

Promotion of Environmental Protection in German Laws on Taxes and Levies

- including ecological tax and fiscal reforms -

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I. Introduction

In the **environmental sector**, **state intervention** in the market economy process is required when private-enterprise activities result in palpable so-called “external effects”. This may occur, inter alia, when companies or private households make use of resources (including the environment) without having to pay for them (external costs). Measures introduced by the state should ensure that such consumption enters into companies' cost calculations and consumption planning of private households and is, thus, efficient in terms of the economy as a whole (internalising external costs), as failing to internalise external costs may be regarded as a form of subsidy. A range of instruments exists to internalise these costs.

For some years now, increasing use has been made of economic instruments in this realm, in addition to standard administrative law (especially prescriptions and prohibitions). Examples of such instruments include federal banks' low-interest-loan programmes for investments in environmental protection, voluntary commitments by industry to reduce specific CO₂ emissions, binding deposit-system provisions that apply to disposable beverage containers and the plans to grant EU-wide certificates for greenhouse gas emissions. In public discussion, attention is focused primarily on provisions for taxes, duties and fees. The Law initiating the ecological tax reform of 24 March 1999¹ (Federal Law Gazette I p. 378), the Law to proceed with ecological tax reform² of 16 December 1999 (Federal Law Gazette I p. 2432) and the Law to further develop ecological tax reform of 23 December 2002³ (Federal Law Gazette I p. 4602) have put the focus heavily on energy taxation (mineral oil, electricity). In addition, for years Germany has had various other environmentally oriented provisions on taxes and levies⁴.

The present paper seeks to provide an overview of tax and levy provisions for the promotion of environmental protection. These provisions are understood to include multi-sectoral energy taxes (mineral oil duties, electricity duty – for details, see chapter III.1), other taxes that take account of sector-specific environmental policy perspectives (chapter III.2) and environmental levies that are not considered taxes (special levies, fees, contributions –

¹ *Gesetz zum Einstieg in die ökologische Steuerreform.*

² *Gesetz zur Fortführung der ökologischen Steuerreform.*

³ *Gesetz zur Fortentwicklung der ökologische Steuerreform.*

⁴ Translator's note: the German "*Abgabe*", which is used extensively in the original version of this paper, may be translated as "tax", "duty", "levy", "charge" or "fee", depending on context. Where this term clearly refers to a general class of charges that are not taxes as defined in this paper, this translation uses the term "levy".

chapter V). To complete the overall picture, some environmentally relevant projects to reduce tax privileges and other subsidies in certain sectors are also outlined (chapter IV).

The sum total of environmental political perspectives taken into account in laws on taxation and levies etc. shows that fiscal policy helps create **sustainable development**. The “Outlook for Germany” sustainability strategy adopted by the Federal Cabinet in April 2002 envisages efficient and effective development which is both socially just and ecologically viable. Today, fiscal policy is already contributing towards a commercial system which promotes the long-term conservation of the substance of ecological assets – for example, by increasing the price signal correspondingly for finite resources. The present paper documents the successful integration of policies in considerable areas of German laws on taxes and levies – economic and ecological goals have been considered more carefully and the respective measures better matched. Sensible starting points for taking advantage of these links will also be sought in the future.

II. Definitions

The legal prerequisites for collecting public taxes and other levies vary, depending on what type of instrument is involved. It is thus necessary to differentiate between various categories. The instruments in question here include **taxes and non-tax levies, such as fees, contributions and special levies**.

German tax law defines **taxes** (*Steuern*) in the following manner: "Taxes are payments of money, other than payments in consideration of particular benefits received, which are collected by a public body for the purpose of raising revenue and imposed by the body on all those to whom the law attaches liability for payment. The raising of revenue need not be a primary objective." (Article 3, (1), 1st sentence, German Fiscal Code (*Abgabenordnung – AO*)).

Fees (*Gebühren*) are levied as payment for public-sector services that can be individually allocated to those obligated to pay fees, and their primary purpose is to finance such services (principle of equivalence). Examples of environmentally-oriented fees include wastewater and waste-management fees and administrative fees for issuance of licenses under emissions-control law.

Like fees, **contributions** (*Beiträge*) are a type of (counter-performance) payment. In their ideal form, contributions differ from fees in that they are levied not for the actual use of state services but for the very provision of such services – regardless of whether the beneficiaries of the services use them or not.

From a constitutional perspective, the distinction between taxes and non-tax levies is significant in that legislative, revenue-oriented and administrative jurisdiction for taxes is governed by Articles 104 a ff. of the Basic Law (*Grundgesetz* – rules governing public finances), while jurisdiction for non-tax levies results from general competence pursuant to Article 70 ff. Basic Law. The constitutional tax concept is based on the legal definition in Article 3 of the German Fiscal Code.

In addition to collecting taxes and fees, lawmakers may also exact **special levies** (*Sonderabgaben*) in exceptional cases. Since special levies compete directly with taxes but apply only to certain groups and normally do not accrue to the general budget, they must conform to strict prerequisites, pursuant to the jurisprudence of the Federal Constitutional Court, that are intended to ensure that such levies conform to the country's fiscal system and to the Basic Law's principle of equality (cf. for example Federal Constitutional Court vol. 82, p. 159 [178 ff.]).

In creating non-tax levies, it must be remembered that there is no fundamental limit ("numerus clausus") to the types of levies that may be created. Under certain prerequisites, other types of levies – in addition to taxes, fees and special levies – may be constitutionally possible. Examples include **"absorption levies"** (*Abschöpfungsabgaben*) (rental surcharge on tenants of state-owned or state-assisted housing who are not eligible for benefits – Federal Constitutional Court vol. 78, p. 249; fees on water levies (*Wasserpfeennig*): vol. 93, p. 319 etc.).

In keeping with the classification principle used by the OECD (Committee on Fiscal Affairs: "environmentally-related taxes"), the present paper designates those levies as environmentally-related levies whose calculation basis is tied to criteria that are particularly relevant to the environment. In this context, the motives for introducing or designating levies are not important. Furthermore, environmental protection is promoted by all those provisions of tax laws, and of laws on non-tax levies, that reward environmentally-friendly cases with fiscal relief under tax/levy law.

In the present paper, the concept of ecological tax reform is used within the meaning of the Law initiating the ecological tax reform of 24 March 1999, the Law to proceed with ecological tax reform of 16 December 1999 and the Law to further develop ecological tax reform of 23 December 2002, all of which focus interest on energy taxation.

Subsidies, the dismantling of which is outlined in chapter IV, are understood to be those within the meaning of the Subsidy Report of the Federal Government (*Subventionsbericht der Bundesregierung*). To a degree, other conceptual approaches to environmental policy discussions are called for, e.g. to regard all external costs arising as a result of damage to the environment as subsidies if the general public rather than the person causing the damage bears the full costs of the action. There are methodological difficulties associated with quantifying these external costs and, as a result, any attempt to quantify them would be of limited use only in the systematic listing of federal budget subsidies (see also the 18th Subsidy Report of the Federal Government – Bundestag Document 14/6748, p. 130 and the Monthly Report of the Federal Ministry of Finance October 2001, Berlin, p. 38).

