecological tax reform depends heavily on the level and long-term nature of the introduced tax. However, in practice, the application of both instruments together is more effective, as each instrument is subject to political processes that threaten

19 Apart from the ecological tax reform and the ETS, further incentive tools exist, such as toll fees for trucks, single-use packaging deposits, or feed-in tariffs for renewable energies. See Weizsäcker et al. 2009 (p. 279-299) for an overview of economic instruments in environmental politics.

20 Von Weizsäcker et al. 2009, p. 315

to impede their intended application. Despite the theoretical potential of each instrument, the political reality has led to the insufficient implementation of the emissions trading scheme (partial sectoral approach, inappropriate quantity limit for climate protection, inefficiency of the free issuing of emissions certificates, massive influence by lobbying of allocation rules, etc.) and of the eco tax (magnitude of the tax rates, extensive reductions, etc.). Against the background of currently available empirical findings and especially against the background of the (necessary) ambitiousness of future climate policy, effective climate protection can only be achieved through the interaction of different instruments. A balanced mix of an emissions trading system, or other measures of CO2 pricing, and other instruments is urgently needed.[21]

Whether the combination of both instruments can achieve to complement gaps of the eco tax and emissions trading or to the double taxation of certain market subjects will depend on the concrete design and application of that combination.

3. Fields of application

As both the ETS and the ecological tax reform lead to regulation of different sectors, the concurrent application of both instruments can only be successful if inappropriate double regulations and double taxations and the exclusion of essential sectors is avoided.

In the case of Germany, the demarcations and interactions between the EU emissions trading and energy taxation are already well established and defined. The same should apply to other member states due to commonly applied exemptions from energy taxation, although overlaps do exist in some sub-sectors.

> There are "[…] overlaps, whereby the eco tax applies to the overall consumption of fossil fuels and electricity, while emissions trading applies to the CO2 emissions of individual facilities [industry and the power sector]. Indirect overlaps regarding electricity prices are more common than direct overlaps."[22]

The electricity sector and other energy-intensive sectors are by and large covered by emissions trading. By contrast, the ecological tax reform targets more so private households, traffic and transportation, and small- and medium-sized enterprises. In these sectors, emissions trading has only indirect effects, because the incorporation of the prices of emissions certificates leads to increased electricity prices.[23]

Private households and trade/commerce/services

A regulation in private households as well as in the trade, commerce and service sectors results primarily from the ecological tax reform. Here, emissions trading has, if at all, only had an additional indirect effect through electricity prices. This is because the incorporation of the CO2 costs of emissions trading into the electricity price, together with the electricity tax, creates a cumulative burden for end consumers with regard to electricity. This cumulative interaction can be best understood in consideration of the above-mentioned further goals for levying energy taxes. A significant capping of the quantity of allowances of emissions trading, in order to reach ambitious goals, and the compensation thereof through prices, could very well lead to a considerable burden for electricity consumers—which would be a perfect illustration, at least in theory, of the external costs generated by the greenhouse effect. However, in practice this should not be the case.[24] The next step would then be to examine which further environmental costs should be internalized by the tax, and to what degree.

Transport sector

The transport sector has relatively few overlaps. Road traffic is in essence covered exclusively by the ecological tax reform. The exception is electrified rail, and in some cases electrified road traffic, which is affected not only directly by the (reduced) electricity tax but also indirectly by the incorporation of certificate costs into the electricity price. Air traffic has been subject to neither of the two systems up to now; for competitive reasons, a national kerosene tax has not yet been enacted.[25] An EU-wide kerosene tax has not been enforceable despite many attempts, due to the unanimity rule in the Council of the European Union.[26] The EU member states have already agreed to incorporate air traffic as of 2012 into the existing emissions trading scheme. However, the effects can be expected to be considerably lower than those of a possible tax. Marine traffic pays no petroleum tax, and therefore no eco tax; however, it benefits—as does air traffic, ironically—from the lowered pension fund contributions.

21 Öko-Institut 2010, p. 9

22 Schlegelmilch/Bunse 2008

23 For further information on direct/indirect overlapping, see Heilmann/ Bertenrath, 2008.

24 Kohlhaas 2005

25 Pache 2005

26 When taking decisions on some issues, the Council of the European Union has to be in unanimous agreement–i.e. all countries have to agree. Any disagreement, even by one single country, will block the decision. This would make progress very difficult in a Union of 27 countries, so the unanimity rule now applies only in particularly sensitive areas such as asylum, taxation and the common foreign and security policy.

Industry and power sector

Industry, in particular the power sector, represents the sector in which overlaps of the two policies are most likely to occur. This paper concludes that the concurrent collection of emissions trading and eco taxes do not have to lead to an increased burden for energy consumers, as reliefs resulting from the application of one instrument generate a relief by the other instrument. For example, energy savings, resulting from the eco tax, lead to a decreased demand for CO2 certificates. The remaining higher quantity of certificates can then be sold at comparatively better profits.[27]

In reality, this argument applies only to a few sub-sectors, as industry and the energy economy benefit from considerable exemptions from the eco tax.

To avoid competitive disadvantages, the following tax breaks were created in the framework of the eco tax for energy-intensive companies:

- Overall tax break: The manufacturing industry, agriculture and forestry, fish farming, as well as sheltered workshops each pay only 60 percent of applicable eco taxes on heating fuels and the electricity tax. The German Biofuel Quota Act was expanded such that, as of January 1, 2007, the tax break applies, as a general rule, to all respective standard tax rates of the energy taxes.
- Tax cap (net burden compensation): Energy-intensive businesses in the manufacturing sector whose eco tax burden lies above the relief level from the reduction of the pension fund contributions are reimbursed for 95 percent of tax payments that exceed the pension fund relief.
- Since August 1, 2006, the new regulations of the Energy Tax Act 2006 have granted tax exemptions to certain energy-intensive processes such as those found in the glass, ceramics, cement, lime, building materials, fertilizer, and metal-working industries. Combustion plants for electricity generation have also been exempt from energy taxes on the input side since 2006.
- Since August 1, 2006, seaport operations have been entitled to use tax-reduced petroleum.

The tax exemption of the power sector alone already constitutes a main segment of the facilities covered by emissions trading for which no double regulation between energy tax and emissions trading exists. The problem here is rather that emissions trading only includes generators producing 20 MW or more, and that smaller combustion plants are therefore not subject to either of the two regulations.

With regard to other energy conversion processes (e.g., process steam, hot water), distinctions have to be made between the manufacturing industry and other areas. Although the manufacturing industry is in essence targeted by both instruments, an incommensurate double taxation is prevented through concessions and a tax cap (see above). However, these do not apply to energy conversion plants outside of the manufacturing sector, e.g., in hospitals, municipal administration, or universities. These areas are clearly subjected to a double taxation, even if the volume of their CO2 emissions is relatively insignificant.[28]

Industry

Aside from facilities in the energy conversion sector, certain industrial facilities make up the second scope of application of emissions trading. Among these are plants for ferrous metal production and processing, cement production, and the burning of ceramic products. Since the introduction of the new Energy Tax Act 2006, the majority of these facilities are no longer subjected to double regulation, as they are exempt from the energy and electricity tax. Any overlaps, to the extent that they take place, are compensated by the reduced tax rates for the manufacturing industry and the possibility of a tax cap.[29]

Thus, in the industrial processes sector, on the whole, insufficient regulation is more likely to occur than excessive double taxation. For example, thermal waste processing is subject to neither of the two instruments. Moreover, certain industrial plants that are exempt from the energy tax and that are not included in emissions trading due to their size are subject to no climate political regulation at all.

4. Conclusions: emissions trading and ecological tax reform as complementary policies

In conclusion, it can be said that the ecological tax reform pursues ecological goals in addition to contributing to the cost reduction of labor and to constituting an important revenue source for the government. Emissions trading, by contrast, is mainly used to reach already determined and politically binding climate targets. The scope of application of the eco tax is wide and comprises industry, transport, commerce, and households. Participants in emissions trading comprise certain plants from the energy and industry sectors; however, their effect is based on the incorporation of their prices in all electricity-using areas. Direct overlaps

27 Kohlhaas 2005

28 Cf. Heilmann/ Bertenrath 2008, p. 77

29 This applies to some facilities to smelting mineral substances to obtain pulp, to the manufacturing of paper, carton, or cardboard, as well as to cracking for the chemical industry. For further information, see Heilmann/ Bertenrath 2008, p. 78.

of eco taxes and emissions trading play only a subordinated role: The energy sector is subject to the energy tax only in individual cases, and industrial processes largely benefit from reduced tax rates and the possibility of the tax cap. We can therefore conclude that the two instruments—emissions trading and ecological tax reform—are largely complementary. Due to existing implementation deficits and the lack of political enforceability of the theoretical ideals of each instrument, the co-existence of both is recommended, as few overlaps exist and as the instruments largely complement each other. Elimination of the eco taxes in favor of emissions trading is not recommended, as a significant aspect of the ecological tax reform lies in the redistribution of the tax burden, which leads to positive employment effects. Since both instruments currently exist, and as neither of them is expected to be subjected to a specific trend in the near future, they should be harmonized with each other in order to avoid encumbering overlaps or insufficient regulation.[30]

30 Schlegelmilch/ Bunse 2008

ELEMENTS FOR AN ECOLOGICAL FINANCIAL REFORM IN GERMANY

Like many other countries, Germany is faced with at least two big challenges: First, the government has to finance spending in the order of billions of euros for stimulus packages and for the compensation for the revenue losses resulting from decreased tax revenue. For this, spending must be reduced and/or revenues increased. Second, the ecological challenges—in particular climate change—are enormous: Germany has pledged to reduce its CO2 emissions by the year 2020 by 40 percent compared to 1990. To achieve this, a massive ecological restructuring of the economy is required. Those who fail to make the transition to a low-carbon-economy in due time, will face significant competitive disadvantages later.

The government also has to lower the record indebtedness of the public hand, while at the same time advancing the restructuring to a sustainable economic system. An ecological financial reform could help to solve both problems. Today, the German government finances itself mainly by taxing labor. A total of 60 percent of the national budget is generated through taxes and contributions on labor. Taxes on resource use contribute to no more than five percent of government finances.[31] De facto, this promotes cutbacks of jobs and wastage of natural resources. A stronger taxation of natural resource use, i.e., environmental pollution, would give incentives for more resource efficiency and climate protection. At the same time, the government would gain significant additional revenues, which it could use either for social compensation measures, the reduction of non-wage labor costs, or the reduction of the national debt.

We therefore recommend a combination of intelligent ecologically oriented contributions and the elimination of economic subsidies. Environmentally harmful subsidies and tax breaks amount to 34 billion euros in Germany.[32]

This section presents 13 possible elements of an ecologic financial reform in the energy and transport sectors in Germany. Complementing the eco tax and the European emissions trading scheme, these elements promote the transition to a sustainable economic system and can contribute to the restoration of public finances. These suggestions should not be compared with the status quo; rather, they should be benchmarked against commonly proposed financial measures, such as an increase of the sales tax, higher non-wage labor costs, and cutbacks in social spending. From a social point of view, the latter are significantly more problematic, in addition to being ecologically blind and economically questionable. In order to achieve a strengthening of eco-fiscal elements in state financing in ways that are more economically compatible, we recommend gradual increases and an early announcement of the measures.