III. Tax provisions aimed at promoting environmental protection, and their environmental effectiveness

Preliminary remarks

For many years, German tax law has taken environmental policy perspectives into account – for example, by providing lower motor-vehicle tax rates for low-emission vehicles compared with non-low-emission vehicles and lower mineral oil duties on unleaded petrol compared with leaded petrol. Such measures are intended as a means of providing targeted incentives for environmentally-friendly behaviour, without calling into question the primary purpose of taxes, namely the general financing of state expenditures.

According to an OECD study (OECD Economic Studies No. 34, 2002/1), environmentally-related taxes accounted for some 6% of total tax revenues in Germany in 1998, slightly more than the OECD average (in Germany, mineral oil duty accounts for the bulk of these revenues).

The following section describes current provisions in force – divided by sectors and tax types – and their environmental effectiveness. The ecological tax reform laws have highlighted multi-sectoral energy taxation, not least because of the concept of shifting part of the burden of taxes and levies from the production factor labour to the use of nature and the environment. This type of energy taxation is, therefore, described first.

1. Energy taxation within the framework of the ecological tax reform

a) Basis

The aim of the ecological tax reform (ETR) laws is to lower energy consumption, raise energy efficiency and reduce environmental pollution by way of moderate, successive increases in the price of energy sources. At the same time, this generates positive effects in the labour market as the tax revenues are used for the most part to lower and stabilise pension contributions.

Energy taxation is governed primarily by the Law initiating the ecological tax reform of 24 March 1999, the Law to proceed with ecological tax reform of 16 December 1999 and the Law to further develop ecological tax reform of 23 December 2002.

The first phase began on 1 April 1999 when the Law initiating the ecological tax reform came into force.

Phase 1 (1 April 1999)

- Increase in mineral oil duty
 - on motor fuel by 6 pfennigs (3.07 cent) per litre;
 - on heating oil by 4 pfennigs (2.05 cent) per litre;
 - on natural gas for heating by 0.32 pfennigs (0.164 cent) per kWh ; and
 - on LPG for heating by DM 25 (€12.78) per 1,000 kg .
- introduction of an electricity duty at a standard tax rate of 2 pfennigs (1.02 cent) per kWh.

The Law to proceed with ecological tax reform incorporates four further phases up to the year 2003.

Phases 2 to 5 (on 1 Jan 2000, 2001, 2002 and 2003, respectively):

Increase of

- mineral oil duty rate on motor fuel by 6 pfennigs per litre on 1 Jan 2000 and 2001, and by 3.07 cent per litre on 1 Jan 2002 and 2003, as well as
- electricity tax duty by 0.5 pfennigs per kWh on 1 Jan 2000 and 2001, and by 0.26 cent per kWh on 1 Jan 2002 and 2003.

From the very beginning, the eco-tax was measured on the principles of fair distribution of burdens and ecological effects and was continuously reviewed. The result was the modification of the fifth eco-tax phase in the interests of better co-ordination of control and distribution effects which came into effect with the Law to further develop ecological tax reform on 1 Jan 2003. Because the tax advantages enjoyed by natural gas compared with light fuel oil resulted in price formation influences out of line with the market, the taxation of natural gas for heating – in terms of energy content – was adapted to that of heating oil. Tax rates on LPG and heavy fuel oil were aligned.

Modification of phase 5

Increase of mineral oil duty rate for:

- natural gas for heating from 0.3476 cent to 0.55 cent per kWh;
- LPG for heating from €38.34 to €60.60 per 1,000 kg; and
- heavy fuel oil from €17.89 to €25 per 1,000kg.

b) Special provisions in energy taxation

In order to further enhance environmental policy, but also in the interests of social and economic policy, a series of tax reductions and tax exemptions have been introduced.

- Reduced tax rate for the manufacturing, agricultural and forestry sectors in order to ensure the international competitiveness of companies

As energy taxation within the European Union has not yet been sufficiently harmonised, it was decided not to impose the standard tax rate, thus preventing the overburdening of energy intensive and internationally active companies and, ultimately, ensuring that Germany remains an economically attractive location.

Thus electricity used by companies for operational purposes in the manufacturing, agricultural and forestry sectors was subjected to a **reduced tax rate of 20 % of the standard rate** until the end of 2002. In the same way, the added charge from the increase in mineral oil duty on heating oil and gas was limited to 20 % of the tax increase for the manufacturing, agricultural and forestry sectors.

However, it had to be accepted that the introduction of the tax breaks would weaken the regulatory effects of the eco-tax. After a period of adjustment of almost four years, these tax breaks are thus being partially diluted by the Law to further develop ecological tax reform. The result is a strengthening of the ecological motivation to use energy more efficiently without weakening the competitive position of the companies. The reduced tax rate on electricity, fuel oil and natural gas for companies in manufacturing, agriculture and forestry was raised from 1 January 2003 from the previous 20% to 60% of the standard tax rate.

Companies belonging to the manufacturing sector are mining companies, goods producers, companies in the construction industry, companies in the electricity, gas, district heating and water supply industries. Workshops for disabled persons within the meaning of Section 136 of the Social Security Code, Book IX, and municipal enterprises operating on the basis of owner-operator laws or regulations of the individual *Länder* are granted the same advantages as companies in the manufacturing sector if they carry out corresponding activities. Moreover, companies involved in the pond fish culture and fish farming sectors are considered part of the agriculture and forestry sectors subject to preferential rules.

Companies in the manufacturing sector which, despite this tax break, are still overburdened may claim an additional credit entitlement (the so-called clearing transfer). The amount of this transfer is calculated by measuring the eco-tax burden – excluding that part attributable to fuels - on the one hand, against the relief granted by the reduction in the employer's pension contribution towards, on the other. The basis of calculation is changed by the Law to further develop ecological tax reform. In future, even those companies benefiting from the clearing transfer will face a moderate, albeit ecologically-sound marginal tax burden.

In order to prevent excessive administrative overhead for customs administrations, and to assure sufficient revenue, companies in the manufacturing, agricultural and forestry sectors must pay the tax in full up to a defined **low threshold (threshold amount)**. For each

company, this threshold is €512,50 per annum for additional taxation of fuel oil and natural gas on the one hand, and for electricity on the other.

- **Fuel tax relief for fuels used for combined heat and power generation (CHP)**

• Provisions of the regulations

Tax exemption for CHP plants with a monthly or annual rate of capacity utilisation of at least 70% (initial entry into force on 1 April 1999).

Reduced rate of fuel tax for CHP plants with an annual rate of capacity utilisation of at least 60% (initial entry into force on 1 March 1992).

Tax exemption for installations with combined cycle gas turbines (CCGT), without heat extraction and with electrical efficiency (net) of at least 57.5% (initial entry into force on 11 December 2002).

• How effective is this measure?

CHP plants with a high rate capacity utilisation are characterised by a high degree of energy efficiency as a result of the simultaneous generation of electrical power and useful heat, thus contributing significantly to a reduction in CO₂ emissions.

Because of their high rate of efficiency, which is at the uppermost limit of that which is technically feasible, CCGT plants with an efficiency rate of at least 57.5% reduce the level of CO₂ emissions.

- **Electricity duty exemption for electricity produced from renewable energies***

• Initial entry into force: 1 April 1999

• Provisions as of 1 January 2000:

Tax exemption

For electricity from wind power, solar power, geothermal energy, landfill gas and gas from wastewater-treatment plants, biomass and hydrodynamic power (except for electricity produced by hydrodynamic installations with generator outputs greater than 10 megawatts), where such electricity is taken from a grid fed exclusively by these sources of energy or from a corresponding source ("eco-grid").