In the short term, the recommended measures would yield revenues of some 16 billion euros, and in the middle term over 50 billion euros. A table of all recommended measures and their financial contributions is featured in section 3 of this chapter.

1. Elimination of direct subsidies and tax breaks and increase of environmental taxes in the transport sector

Deductibility of company cars

Regulations of the taxation of company cars have so far privileged the most expensive and least fuel-efficient cars, the heavy use of these cars on a private basis, and owners who have the highest marginal tax rate in their income tax. The bigger the car, the higher the tax incentive. In this way, the government loses 9 billion euros in revenues annually. In addition to constituting a financial loss, this is also highly problematic from an environmental point of view, especially since more than 60 percent of new vehicles in Germany are now company cars. Through blatant disincentives, the government is thus validating and strengthening outdated vehicle structures, and thereby threatening the competitiveness of the German automobile industry. The GBG recommends tying monetary advantages and the deductibility of the purchase and operating costs of company cars to the CO2 emissions of the vehicle.[33]

Commuter tax allowance

Currently, employees can deduct from their taxable income 30 cents per kilometer for rides between home and workplace. This regulation is ecologically and socially counter-productive, as it rewards long rides to the workplace and benefits high-income professionals more so than others. The commuter tax allowance should thus be gradually eliminated, as it promotes environmentally harmful subsidies, additional traffic, and urban sprawl. If granted at all, a commuter tax allowance should be restricted to hardship cases, and then be designed in as environmentally friendly a manner as possible. Simply by lowering the commuter tax allowance from 30 to 20 cents, as a first step, the government could gain additional revenues of 1 to 2 billion euros per year.

31 GBG 2009b

32 GBG 2008a

33 For details see GBG 2008c

Ticket fees in air traffic

Air traffic is the fastest-growing traffic sector and, despite being the most climate-harmful means of transportation, it enjoys numerous financial privileges. The inclusion of air traffic in European emissions trading as of 2012 has been decided. However, the taxation and steering effects of that inclusion will be comparatively weak, in addition to taking time to manifest. An EU-wide kerosene tax is difficult to implement due to the veto right of every EU member state in matters concerning taxation. GBG therefore recommends for Germany, as a second-best measure, the introduction of a per-flight fee or an airplane tax.[34] In France, Great Britain, and the Netherlands, all main competitors already have a ticket tax in place. Only Germany still serves as a tax haven, thereby also putting other countries under pressure to abolish ecologically progressive policies.

Motor vehicle tax

For years there has been ongoing debate in Germany about a CO2 component of the motor vehicle tax. The German government first introduced a fixed-term tax exemption for low-emission vehicles based solely on cubic engine capacity. Later, this exemption was then modified to be based half on cubic capacity and half on CO2 emission. However, this change provided only minimal relief for low-carbon vehicles. The motor vehicle tax even decreased on average through the reform. To realize an effective steering effect, the motor vehicle tax would have to be higher and more strongly oriented toward CO2 emissions.

Diesel tax

Diesel has a higher carbon content and emits approximately 16 percent more CO2 per liter than does gasoline. It is also considerably more carcinogenic. However, at 18 cents/liter, it is taxed less than gasoline. Recently, Germany has seen a massive increase of privately used diesel vehicles. GBG recommends raising the tax rate on non-commercially used diesel in the short-term by 6 cents/liter. In the middle term, the tax rates for both fuels should become identical, meaning that the motor vehicle tax would have to be adjusted, as its current tax rates are higher for diesel vehicles than for non-diesel vehicles.

Energy tax on fuels

Fuels are relatively expensive in Germany compared with the rest of Europe. Because fuel taxes—like other environmental taxes—are quantity-based, their revenue is automatically devalued by inflation: since 2003 alone, by 7.6 cents/liter. Fuel taxes could be raised in the short term by at least five cents per liter. Further increases are conceivable if specific neighboring European states were to increase their tax rates as well. Inflationary adjustments should also take place in the future.

Motor vehicle registration tax rather than a car-scrap bonus

No country is handing out as much tax money for the scrapping of old cars than is Germany. We recommend turning the "cash-for-clunkers program", which is a pure bonus system, into a bonus-malus system. Under such a system, vehicles that are significantly less environmentally harmful than the average would still receive a bonus; however, the bonus would come upon purchasing the vehicle. In addition, a sales or registration tax would be charged on especially unecological cars. France has already implemented a bonus-malus system for vehicle registrations.

Heavy goods vehicle toll

In 2005, Germany introduced a performance-based, pollution-dependent, and predominantly satellite-assisted toll on trucks, i.e., heavy goods vehicles. Truck traffic nevertheless continues to rise drastically. In order to support the polluter-pays principle and cost internalization in the truck transportation sector, the average toll rate should be increased to 17 cents/km. In the mid-term, the truck toll should apply to other roads, not only highways, and should apply to trucks weighing 3.5 tonnes and up, rather than the minimum of 12 tonnes currently in effect.

2. Elimination of direct subsidies and tax breaks and increase of environmental taxes in the energy sector

Eliminate exemptions from the eco tax

To avoid competitive disadvantages, the eco tax as initially introduced included extensive exemptions and tax breaks for energy-intensive businesses. Benefiting from this is, above all, the manufacturing industry, which pays only 60 percent of eco tax on heating fuels and energy taxes, and which is furthermore reimbursed in one way or another (e.g., by passing additional costs on to the consumer) for up to 95 percent of incurred additional costs. Moreover, certain energy-intensive processes, such as in the glass, ceramics, cement, lime, building materials, fertilizer, and metal-working industry have been entirely exempt from the energy tax since the end of 2006. The generous exceptions made for energy-intensive companies, amounting to 5.8 billion euros,[35] reduce the incentive effects of the energy taxation for the privileged companies and are problematic from a distributive point of view. The elimination of the general tax breaks and a reform of the tax cap should be implemented in the future. The tax threshhold could be replaced by a model that would serve as an indicator for the companies and plants of the energy intensity or their own operations.[36] A further option would be to make eligibility for the remaining exemptions subject to the introduction of an energy management system by the companies.