(* Relating to the duty on other electricity from renewable energy sources, the German Federal Government established in 1999 a **programme of market incentives** for use of renewable energies (with funding of €190 million for 2002 and

2003, respectively). The coalition agreement envisages increasing the funds to €200 million for 2004, €220 million for 2005 and €230 million for 2006. The funding is focused on the use of renewables in the heating market, thus enormously increasing their promotion. To date, the provision of tax exemptions for this electricity has been precluded by both EU and world trade laws, together with the fact that no system of guarantee of origin exists. The corresponding legal problems have to do with possible discrimination against imported electricity. The EU Directive on renewable energy, however, obliges EU Member States to create such a system of guarantee of origin by the end of 2003).

- How effective is this measure?

Although tax exemption is limited in scope, amendment to renewable energy law leads to greater use of renewable energies and CO₂ reduction through use of renewable energy sources .

- **Tax exemption on electricity for plants with a rated burden up to 2 MW**

- Initial entry into force: 1 January 2000

- Provisions:

Tax exemption for electricity produced by installations with rated burden up to 2 MW when the electricity is taken from sources in geographical proximity to the plant. So-called contracting arrangements are also entitled to tax benefits.

- How effective is this measure?

CO₂ reduction through simultaneous generation of electricity and useful heating (higher energy efficiency) in small and medium-sized combined heat and power (CHP) plants.

- **Reduction of the duty on electricity for operation of night-storage heating systems installed before 1 April 1999**

Electricity used to operate night storage heaters installed before 1 April 1999 was taxed until 31 December 2002 at 50% of the standard tax rate. Ecologically, this tax break does not make sense and is only being granted on a transitional basis. The Law to further develop ecological tax reform therefore provides for an increase in the privileged rate to 60 % of the standard tax rate from 1 January 2003. Moreover, this tax advantage will cease to exist on 31 December 2006. The transitional period of almost eight years allows consumers, where necessary, sufficient time to convert their heating systems. The conversion is supported by federal loans provided by the Reconstruction Loan Corporation (KfW) at reduced rates of interest.

- **Reduction of the electricity duty for railway transport**

- Initial entry into force: 1 April 1999
- Provisions as of 1 April 1999:
Duty reduction:
Electricity used to operate railway vehicles (except for operational transport within plants and mountain railways) or trolley buses is subject to a duty rate equal to half the standard rate.
- How effective is this measure?
Promotion of railway transport, which is environmentally sound.

- **Reduction for motor fuels used in local public transportation**

- Entry into force: 15 February 2000
- Provisions:
Operators of motor vehicles and of rail vehicles used in **local public transportation** are eligible to a reimbursement of half of the tax increases applying to the relevant motor fuels.
- How effective is this measure?
Promotion of local public transportation, which is more environmentally compatible than automobile use.

Further details of fuel tax benefits in the transport sector can be found in chapter III.2.1.a).

c) Indications of ecological effectiveness of ecological tax reform⁵

After only a short period of time, the regulatory effects on energy consumption which were hoped for can be seen. Less petrol is being consumed in Germany. According to data provided by the Federal Statistical Office, consumption declined in 2000 by 4.5% in comparison with the previous year, and also fell by 3.0% and 3.3% in 2001 and 2002, respectively. In previous years, diesel consumption grew continually due to haulage transport. Since 2000, however, consumption has stagnated. In 2002, the decline was 1.2%. Total consumption of motor fuel has continued to decline since 2000 by -2.8% in 2000, -1.0% in 2001 and -2.3% in 2002 (in terms of taxed amounts of fuel in Germany).

⁵ By changing price ratios, levies and other such instruments can cause producer and consumer behaviour to alter. However, the resulting environmental effects cannot always be traced back clearly or exclusively to the use of these instruments. For this reason, this publication refers to 'indications'.

The number of people using public transport is on the increase (up 0.4% in 1999, 0.8% in 2000, 0.8% in 2001 and 0.5% in 2002). The regulatory effect of the eco-tax was and is being intensified, particularly in the year 2000 and again since the end of 2002, by increases in the world market price for crude oil.

One important effect is the growing demand for energy-saving products. This is particularly evident in cases where consumers buy new cars, where the petrol consumption has become a major criterion in choosing a model. Lower energy consumption has meanwhile become one of the most persuasive arguments in generating sales in many other branches. Manufacturers of heating systems and household appliances are particularly benefiting from this trend. According to the Federal Car Sharing Association (*Bundesverband CarSharing e.V.*), the number of people who have joined such organisations rose in 2001 by 22% (following an increase of 26% in the previous year).

In addition, the ecological tax reform contributes significantly to a reduction in CO₂ emissions. The German Institute for Economic Research (DIW) has calculated a reduction of at least 2-3% of the total CO₂ emissions in Germany, corresponding at the least to roughly 20 – 25 million tonnes. At the same time, economic development is only marginally impaired, while the expected medium term labour policy effects of up to 250,000 new jobs are formidable.

The scientific community, in particular, has repeatedly confirmed that the Federal Government is on the right track with its ecological tax reforms. The Council of Experts for the Environment (Environment Council) highlighted the positive ecological effects of the reforms in its 2002 report and labelled the reaction of fuel demand to corresponding price signals as “striking evidence”.

In the electricity market, electricity tax will probably be partly compensated by the liberalisation of the energy markets and the consequent price decreases in electricity.

All in all, further positive environmental effects can be noticed as a result of tax breaks to environmentally-friendly elements and through the implementation of the programme of market incentives to the benefit of renewable energy within the context of ecological tax reform. This programme led to a boom in demand, particularly as regards solar panels (230,000 applications up to the end of 2001).

d) Note on other charges on energy provision

- Value-added tax

Deliveries of energy and fuels (electricity, coal, mineral oil, natural gas, etc.) with the exception of wood* are subject, without restriction, to the normal VAT rate (16 %). The VAT charge on consumption amounts to 13.79 % of the price paid by the end consumer, a price that may include special consumption taxes and other levies (for example, mineral oil duty).

*(including firewood, sawdust, waste wood and wood cull, e.g. pellets)

- Contribution to petroleum reserve stocks

This refers to a contribution to the organisation in charge of establishing and maintaining reserve stocks of petroleum, for its members, as required by law. Since 1 April 2001, this contribution has been as follows, for the following products:

- | | |
|---|----------------------|
| - petrol | €5.10/m ³ |
| petrol for motor vehicles, aviation spirit , petrol-based turbine fuel (corresponds to €0.0051/l) | |
| - middle distillates | €4.50/m ³ |
| (diesel fuel, light heating oil, lamp oil (kerosene), petroleum-based turbine fuel) | |
| - heavy heating oil | €4.30/t |

According to the Association, these revenues totalled some €477m in the 2000/2001 fiscal year.

- Levies on concessions

Payments by regional or municipal utilities to municipalities in compensation for the right to use public rights of way and areas for laying electricity and gas lines. The rates are set by the relevant local authorities. In 1992, nationally standardised maximum per-kWh thresholds were introduced for most of these levies:

- **Electricity**

= Regular-rates customers 1.32 – 2.39 cent/kWh, depending on the population of the municipality in question

= Customers with special contracts 0.11 cent/kWh

- **Natural gas**

= Regular-rates customers 0.22 – 0.93 cent/kWh, depending on the population of the municipality in question

= Customers with special contracts 0.03 cent/kWh

In 2001, the total levies on concessions amounted to roughly €3.5 billion (including Germany's city-states).

- **Levies on production**

Some *Länder* applied levies to domestic extraction of oil and natural gas. According to the individual economic associations, these levies are, for example, as follows:

oil 12 % in Lower Saxony (in 2002, lower levy rate upon existence of certain conditions)
5 – 10 % in Schleswig-Holstein (in 2002)

natural gas 21 % in Lower Saxony (in 2002, lower levy rate upon existence of certain conditions)
10 – 20 % in Schleswig-Holstein (in 2002)

These levies are calculated based on corresponding sales revenue. The extraction levies/extraction-related interest expenses (in short, extraction costs) for oil and natural gas were as follows (in €m):

1998	1999	2000	2001 (provisionally)
141	90	274	532

2. Specific tax provisions for various sectors

2.1 Transport

a) Mineral oil duty

◆ Differentiation between the tax rates for leaded and unleaded petrol

- Initial entry into force: 1 April 1985

- Current provisions:

Difference of approx. 6.5 cent per litre.

- How effective is this measure?

* Development in sale of unleaded petrol and leaded petrol:

<u>1986:</u>	11 %	89 %
<u>1996:</u>	97%	3 %
<u>1997:</u>	99.6 %	0.4 %

* At the end of August 1996, production of leaded petrol was discontinued in Germany, and in 1998 it disappeared completely from the market.

* Development in total numbers of automobiles categorised as having low emissions:

In 1997, the total number of low-emission automobiles (including station wagons) on the road was 35 million, or about 85 % of total numbers of such vehicles (about 41.4 million; source: *Umweltdaten* 1998, p. 12).

* Relationship between the numbers of low-emission automobiles and sales of unleaded petrol:

This differentiation in the tax rates has proved effective in an ecological sense, since by 1996 unleaded petrol accounted for about 97 % of all petrol sales, although "only" about 80 % of all automobiles with petrol engines were in the low-emission category.

◆ Low-sulphur fuels

- Initial entry into force: 1 November 2001

- Provisions:

On 1 November 2001, the mineral oil duty on motor fuels with more than 50 mg/kg of sulphur was increased by 1.53 cent (3 pfennigs) per litre. Since 1 January 2003, this higher tax rate has been applied to motor fuels with a sulphur content above 10 mg/kg.

- How effective is this measure?

The increased use of low-sulphur fuels caused by this measure leads to a reduction in sulphur dioxide emissions from the current number of automobiles on the road. On the other hand, it opens up the possibility of introducing completely new engines with up to 25 % lower fuel consumption. This represents a further contribution to the reduction of classical emissions such as nitrogen oxide, hydrocarbons, soot particles and greenhouse gases.

The additional tax burden on conventional motor fuels will not amount to a tax increase overall, since the fuel industry has adapted its supply correspondingly.

- ◆ **Reduction of the mineral oil duty rate for natural gas and liquefied petroleum gas (LPG) used in motor vehicles**

- Initial entry into force: 21 October 1995

- Provisions:

Reduced mineral oil duty rates apply which end for LPG on 31 December 2009 and for natural gas on 31 December 2020:

for natural gas (from 2003) €12.40 per MWh instead of €31.80

for LPG (from 2003) €161 per 1,000 kg instead of €1,217

- How effective is this measure?

According to the Federation of German Gas and Water Industry (BGW), the number of vehicles run on natural gas, in particular, continues to rise. In 1995, there were only 950 such vehicles. By 1998, however, this had risen to 4,200. Thereafter, a much greater increase in growth occurred, leading to a total of 13,000 natural gas powered vehicles by the end of 2002. Almost all current car models are convertible into gas-run vehicles. Vehicles fuelled by LPG are also becoming more and more prevalent. All in all, the development in the number of gas powered vehicles used commercially, in particular in local public transportation, is greater than that observed for vehicles for private use. Currently, Germany has approximately 250 natural gas filling stations. As a result of the favourable conditions, the gas and oil industries have noticed the market opportunities offered by natural gas as a new energy source for mobility and intend to create a country-wide infrastructure by opening 1,000 further filling stations by the year 2006.

◆ **Mineral oil duty exemption for biofuels**

- Initial entry into force:
Pure biofuels (with up to 3% of admixtures from petroleum, e.g. additives) have been exempt from mineral oil duty for many years.
- Current provisions:
On 7 July 2002, the German Bundestag adopted a law which exempted all sorts of biofuels in pure form or as admixtures to conventional fuels from mineral oil duty until 31 December 2008 (Federal Law Gazette, 2778). The tax exemption will, however, only come into effect once both the EU Commission has given its approval (required under state aid rules) and the Council of the EU has authorised the directive on mineral oil duty structures. On the EU level, a political agreement was reached on 19 March 2003 on the exemption of biofuels from mineral oil taxation, to be unlimited as of 2004. This political agreement has yet to be implemented, however, by formally adopting the energy tax directive.
- How effective is this measure?
* Development of the range of automobiles on the road:
Biodiesel can be used in all vehicles with diesel engines; tractor manufacturers have approved virtually all of their vehicles for operation with biodiesel. In the area of automobiles and trucks, Opel, Volkswagen, Ford, Mercedes, MAN and Iveco have issued specific or general approvals for such fuel for a range of their vehicle models. Biodiesel sales have continued to rise since the regulation was introduced and in 2001 was approx. 500m litres. To date, biofuels other than biodiesel have not been used to any significant effect.

b) Motor-vehicle tax

◆ **Differentiation of motor vehicle tax for automobiles on the basis of exhaust gas characteristics**

- Automobiles whose emissions meet at least the "**euro 3**" or "**euro 4**" standards pursuant to Directive 98/69/EC, as of the date on which such automobiles are first registered for operation on public roads, are eligible for temporary motor-vehicle tax exemptions. For vehicles meeting the "euro 3" standard, such exemption eligibility expires when a total tax exemption of €127.82 (petrol engines) or €255.65 (diesel engines) has been reached; for vehicles meeting the "euro 4" standard, it expires at

levels of €306.78 DM (petrol engines) or €613.55 (diesel engines). In the case of "euro 3" vehicles, the vehicle's date of first registration must be before 1 January 2000; for "euro 4" vehicles, it must be before 1 January 2005.