34 For more details on the design of a ticket tax and its impacts, see GBG 2008b.

35 According to the 21st subsidy report of the German federal government.

36 GBG 2008b

Hard coal subsidies
Each job in Germany's hard coal mining sector is subsidized with over 70,000 euros per year. In 2007, the federal and state governments and the coal mining industry agreed to terminate the subsidized mining of hard coal in Germany by the end of 2018, under conditions that are socially responsible. The decision to phase out hard coal subsidies is a major success for climate politics. However, hard coal subsidies have to be decreased at a faster pace than the one foreseen in Germany's Hard Coal Financing Act (Steinkohlefinanzierungsgesetz). The risks engendered by the inherited environmental damage and the so called permanent-costs ("Ewigkeitskosten"), which are costs specific to the closing of the mines (mine drainage, mining-induced subsidence, groundwater remediation, and pension obligations toward former miners) should be borne exclusively by RAG AG, Germany's coal mining corporation.

Nuclear energy
Although nuclear energy is a particularly high-risk form of energy generation, it enjoys numerous financial advantages. We are of the opinion that the operators of nuclear power plants should bear the full costs of their production. While fossil fuels are charged—as part of emissions trading—for their negative climate effects due to CO2 emissions, the social (external) costs of nuclear energy[37] have not been internalized to date. We therefore recommend, at least for the short term, a nuclear tax of 2.5 cents/kWh. Starting in 2013—the beginning of the third trading period with the full auction of the emissions certificates in the energy economy and a further reduction of the amount of emissions certificates issued—we consider a rate of 3.5 cents/kWh to be appropriate.[38]

Heating oil tax
Revenues from heating oil tax are also continually devalued by inflation. Germany lags behind with regard to the level of the tax rates, being in the bottom third of all EU countries. Problems such as the previously mentioned "fuel tourism" do not apply to heating oil. At the same time, the slashing or limiting of support programs for renewable energies in the heating sector is currently being discussed. A gradual increase of the heating oil tax by 10 cents/liter could increase the incentives for energy remediation (i.e., the use of renewable energies for the supply of heat), and also secure the financing of the existing support programs.

Ecologization and doubling of property taxes
There is a dire need for political measures to mitigate the current rate of urban sprawl and land consumption in Germany, approximately at 120 hectares per day. Unless this trend is stopped, the destruction of living environments and the extinction of many animal and plant species will continue. In that context, the introduction of a surface area tax as a means to ecologize property taxes has been under discussion for years. It would also make sense to establish the tax rate according to the degree to which the buildings are energy-retrofitted and the degree of surface sealing or the location of the property.

3. Overview of our suggested measures and their financial contributions

In the short term, our recommended measures could generate tax revenues in the order of annually 16 billion euros for Germany, even in consideration of reduced revenues by energy savings of 10 percent. In the mid-term, approximately 52 billion euros could be expected, even if savings were set at 20 percent. This measure would secure the complete financing of the current new structural debt of approximately 40 billion euros. Through further elements, such as additional surface area taxes, the introduction of a general resource tax, or advances in the EU-wide harmonization of environmental taxes, the financial yield achieved by eco-fiscal instruments, and therefore possibilities for the reduction of labor-related costs, could be significantly increased over the middle and long terms.

The measures we recommend are largely socially responsible. They are significantly more socially responsible than an increase in the sales tax, cutbacks in social services, or an increase in social security contributions. However, to ensure social acceptance, the question of how these increased revenues will be handled in the middle term is crucialThe elements of an ecologic financial reform are economically viable as well. They create incentives for innovations, thereby making a contribution to the ecological transformation of the market economy. In the middle term, both companies and consumers will benefit from lower energy costs. Moreover, companies will be prepared for the increasing scarcity of resources, and the accompanying price increases, thanks to the early development and implementation of efficient technologies. The discussed tax incentives thus do not necessarily lead to cost increases and could even prove to be competitive advantages.

Of crucial importance is that the environmental steering effect of the tax and contribution system is increased in ways that allow to meaningfully accompany and support other environmental measures. An ecological financial reform can make a substantial contribution to the reaching of ecological goals such as climate protection, and therewith contribute to the preservation of our natural basis for livelihood.

37 Aspects of nuclear energy that often are suggested to entail external costs include: future financial liabilities arising from decommissioning and dismantling of nuclear facilities, health and environmental impacts of radioactivity releases in routine operation, radioactive waste disposal and effects of severe accidents (see OECD for further information).