- Automobiles whose carbon dioxide emissions – calculated in accordance with Directive 93/116/EC – do not exceed 90 g/km ("**3 litre automobiles**") or, for vehicles first registered before 1 January 2000, whose carbon dioxide emissions do not exceed 120 g/km ("5 litre automobiles") are eligible for temporary exemption from the motor-vehicle tax. Such eligibility expires as soon as a tax-exemption value of €511.29 ("3 litre") or €255.65 has been reached. Automobiles that simultaneously meet all eligibility criteria for tax exemption as "3-litre automobiles" / "5 litre automobiles" and as vehicles meeting the "euro 3" / "euro 4" standards are eligible for the relevant sum of the aforementioned exemptions.
- The value of the tax exemption is converted into a vehicle-based exemption period that terminates independent of any ownership changes or temporary periods out of service, but extends no longer than 31 December 2005. As a result of this expiry date, tax exemptions may terminate early, depending on the relevant cylinder capacity and first registration date.
- After the expiration of limited-term tax exemptions for vehicles meeting the "euro 3" and "euro 4" standards, and for "3-litre automobiles", **reduced tax rates** apply as follows for each 100 cm³ of cylinder capacity or fraction thereof: €5.11 for automobiles with petrol engines and €13.80 for automobiles with diesel engines. On 1 January 2004, these rates are to be increased to €6.75 and €15.44, respectively.
- Automobiles propelled exclusively by **electric motors** fed primarily from a mechanical or electromechanical energy storage medium receive a five-year tax exemption, beginning on the date of their first registration. When this tax exemption period has expired, such automobiles are subject to tax rates based on each 200 kg or fraction thereof of maximum permissible vehicle operating weight (to 2,000 kg: €11,25; from 2,000 to 3,000 kg: €12.02; from 3,000 to 3,500 kg: €12.78). The tax is then reduced to half of the amount calculated in accordance with this graduated system.

- Other automobiles are subject to the following tax rates per 100 cm³ of cylinder capacity or fraction thereof:

Emissions standard	Validity period (dd.mm.yy)	Petrol engines	Diesel engines
Euro 2	until 31.12.2003 as of 01.01.2004	€6.14 €7.36	€14.83 €16.05
Euro 1 and comparable standards	until 31.12.2004 as of 01.01.2005	€10.84 €15.13	€23.06 €27.35
Others that are allowed to operate during ozone alerts	until 31.12.2004 as of 01.01.2005	€15.13 €21.07	€27.35 €33.29
(Conditionally) low-emission vehicles not permitted to operate during ozone alerts	until 31.12.2004 as of 01.01.2005	€21.07 €25.36	€33.29 €37.58
Others		€25.36	€37.58

- The higher tax rates for automobiles with diesel engines (+ €8.69 or €12.22) are a standardised compensation for the lower mineral oil duty on diesel fuel in comparison with that on petrol. This taxation, thus, does not imply any preference in terms of environmental and climate protection for either of these two engine types.
- How effective is this measure?

The motor-vehicle tax has proven to be a particularly effective environmental policy instrument since the introduction of tax breaks for low-emission cars in the mid 80s. By July 1991, a total of 97 % of all automobiles with petrol engines were already equipped with regulated catalytic converters, even though the relevant binding EU emissions regulations would not enter into force until 1 January 1993.

The 1997 Act on amending the motor-vehicle tax introduced tax breaks for automobiles complying with the “euro 3” / “D 3” and “euro 4” / “D4” emissions standards. The relevant EU emissions standards for automobiles being registered for the first time entered into force on 1 January 2001 (euro 3) or will do so on 1 January 2006 (euro 4). Thanks to motor vehicle tax incentives, currently more than half of the

automobiles being registered for the first time already comply with the emissions standards which are not to come into effect until 2006.

It was set out in the coalition agreement of 16 October 2002 that motor vehicle tax should be further developed in conjunction with the *Länder* on a revenue-neutral, ecological basis.

◆ **Differentiation of motor vehicle tax for commercial vehicles on the basis of emissions characteristics**

For commercial vehicles (except for trailers) with over 3.5 tonnes maximum permissible operating weight, the tax rates per 200 kg maximum weight or fraction thereof are graded in accordance with pollutant and noise emissions (maximum tax per year: €664.68 for pollutant-emissions category "S2" or better, €1,022.58 for category "S1", €1,533.88 for noise-emissions category "G1" and €1,789.52 for vehicles without any emissions reduction).

◆ **Motor-vehicle-tax exemption for buses mainly used for regular transport services**

- Initial entry into force: 1 January 1969
- How effective is this measure?
 - Improvement of the framework for local public transportation.
 - The ecological impact cannot be quantified.

- **Motor-vehicle-tax exemption for certain commercial vehicles used exclusively for short trips in preparation for, and follow-up to, multimodal transports (by rail, inland waterways, or sea/road)**

◆ **Tax reimbursement for vehicles which can be shown to be transported to a significant extent by rail**

c) Value-added tax

◆ Reduced VAT rate for short-distance passenger transport

- Initial entry into force: 1 January 1968
- Current provisions:
Reduced VAT rate for railway traffic (except for mountain railways), trolley buses, licensed regular transport services carried out with motor vehicles, taxis and ferries operating over short distances (less than 50 km or within municipalities) as well as passenger transports by ship.
- How effective is this measure?
 - Improvement of the framework for local public transportation.
 - The ecological impact cannot be quantified.

The coalition agreement of 16 October 2002 includes a plan to reduce the VAT on passenger rail services to 7% as from 2005, thus bringing it into line with the rate that applies for local transport. It is expected that this saving will be passed on to the customers in the form of cheaper ticket prices, thus raising the appeal of rail travel.

2.2. Housing

Act in subsidies for owner-occupied homes (*Eigenheim-Zulagen-Gesetz – EigZulG*)

Environmentally oriented subsidies (**subsidy for energy-saving, subsidy for especially energy-efficient homes** (*Niedrigenergiehaus*) within the framework of the Act on subsidies for owner-occupied homes

- Initial entry into force: 1 January 1996
- Current provisions:
In addition to the basic subsidy – which remains in force for eight years –
 - Subsidy for energy-saving, amounting to 2 % of expenses incurred in installing particularly efficient heat pumps, heat-recovery systems and solar-energy systems, for newly constructed or used residences, subject to the condition that the beneficiary of the subsidy must reside in the corresponding residence and

must complete such measures prior to moving in (subsidy limited to a maximum of €256 per year).

- Subsidy of €205 per year for especially energy-efficient homes (Niedrigenergiehaus) whose total annual heating requirements are at least 25 % below the applicable standard set by the Ordinance on Heat Protection (= Ordinance on Energy Efficiency – *Wärmeschutzverordnung*).

Both additional subsidies are limited to measures completed before 1 January 2003 and do not apply to new buildings whose construction is governed by the energy saving regulation.

- How effective is this measure?

Great interest has been registered based on the grant numbers.

Total amount eco-subsidy (new techniques and energy-efficient homes) between 1995 and 2001: DM 117.9m

Number of cases in the first subsidy year

	1995	1997	1999	2001*
New buildings				
Basic grant	1,164	200,017	294,321	146,812
Eco-subsidy	19	27,793	83,759	48,875
Old buildings				
Basic grant	8,923	225,552	305,242	166,611
Eco-subsidy	7	933	1,263	350

Source: *Geschäftsstatistik zur Nutzung der Eigenheimzulagen Berichtsjahr 2001* (as of January 2002)

(* provisional value which is expected to increase significantly in future statistics as experience shows that a large amount of the applications for 2001 are made later and, therefore, do not appear here.)

It was set out in the coalition agreement of 16 October 2002 that the eco-subsidy should be kept within the context of a restructuring of the home ownership assistance.

Moreover, the Reconstruction Loan Corporation is promoting investment in CO₂ reduction and energy saving in old buildings through **loans on favourable interest rate terms**; the interest subsidy on behalf of the Federation amounts to more than €1 billion up to 2005.