38 For more information on the calculation of this tax rate, see GBG 2009c.

Suggested measures for an ecological financial reform in Germany and its expected revenues:

Measure	Short-term revenue	Mid-term revenue (2015)	Ecological steering effect
	Billion €	Billion €	
I) Traffic			
a) Introduce company car taxation dependent on CO2 emissions, in the short term for individuals and in middle term also for companies	0,5	3,5	Ecologization of the German vehicle fleet
b) Decrease commuter tax allowance in the short term; eliminate it in the middle term.	1,5	4,0	Reduction of urban sprawl and volume of traffic
c) Introduce ticket tax; in the short term €20– €40, in the middle term €50–€100 per seat, and on the basis of flight distance.	2,3	5,8	Reduce CO2 emissions in air traffic
d) Orient motor vehicle tax more toward CO2; double in the middle term; do away with disadvantages of diesel vehicles	1,8	8,9	Ecologization of the German vehicle fleet
e) Raise diesel tax so that it equals the gasoline tax	0,7	1,9	Reduction of air pollutants
f) Raise fuel taxes jointly with neighboring countries; in the short term 5 cents/liter, in the middle term 20 cents/liter	2,0	8,0	Reduction of CO2 emissions from road traffic
g) Introduce vehicle registration tax	1,0	2,5	Ecologization of decisions for vehicle purchases
h) Raise heavy goods vehicle toll and extend to further vehicles and roads	1,0	4,0	Reduction of CO2 emissions in heavy goods traffic and shifting to rail traffic
II) Energy			
a) Eliminate energy tax exemptions	1,5	2,3	More energy efficiency; reduction of CO2 emissions from industry
b) Faster and stronger elimination of hard coal subsidies	0	1,0	Faster transition to renewable energies
c) Introduce nuclear power tax; in the short term 2.5 cents/kWh, starting 2013 3.5 cents/kWh	4,0	5,6	None, but external costs are borne by nuclear power
d) Raise energy taxes on heating fuels; for heating oil in the short term 2 cents/liter and in the long term 10 cents/liter; other heating fuels CO2 energy equivalent	1,7	6,7	Reduction of CO2 emissions through increased share of building energy retrofits
e) Property tax: Create short-term environmental incentives (e.g., climate protection, surface use), long-term doubling of property tax (municipalities)	0	10,8	Mitigation of surface sealing and increased share of building energy retrofits
Total revenues per year	18,0	65,0	

ECO TAXES WORLDWIDE ON THE ADVANCE

Germany is neither alone nor a leader with regard to the ecological orientation of tax and contribution policies. Other countries introduced eco taxes much earlier than Germany, often with more far-reaching measures. Compared with other European countries such as Denmark, the Netherlands, or Sweden, Germany, though it likes to see itself as an environmental pioneer, is rather hesitant with regard to resource use taxation. The share of its environmental taxes in the GDP lie at 2.2 percent, which is situated in the lower third of EU countries (EU-27 average: 2.5 percent).[39]

1. Pioneers in the introduction of eco taxes in the 1990s

Eco taxes are being introduced by a steadily growing number of countries, although the rate of adoption is relatively slow in light of the challenges and opportunities. Some 20 years ago, the first explicit CO2 tax was introduced by Finland. Since then, eco taxes have been introduced in a cyclical fashion, with climate protection and financial challenges being the two essential driving forces. Eco taxes are nearly always based on energy and/or CO2 emissions. This allows for, among other things, the largest amount of revenues, in turn allowing for a restructuring of the fiscal and financial system. A better fiscal structure and prospects for greater tax revenues are important incentives for finance ministries to dedicate more attention to this kind of tax than before. Denmark and Sweden were the next countries to introduce eco taxes. Of interest is that, in Denmark, eco taxes on industry were introduced in 1991 by a conservative government; it was not until the following year, under other political conditions, that the eco tax was extended to include private households. Sweden has also introduced various targeted eco taxes and, as in Denmark and the Netherlands, these are not restricted to energy. These countries also levy contributions on pesticides, fertilizers, growth hormones, PVC, water, waste water, batteries, and much more. The Netherlands and Norway are also the only countries in Europe to have implemented a tax on kerosene for domestic flights. The Netherlands also introduced a flight fee in 2008; however, this fee is to be abolished, because too many Dutch citizens simply drive to the airport in Düsseldorf, Germany, where such a fee is not charged. This once again confirms that Germany has a lot of catching up to do in order to avoid fuel tourism of this kind in the future. In the early 2000s, Germany had even committed to introducing a flight fee if the main competitors were to do the same. And to date, the UK (Heathrow, see below), the Netherlands, and France, have introduced a flight fee. Germany is thus more than overdue to follow suit.

The United Kingdom introduced, as early as 1993, a so-called "fuel duty escalator," i.e., a gradually increasing tax rate on fuels. Given the concurrent drop in world oil prices, this measure largely went unnoticed by the public, a fact that had its advantages. Under this scheme, fuel taxes increased annually first by three percentage points above the inflation rate, then, as of 1996, by five percentage points. It was not until 2000 that the government interrupted this regime, because the world oil prices, together with the rising taxes, led to protests. However, once world oil prices eased somewhat, the government continued with the regime in April 2009.[40] In 1994, the UK also introduced an Air Passenger Duty, i.e., a flight fee. The fee now plays an important role and has been risen in November 2009 from 80 British pounds to 110 pounds for long distance flights. In 2002, the United Kingdom also restructured its company car taxation on CO2 emissions and was thereby able to significantly decrease emissions for new vehicles. In 1996, Great Britain moreover introduced a landfill tax, and in 2002 an aggregates levy, targeting building materials such as gravel, sand and crushed rock.

In Eastern Europe, countries such as Slovenia introduced a CO2 tax as early as 1998 (Schlegelmilch 1999). Estonia followed suit in several phases, managing to finance its income tax decrease through various environment taxes, in particular energy taxes.

France is the most recentcountry to be working toward the introduction of an ecological tax reform. Discussions there are strongly shaped by lobbyists, and resistance has come from unexpected sources, such as consumer organizations. In this way, the recommendations made by a government commission—set up by President Nicolas Sarkozy expressly to advance the ecological tax reform, and chaired by former Prime Minister Michel Rocard—have become very diluted. The existence of the government commission nevertheless helped—as it did in the Netherlands and Norway—to advance debate on the topic of the ecological tax reform and to at least bring a recommendation concerning the matter into the realm of public debate. Thus, while such commissions cannot guarantee success, they have led to success on multiple occasions.

39 European Commission 2009

40 CIOT 2009, p. 12

2. The move from eco tax systems to ecological financial reforms in Europe

At the EU level, progress with regard to environmental taxes is rough and slow, since unanimity is required for all fiscal decisions in the EU Council. Reaching unanimity seems increasingly less likely as the number of member states has grown to 27. The last time unanimity was reached was in 2003, prior to the accession of the ten new member states. Just one night before these countries were allowed to participate in the Council sessions (without voting but with speaking rights), the then 15 EU countries adopted the Energy Tax Directive, in effect since January 1, 2004. However, for the implementation of the Directive, the new countries de facto had to increase their tax rates significantly more, proportionally, than the older member states. The timing of the adoption of this directive has thus been viewed critically by some, as it allowed the older member states to enact a directive that was essentially borne largely by the new member states.

For over a year, the EU Commission has been working on a revision of the EU Energy Tax Directive. As no consensus has been reached within the Commission to date, a new adoption is not expected before the end of 2010. By and large, the revision will contain a partial (insufficient, as per our estimate) increase of the minimum tax rates.

In part, the planned revision is considering to apply a CO2 tax on only a portion of the previous minimum tax rates, with the result that, in essence, hardly any increase is recommended. However, this is also due to the fact that the former EU Commission's term was over in December 2009 and new Commissioners were designated in February 2010—a time when significant increases of the minimum tax rates are generally not made, for political reasons. The Commission evidently has not yet agreed whether the CO2 tax should apply only to companies that do not directly participate in emissions trading or whether all should pay on an equal basis.

Even the proposal of an ambitious recommendation by the EU Commission would have to be unanimously decided upon by the Council of Finance Ministers. Past experience shows that such resolutions are very difficult to achieve. It is to be hoped that the interaction of climate demands and financial pressures will lead the Commission and member states to eventually agree on a significant and gradual increase of the minimum tax rates for those areas that are not participating in emissions trading.

Soon after the introduction of eco taxes in several EU member states, the respective countries began to realize that not only should undesired objects or activities be taxed, but money should no longer be wasted on environmentally harmful activities.

After all, taxing environmentally harmful activities while simultaneously spending billions of euros on those same activities is counter-productive. For example, hard coal subsidies work against the incentives of a CO2 tax, which leads to inconsistent politics. Thus, the first step is to abolish as much environmentally harmful spending as possible before introducing eco taxes. Surprisingly, it was the United States rather than Europe that proved to be a pioneer in this regard. In the United States, environmental and tax lobby groups have been able to convince politicians to, guided by the Green Scissors Campaign, cut back such doubly irrational expenditures. By contrast, the prospect of an energy or CO2 tax in the United States has been regarded as tantamount to political suicide. Yet there as well, change is on the horizon. Many U.S. states have at least advanced the dismantling of environmentally harmful subsidies. In this way, the ecological tax reform was expanded into an ecologic financial reform.

Germany is also continuing to make steps toward an ecologic financial reform. For example, the first-home buyer allowance was first reduced and then completely abolished. The allowance was regarded as contributing to the increasing soil sealing and urban sprawl. The commuter tax allowance was made uniform for all modes of transportation in 2001, thereby abolishing the former advantage for car drivers. At a later point it was lowered, yet was recently increased back to its former level due to the inappropriate differentiation of the allowance by Germany's Federal Constitutional Court. Hard coal subsidies are also to be terminated upon the expiry of the current coalition agreement at the end of 2018, after having already been significantly reduced.

3. New climate policies in the United States increases chances for carbon pricing

Until the end of 2008, a federal climate policy was nearly non-existent in the United States and largely marred by blockage strategies. Moreover, in the United States tax hikes are very difficult to implement as a matter of principle, even if, as in the case of the eco tax, their purpose goes beyond fiscal reasons and other taxes are reduced so that there would be no overall tax burden increase.

With the election of Barack Obama, federal climate policy has become more responsive. The House of Representatives has passed a comprehensive climate and energy package in 2009 that included an emissions-trading-system (cap and trade) and tax incentives for renewable energies. The Senate, however, has postponed passing a similar bill before the midterm elections 2010, leaving it open if the world's largest per capita CO2 polluter will set a domestic carbon cap anytime soon. It remains to be seen when US Congress will enact a federal climate bill that includes US wide cap and trade. If the federal level will continue leaving this gap, the States and their regional climate and energy programs (such as e.g. the Regional Greenhouse Gas Initiative RGGI) might play a stronger role in the future again.

4. Asian tiger and other emerging economies on the rise

After the European countries, developing countries and emerging economies have had their appetites whetted and are increasingly discovering the advantages of eco taxes. This trend has not appeared out of the blue. The OECD and certain industrialized nations such as the Scandinavian countries have been actively marketing eco taxes for some time. A comprehensive publication published by the OECD (more specifically, by the Development Assistance Committee—DAC) together with other institutions such as the International Monetary Fund was put together for just this purpose.[41]

The Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ; German Agency for Technical Cooperation) also participated in this publication, and mandated the development of a "Trainers' Training" for the "Environmental Fiscal Reform" through GBG. This instrument was put to full use for the first time in June 2009 in Bad Honnef. The GTZ, beyond its theory and advocacy-based work, also participates directly in the implementation of ecological financial reforms. As such, the organization promotes projects in China, Vietnam, Indonesia, and possibly Thailand soon.