2.3 Nature conservation

a) Value-added tax

- Reduced VAT rate for **natural fertilisers** (except for guano)*

- Initial entry into force: 1 January 1968
- Current provisions:
Reduced-rate VAT on natural fertilisers, except for guano.
- How effective is this measure?
The ecological impact cannot be quantified.

(* In accordance with the draft act on “the reduction of tax concessions and exception regulations”, the reduced rate of VAT for natural fertilisers is to be abolished)

b) Real property tax

- Real property tax exemption for **nature conservation areas**

- Initial entry into force: 1 January 1974
- Current provisions:
Tax exemption for property owned by a domestic legal entity subject to public law, or a recognised non-profit domestic corporation and association, and used for non-profit purposes (including nature conservation). If such property is also used for agriculture or forestry, the land-tax exemption applies only if such use is for instructional or experimental purposes.
- How effective is this measure?
The ecological impact cannot be quantified.

- **Remission of real property tax on nature conservation areas**

- Initial entry into force: 1 January 1974

- Current provisions:

Remission of real property tax on real property whose protection is in the public interest, due to the property's importance for nature conservation, where relevant income and other benefits (gross proceeds) are normally less than the relevant annual costs.

- How effective is this measure?

The ecological impact cannot be quantified.

IV. Current situation with regard to reduction of tax breaks and other subsidies relevant to environmental policy

Article 6 of the EC Treaty obliges everyone concerned to promote sustainable development. This also includes reducing subsidies which impede such sustainable, i.e. economically efficient, socially just and ecologically friendly, development. The members of the European Union agree, in principle, on this need (e.g. as set out in the Broad Economic Policy Guidelines of the European Union).

More efforts are also being made on the international stage; the Kyoto Protocol, or Framework Convention on Climate Change, calls for the reduction of subsidies which damage the climate. The OECD examines what obstacles exist which hinder the reduction of subsidies which are counter-productive to environmental policy (e.g. Environmental Performance Review Germany 2001).

On the other hand, the types of subsidies that specifically need to be reduced and the political commitment to a specific reduction have not yet been identified on the European level. All the same, the members of the European Union have agreed to undertake an inventory and review of subsidies within the energy sector (Sixth Community Environment Action Programme, Article 2 ii) a).

In general, long-term subsidies can distort entrepreneurial price/performance competition and thus lead to a misallocation of resources. This effect, in turn, delays structural change and hinders economic growth and employment. Furthermore, subsidies limit the room for

manoeuvre of public budgets and/or increase the taxes and levies that citizens and companies must pay. From the perspective of budgetary policy, therefore, the reduction and elimination of subsidies is a never-ending task. The Federal Government has addressed this topic in diverse reports, such as the recent 18th Subsidy Report, the National Climate Protection Programme of October 2000, the National Strategy for Sustainability and the Environment Report 2002⁶. The coalition agreement of 16 October 2002 also envisages the phasing out of economically-questionable and environmentally-damaging subsidies in the near future within the framework of an “ecological fiscal reform”.

The following section outlines some projects to reduce environmentally-relevant tax breaks and other subsidies. The items included are presented solely by way of example; the German Federal Government is working at the EU level for the reduction of other tax breaks (for example, it is working for the elimination of the tax exemption for heavy oil used as a fuel in commercial shipping on inland waterways and for the elimination of the tax exemption for mineral oils used operationally in the manufacture of motor fuels (the so-called "manufacturer's privilege").

1. Restructuring home ownership grants

The supply of housing in Germany has never been as good as it currently is. The population is no longer growing. Renovation and maintenance accounts for more than half of the construction projects undertaken. A review of the system of home ownership aid has been announced and, in line with subsidy principles, is also urgently indicated. In the coalition agreement of 16 October 2002, it was agreed to align the subsidies for old and new buildings and to focus more on families with children.

2. Elimination of the VAT exemption for cross-border air transport

Eliminating tax exemptions for cross-border air transport would result in the equal, standardised taxation of services provided by all modes of transport. The current VAT exemption is based on a system of de facto reciprocity in which all EU Member States participate. In the interests of equal conditions for all the various modes of transport, the Federal Government continues to argue for the elimination of VAT exemptions for international flights for that part of the route crossing German airspace.

⁶ Respectively, *18. Subventionsbericht, Nationales Klimaschutzprogramm vom Oktober 2000, Nationale Nachhaltigkeitsstrategie and Umweltbericht 2002.*

3. Elimination of the mineral oil duty exemption for kerosene

Since as early as 1991, the Federal Government has been working towards the international elimination of tax exemptions for kerosene used in commercial aviation. This position was supported by a cross-party resolution of the German Bundestag on 19 March 1997, together with the Bundestag decision of 15 February 2001 (BT-DrS 14/4443). Eliminating tax exemptions in commercial aviation would result in the equal, standardised taxation of services provided by all modes of transport.

The current exemption is based in part on the Chicago Convention on International Civil Aviation of 7 December 1944, as well as on roughly 130 bilateral air transport agreements signed on the basis of this Convention. The EC Directive on mineral oil structures which has applied to date takes these agreements into account by providing for an obligatory exemption from duties on mineral oil used in commercial aviation. Pursuant to the coalition agreement of 16 October 2002, the German government will continue to argue for an EU-wide taxation of kerosene.

In November 1996, the European Commission recommended working towards a tax on kerosene as soon as the international legal situation permitted. Consequently, the proposed directive on harmonising energy taxation contains provisions allowing for the taxation of fuel used in aviation for domestic flights and – inasmuch as Member States sign bilateral agreements with each other – also for intra -Community flights. Political agreement on the energy tax directive was reached on 19 March 2003. All that remains in order for it to come into effect in 2004 is for this agreement to be implemented through the formal adoption of the directive.

If no taxation of kerosene comes into force, the Federal Government supports the plans of the EU to introduce an EU-wide distance-based levy on aviation emissions.

4. Abolition of mineral oil duty exemption for commercial inland navigation

The legal basis for the duty-free use of mineral oil in commercial inland navigation can be found in the mineral oil directive of the EU. This contains provisions for an obligatory tax exemption for commercial navigation within the maritime waters of the Community whereas the preferential tax treatment of domestic navigation is designed as a purely facultative measure. Currently, all Member States, with the exception of Portugal and Greece, grant tax relief to domestic navigation including, to a degree, also private navigation. In addition, international agreements such as the "Revised Convention for the Navigation of the Rhine of 17 October 1868" (Mannheim Convention) in conjunction with the "Agreement of 16 May 1952 between the Rhine riparian States and Belgium on the customs and fiscal treatment of gasoil used as ship's supply in the navigation of the Rhine" (Strasbourg Gasoil Agreement)⁷ provide for exemptions from levies on imported and bunkered gasoil.

This preferential treatment is no longer justified in view of the mineral oil duty burden facing road transport and rail transport by diesel locomotives. Moreover, this preferential treatment must be reduced or eliminated for transport on all waterways in the interests of limiting the consumption of mineral oil. Maintaining the preferential treatment for transport on the EU's own domestic waterways would lead to a one-sided preferential treatment of certain areas of navigation. Restricting the preferential treatment along geographical lines is also either impossible in practice or would entail costly administrative effort. This is due to the existence of numerous possibilities of crossing over to another section of the inland waterways network. As a result of the existing agreements and the differing taxation imposed on navigation within the Community, Germany, together with the other Member States and Contracting States, has been trying for more than 20 years to come up with a solution which also takes the environmental advantages of inland navigation into account. To date, however, these efforts have failed to produce tangible results.