In China, the GTZ promotes the renowned China Council on International Cooperation for Environment and Development (CCICED), a working group which focuses, among other things, on eco taxes. Here, the GTZ supported in particular the Council's Task Force on Economic Instruments for Environment and Energy Efficiency from spring 2008 to the end of 2009. This task force developed recommendations for four areas:

1. Long-term strategy for increasing energy productivity;
2. Eco taxes;
3. Orientation of insurance and liability regulations to ecological criteria; and
4. Incorporating incentives for ecological behavior and investments into bank and financial instruments.

The CCICED, which has equal representation of high-ranking Chinese and international experts, issued its interim report in November 2008.[42] The report's recommendations—developed by Prof. Ernst Ulrich von Weizsäcker, who serves as international co-chair, together with the Chinese co-chair Prof. Dr. Ye Ruqui—revolve mainly around converting energy pricing from a reactive process into an active process. The previous reactive response to the world oil market prices proved to be costly as well as unpredictable, thereby offering no reliable framework conditions for investments. Through active price politics, this can be avoided.

One recommendation of the interim report calls on the Chinese government to raise its energy prices over a longer term in small, pre-announced stages that are proportional to the energy productivity increase of the previous year. This is to ensure that no social conflicts arise and that everyone can adapt optimally to the price changes.

Another country pursing the implementation of eco taxes, with even more vigor, is Vietnam. There, the prime minister determined in 2006 that an ecological tax reform would be introduced in 2011—although the scope and content has yet to be specified in more detail. The GTZ therefore commissioned eco tax expert Kai Schlegelmilch (who is also vice-chairman of GBG) to support the fiscal policy division of the Vietnamese Finance Ministry in the concept design, project steering, and structuring of this reform, and to ensure that internationally established criteria and aspects are considered. A more concrete concept has since been worked out and will be finalized in the framework of further intensive discussions in Vietnam and exchanges with other experts.

In Indonesia, the process is not yet as concrete. There, the GTZ, in close cooperation with other financial backers such as Danida from Denmark and the World Bank, commissioned a sounding-out mission as to where and how the above-mentioned institutional training could be best presented and carried out. Important conditions such as the openness of the administration and the public are given—thanks in large part to the United Nations Climate Change Conference that took place in Bali, Indonesia in 2007, which served to put climate protection on the country's political agenda as no other event or measure could have done.[43] Since then, Indonesia has felt obliged to become active in this matter.

Another candidate for commencing the process of implementing eco taxes is Thailand. There as well, the government and the GTZ have a strong interest in the training. Moreover, the government has already prepared bills for the consolidation of different economic instruments. However, intense and heated discussions are anticipated regarding the concrete structuring of the reform.

41 OECD 2005

42 CCICED 2008

43 United Nations Climate Change Conference in Bali, http://unfccc.int/meetings/cop_13/items/4049.php

The EU Commission, for its part, has begun to systematically explore the concept of eco taxes. Currently it is completing a project, to conclude by the end of the year, that examines the suitability of ACP (African, Caribbean, Pacific) countries for implementing ecological fiscal and financial reforms, either complete reform packages or elements thereof. The countries taken into closer consideration so far are South Africa, Uganda, Burkina Faso, Jamaica, and Vanuatu. More information on this project is being posted in the course of the project on the homepage of GBG.[44]

5. UN level

At a global level, many suggestions have recently been made for a CO2 levy to finance various funds at the UN level. Switzerland, for one, presented a concrete recommendation. The European Environment Agency and the OECD have established a very extensive data bank that provides, free of charge and online, detailed information on nearly all eco taxes in OECD countries.[45]

6. Conclusion

Since climate change is becoming a concrete reality, since households are in dire financial straits due to the crisis costs, and since developing countries require funding for development projects, more and more countries are opting to implement eco-fiscal instruments. Germany is by no means a pioneer in the field; in fact, it never was, strictly speaking. Rather, it is the Nordic European countries and the Netherlands that are spearheading the progress. Moreover, other countries have made much greater progress in matters such as air traffic and company car taxation than has Germany, which will have to work just to catch up. Nevertheless, as a centrally located government in Europe, Germany is a core participant in the overall endeavor to implement and improve eco-fiscal instruments.

Emerging economies and several developing countries have also begun to discover the major potential of ecologic fiscal and financial reforms. As demand for more finances will presumably always be a constant in all economies, we can assume that these instruments will be implemented by a growing number of countries and to greater extents. However, these instruments do face competition from other financial sources. In the EU, for example, the share of environmental taxes is decreasing at this point. It is therefore important to continually emphasize the particular advantages of ecologic fiscal and financial reforms and to urge their implementation.

44 http://www.foes.de/internationales/oefr-in-entwicklungslaendern/?lang=en

45 http://www2.oecd.org/ecoinst/queries/index.htm

REFERENCES

BMU 2004a. Die Ökologische Steuerreform: Einstieg, Fortführung und Fortentwicklung zur Ökologischen Finanzreform. Berlin, Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (BMU). http://files.foes.de/de/downloads/bilanz/oekosteuerreform.pdf

BMU 2004b. Umweltpolitik—Umweltbewusstsein in Deutschland 2004. Berlin, Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (BMU). http://www.umweltdaten.de/publikationen/fpdf-l/2792.pdf

BP 2008. BP Statistical Review of World Energy Juni 2008. London, BP.
http://www.deutschebp.de/genericarticle.do?categoryId=9003692&contentId=7045559

CCICED. Annual General Meeting 2008, Summary Record. Beijing, China Council for International Cooperation on Environment and Development.
http://www.environmental-policy.cn/fileadmin/user/2008_CCICED_summary_record_01.pdf

CIOT 2009. Green Tax Report. London, Chartered Institute of Taxation Green Tax Report,
http://www.greentaxreport.co.uk/read-chapters-online/12-green-taxes-in-operation