⁷ „Abkommen vom 16. Mai 1952 zwischen den Rheinuferstaaten und Belgien über die zoll- und abgabenrechtliche Behandlung des Gasöls, das als Schiffsbedarf in der Rheinschifffahrt verwendet wird“ (Straßburger Gasölabkommen)

5. Note on subsidies in hard coal mining

In Germany, the costs of mining hard coal are far higher than the world-market prices for such coal, because the geological conditions under which the coal is mined are difficult and because strict safety and environment standards are applied.

In a coal compromise reached on 13 March 1997, the Federation, the mining states (*Länder*) (North Rhine-Westphalia and Saarland), the mining sector and the *IG Bergbau, Chemie und Energie* (mining, chemicals and energy industrial trade union) agreed on degressively structured subsidies until 2005. The compromise calls for a reduction in the subsidies paid by the Federation and the state of North Rhine-Westphalia from €4.73 billion in 1998 to €2.71 billion in 2005.

The RAG Group, which brings together all German hard coal mines under the umbrella of DSK (*Deutsche Steinkohle AG*), receives the subsidies in the form of annual ceilings. It may use these funds at its own entrepreneurial discretion for sales purposes (to compensate for differences between production costs and the world market price) and to pay costs incurred where capacity has been shut down.

In addition to funds from the coal compromise, the Federation (2/3) and the mining *Länder* (1/3) provide affected miners with adjustment money to ensure that the consequences of reduced capacity may be overcome in a socially-acceptable way. Until 2001, financial aid in overcoming capacity adjustment was also provided from the coal round of 1991.

Public budget expenditure (€bn)

1998	1999	2000	2001	2002	2003	2004	2005
Actual				Planned			
5.03	4.94	4.60	4.27	3.62	3.35	3.04	2.74

In 1998, as a result of unfavourable developments in the world-market terms for hard coal (coal price, exchange rate of the dollar), the DSK was forced to carry out early mine closures and to revise its mining planning. These difficulties were exacerbated by slumping sales in the electricity sector and declining deliveries to the steel industry. According to RAG, the

production target for 2005, initially planned to be 30m tonnes, has correspondingly been cut by a further 4m tonnes to 26m tonnes.

	1997	1998	1999	2000	2001	2005 RAG estimate
Acceptable production, in millions of tonnes	45.8	40.7	39.2	33.3	27.1	26.0
Employees (thousands) as at 31 December	78.1	71.8	66.4	58.1	52.6	36.0
Number of mines	17	15	15	12	11	10

Subsidies to the German hard coal mining sector are subject to the approval of the European Commission. Until its expiry in 2002, the legal basis for approval of the subsidies, which must be reapplied for every year, was the Treaty on the European Coal and Steel Community (ECSC). On 7 June 2002, the EU Council of Energy Ministers approved new arrangements in the form of a regulation on state aid to the coal industry (operative until 2010). This allows Germany to continue to provide aid both in cases of coal mine closure and to the current production until 2007. Thereafter, operational aid for expiring mines is not permitted. The regulation commits those Member States subsidising coal production to a “significant reduction” of aid.

Evaluation

The coal subsidies are regarded as counterproductive from an environmental policy point of view. They are thus listed in the coalition agreement under the heading “ecological fiscal reform”. According to the coalition agreement, the “restructuring of the German coal mining industry should continue. The Federal Government will determine its financing for the period 2006 – 2010 in negotiations with the coal mining *Länder*, the mining sector and the IG BCE. The budget contribution will then continue degressively”.⁸ The negotiations will be conducted in 2003.

An evaluation in terms of environmental policy must, however, take into account that the German system of subsidies is modelled around balancing high costs of production and low world market prices. Therefore, viewed in the short-term and given the power plant situation in Germany, the removal of subsidies would only lead to the substitution of hard coal produced domestically with imported coal. In the long-term, this evaluation could change if investment decisions regarding new power plants should be made under different energy policy conditions, as introduced by the Federal Government with the “energy change” (*Energiewende*).

On the other hand, the clear reduction in subsidies for the hard coal sector that has been initiated remains necessary, both in terms of economic and financial policy and in accordance with EU legislation. It is essential, against the background of a planned balanced budget, to continue to reduce coal subsidies in the long term.

V. Non-tax environmental levies (special levies, fees, contributions) in individual sectors

Preliminary remark

Germany has relatively few federal-level provisions on environmentally oriented levies as a result of the Federation's limited competencies in the area of environmental protection. On the other hand, the *Länder* (states) and local authorities have introduced a broad range of

⁸ The original wording in German is as follows: „...die Umstrukturierung des deutschen Steinkohlenbergbaus fortgesetzt werden. Die Bundesregierung wird über Verhandlungen mit den

environmental levies. These levies come in many different forms, in keeping with the environmental policy problems they are designed to address. Very few of the environmental levies are focused directly on products; most are tied to production or waste-management activities.

The provisions currently in force are divided into the following sectors: waste management, water-resources management, air quality control, traffic and nature conservation.

1. Waste management

1.1 Hazardous waste fees

Länder

Various *Länder* (including Baden-Württemberg, Bremen, Hesse and Lower Saxony) used to levy a **hazardous waste fee** whose rates were graduated in accordance with the hazards presented by the substances to be disposed of. The revenue generated by such levies was used primarily for support, advising, and research and development measures aimed at preventing and recycling hazardous waste and at overcoming the damages and follow-on contamination resulting from such waste. However, in a ruling of 7 May 1998, Germany's Federal Constitutional Court then determined that these levies based on *Länder* legislation were unconstitutional in that the regulatory effects of the levy legislation violated the co-operation principle set forth in the Federal Immission Prevention Act.

1.2 Consumption-based waste fees

Local authorities

Certain local authorities, sometimes acting independently and sometimes acting in co-operation with the *Länder* within the framework of research and development projects, are attempting to use **waste fees**, graduated by amount or volume, in order to increase recycling rates and to reduce production of residual waste. To this end, some communities have

Bergbauländern, dem Bergbau und der IG BCE die Finanzierung im Zeitraum 2006 – 2010 festlegen. Der Beitrag aus dem Bundeshaushalt wird sich dann weiter degressiv entwickeln“.

already introduced various technical and organisational systems, including systems with **revenue stamps, transponders, coupons, scanners and waste scales.**

1.3 Waste-based product fees

On the federal level

The Ordinance on Packaging of 12 June 1991 does not provide for environmental levies or fees. However, **by introducing obligations to accept returned packaging and to recycle packaging**, i.e. action-based obligations, it establishes **an independent environmental policy instrument that functions in accordance with market-economy rules.** The "**Dual System**" known as "**Der Grüne Punkt**" (the green dot) is self-financing through licence fees and, as a result, should also be described here.

The Dual System concept mandates a fee for management of disposable packaging. This fee is levied by the *Duales System Deutschland* company – *Gesellschaft für Abfallvermeidung und Sekundärrohstoffgewinnung mbH (DSD GmbH)* – for collection, sorting, partial processing (of plastics) and recycling, and it is normally paid by the packagers. This fee is not an environmental fee, since it is collected by a private party as a licence fee. Nonetheless, its ecological effect is similar to that of an environmental fee. The fee, which is differentiated depending on the various packaging materials in question, is based on both the packaging volume or area, and the weight. This is geared towards allocated costs to the source of these costs based on the actual disposal services. This, in turn, increases the incentive to avoid and find substitutes for non-recyclable packaging.