DESTATIS 2008b. Personenverkehr mit Bussen und Bahnen, Fachserie 8, Reihe 3.1, Übersicht 2.
https://www-ec.destatis.de/csp/shop/sfg/bpm.html.cms.cBroker.cls?cmspath=struktur,vollanzeige.csp&ID=1024875

DESTATIS 2008a. Verkehr im Überblick, Fachserie 8, Reihe 1.2.
https://www-ec.destatis.de/csp/shop/sfg/bpm.html.cms.cBroker.cls?cmspath=struktur,vollanzeige.csp&ID=1025703

Deutscher Bundestag 2009. Drucksache 16/13601, Finanzplan des Bundes 2009 bis 2013. http://dip21.bundestag.de/dip21/btd/16/136/1613601.pdf

DIW 2001. The Effects of the Ecological Tax Reform in Germany.
http://www.bmu.de/files/erneuerbare_energien/downloads/application/pdf/diw_energypolicy2002.pdf

DIW 2009. Nach der Wahl: Steuersenkungen ausgeschlossen- Staatsdefizit wird 2010 sprunghaft steigen, Press release from 09/09/2009. Berlin, Deutsches Institut für Wirtschaftsforschung
http://www.diw.de/sixcms/detail.php?id=diw_01.c.338529.de

European Commission 2009. Taxation Trends in the European Union. Data for the EU member states and Norway. 2009 edition. Brussels, European Commission (Taxation and Customs Union)
http://ec.europa.eu/taxation_customs/resources/documents/taxation/gen_info/economic_analysis/tax_structures/2009/2009_full_text_en.pdf

GBG 2008. Umweltschädliche Subventionen und Steuervergünstigungen des Bundes, Study commissioned by Greenpeace. Berlin, Green Budget Germany. http://www.greenpeace.de/fileadmin/gpd/user_upload/themen/energie/Greenpeace_Subventionsstudie_final.pdf

GBG 2008b. Thesen und Bausteine zur Weiterentwicklung der Ökologischen Finanzreform.
http://files.foes.de/de/downloads/diskussionspapiere/GBGDisPap2008-05_Thesen_Bausteine_OEFR.pdf

GBG 2008c. Firmen- und Dienstawagenbesteuerung modernisieren: Für Klimaschutz und mehr Gerechtigkeit. Berlin, Green Budget Germany.
http://files.foes.de/de/downloads/studien/FiwaDiwaRef-Fassung2.0.pdf

GBG 2009a. Sind die deutschen Konjunkturpakete nachhaltig? Studie im Auftrag des WWF. Berlin, Green Budget Germany.
http://www.foes.de/pdf/WWF_Konjunkturstudie_250609a.pdf

GBG 2009b. Zuordnung der Steuern und Abgaben auf die Faktoren Arbeit, Kapital, Umwelt. Berlin, Green Budget Germany.
http://www.foes.de/pdf/Steuerstruktur.pdf

GBG 2009c. Atomsteuer: Konzept für die verursachergerechte Anlastung von Folgekosten der Atomenergie und für die Abschöpfung von leistungslosen Zusatzgewinnen. Berlin, Green Budget Germany.
http://www.foes.de/pdf/2009-10-Konzept_Atomsteuer_final%20%282%29.pdf

Heilmann, Sven/ Bertenrath, Roman 2008. Kohärenz der deutschen Klimaschutzinstrumente. In: UBA (2008): "Weiterentwicklung des Emissionshandels—national und auf EU-Ebene," p. 61-115.
http://www.umweltdaten.de/publikationen/fpdf-l/3444.pdf

Kohlhaas, Michael 2005. Emissionshandel plus Ökologische Steuerreform. In: Die Zukunft der Europäischen Union. Marktwirtschaftliche Instrumente in der Umweltpolitik: Ökosteuern und Emissionshandel. DNR e.V. 2005.
http://www.dnr.de/publikationen/eur/archiv/eur0511-sh.pdf?PHPSESSID=bd402a6d0d5671b380aa96845d28709b

OECD 2003. Nuclear Electricity Generation: What Are the External Costs? Paris, Organisation for Economic Co-operation and Development
http://www.nea.fr/ndd/reports/2003/nea4372-generation.pdf

OECD 2005. Environmental Fiscal Reform for Poverty Reduction. DAC Guidelines and Reference Series. Paris, Organisation for Economic Co-operation and Development. http://www.oecd.org/dataoecd/14/25/34996292.pdf

Öko-Institut 2010. Der Instrumenten-Mix einer ambitionierten Klimapolitik im Spannungsfeld von Emissionshandel und anderen Instrumenten. Berlin, Öko-Institut e.V.
http://www.bmu.de/files/pdfs/allgemein/application/pdf/studie_klimapolitik_emissionshandel.pdf

Pache, Eckart 2005. Möglichkeiten der Einführung einer Kerosinsteuer auf innerdeutschen Flügen.
http://www.umweltbundesamt.de/uba-info-medien/dateien/2853.htm

Schlegelmilch, Kai; Bunse, Maike 2008. Wird die Ökologische Steuerreform durch den Emissionshandel überflüssig? In: Schüle, Ralf (Hrsg.), Grenzenlos handeln? Munich (oekom), p. 74-102.

UKERC 2009. Global Oil Depletion—An assessment of the evidence for a near-term peak in global oil production. London, UK Energy Research Centre. http://www.ukerc.ac.uk/support/Global%20Oil%20Depletion

von Weizsäcker, Ernst et al. 2009. Factor Five—Transforming the Global Economy through 80% Improvements in Resource Productivity. London, Earthscan.

Heinrich-Böll-Stiftung

The Green Political Foundation

Berlin www.boell.de

Brussels www.boell.eu

Washington www.hbfus.org