Examples of the fees (Source: DSD):

Plastic yoghurt container with aluminium lid

Total weight-based fee	€1.037 (separate calculations for container and lid)
Piece-based fee	0.350 cent
Total licence fee	€1.387

PE Bag for T-shirt with cardboard inlay

Total weight-based fee	2.77 cent
Piece-based fee	0.30 cent
Total licence fee	3.07 cent

Wine bottle

Total weight-based fee	3.04 cent
Piece-based fee	0.46 cent
Total licence fee	3.50 cent

An 11% price reduction was granted for the total licence fee in 2002.

Local authorities

Beginning in the early 1990s, a number of communities levied **municipal packaging taxes** on disposable dishes, utensils and beverage containers. The taxes were applied to non-reusable packaging and dishes, where such items were used to hold food and drink for sale and for consumption at the place of sale. In a ruling of 7 May 1998, the Federal Constitutional Court determined that such municipal packaging taxes were unconstitutional, particularly because they competed with federal lawmakers' regulations for the waste-management sector (Ordinance on Packaging).

1.4 Deposit system

At the federal level

In general, the Ordinance on Packaging requires **mandatory deposits** on disposable beverage containers, on packaging for detergents and cleansers and on dispersion-paint containers. The rates are graduated by size of the relevant packages (between €0.25 and €1). For packaging manufactured and sold by those participating in a dual-system within the meaning of Section 6(3) of the Ordinance, no mandatory deposit applies. However, this applies only to disposable beverage containers if the share of reusable containers sold nation-wide does not exceed 72 % of all containers, or if the reusable-container percentage with respect to the various relevant areas does not exceed that of 1991. In 1997, for the first time ever, this quota was not met. Following the confirmation of a shortfall by two subsequent

surveys for the periods of February 1999 to January 2000 and May 2000 to April 2001, mandatory deposits have been introduced for the time-being for beer, mineral water and carbonated refreshment drinks.

How effective is this measure?

By sending price signals, and particularly by eliminating the comfort factor formerly associated with disposable packaging, the mandatory deposits on disposable beverage containers will encourage once again the use of reusable systems. Collection based on packaging helps optimise recycling. Littering the landscape by heedlessly throwing away beverage packaging will be reduced.

1.5 Disposal fees for oil - and fat-based ship-generated waste

The “Convention on the Collection, Discharge and Reception of Waste arising from Rhine and Inland Navigation” signed by Germany, France, Switzerland and the Benelux countries on 9 September 1996 provides for the fiscal regulation of oil - and fat-based ship-generated waste arising from inland navigation, built around the polluter-pays principle. Along the act of bunkering the fuel will lead to the operators of motor-run crafts being charged a lump-sum disposal fee. The Contracting States are constructing deposit stations where oil- and fat-based ship-generated waste may be deposited without further costs. The Convention, which has yet to be ratified in some Member States, is intended to contribute to an orderly disposal of waste without compromising the water quality.

2. Water resources management

2.1 Water removal fees

Länder

No standard regulation governing the collection of fees for the extraction of water from bodies of water exists on a federal level. However, the majority of *Länder* has introduced such a levy (also called *Wasserpennig*). Extractions subject to the levy are either those from surface water bodies and groundwater (Baden-Württemberg, Bremen, Hamburg, Lower Saxony, Mecklenburg-West Pomerania, Saxony, Saxony-Anhalt – here however collection has been suspended) or those from groundwater alone (Berlin, Schleswig-Holstein). The

purpose of levying these fees is to encourage a reasonable and, above all, an economical use of our limited water resources.

The local legislation varies strongly from *Land* to *Land*. This begins with the name of the fee imposed (“water removal fee”, “water use fee”, “water removal charge”, “groundwater levy”), but is particularly so in the fee system design. The amount charged is mostly graduated according to how and why the water is removed, e.g. removal from surface water or from groundwater, removal for public water supply, agricultural irrigation and sprinkling, or cooling purposes. The fee ranges from less than 1 cent to just under 30 cents per cubic metre of water. The combined revenue generated by the *Länder* listed above is currently around €300m.

The money generated may be retained by each individual *Land* and flows either into the general budget or is used for certain water management measures, especially those aimed at protecting the groundwater or compensatory payments for agricultural limitations on use in water protection areas.

2.2 Wastewater levies

The Wastewater Charges Act (*Abwasserabgabengesetz*) is a federal framework act supplemented by implementation acts of the *Länder* and executed by these. Since 1981, the *Länder* have collected **levies on discharges of wastewater into water bodies** (wastewater levies). The levies are imposed on all direct dischargers, i.e. they are imposed primarily on local authorities as operators of public wastewater treatment facilities and on large industrial facilities that have their own wastewater treatment installations which discharge directly into the bodies of water. They are also imposed on small-scale dischargers and domestic wastewater treatment installations. The purpose of the levy is to encourage the reduction or elimination of wastewater discharges on an economical self-interest basis.

The amounts of such levies are based on the wastewater's degree of toxicity, expressed in units of toxicity. As a rule, the number of units of toxicity must be determined from the permitted values as given by the official notification under water law. The act sets forth in detail, for oxidizable substances (CSB), phosphorus and nitrogen, organic halogen compounds (AOX) and mercury, cadmium, chromium, nickel, lead, copper, and for fish toxicity, the pollutant load that, in each case, corresponds to one unit of toxicity. Since the fee

was first introduced, the fee rate has been repeatedly increased. As of 1 January 1997, it has been 70 DM (since 1 January 2002, €35.79) per unit of toxicity.

In addition, the following regulations, aimed at increasing incentives for proper wastewater treatment, apply:

- Where at least the requirements according to current technical levels (Section 7a of the Water Management Act⁹) of general administrative provisions are complied with, the fee rate for unavoidable units of toxicity is reduced by 50 %.
- Those who do not comply with the monitoring values set forth in the water legislation notification must pay disproportionately increasing levies.
- Certain water-protection investments made by dischargers may be offset against the levies during the relevant construction period.

The revenue generated by the fee goes to the *Länder*. It must be used for measures that promote water quality. In 2001, the total fee revenue amounted to DM 741.1 million (roughly €378.9m). A targeted use of this revenue to promote measures aimed at reducing emissions can complement the motivational effects of the wastewater levies. On the whole, this levy has shown itself to be an ecologically-effective instrument. This, together with the strengthening of laws, has been the main driving force in reaching the high standard of wastewater purification which Germany enjoys today.

2.3 Wastewater fees and contributions

Länder

All of Germany's *Länder*, through their own laws on municipal fees and levies, have defined the framework of local authorities for levying fees and contributions for wastewater management and wastewater treatment services.

Local authorities

Local authorities and the waste-management agencies they engage collect wastewater management fees and contributions on the basis of statutes and within the framework of the relevant *Länder* laws on municipal fees and levies.

⁹ *Wasserhaushaltsgesetz*

Fees are collected to cover costs of operating and maintaining wastewater treatment facilities; they are collected in the form of

- wastewater and rainwater fees, in accordance with the amount of fresh water used,
- wastewater fees based on the fresh-water standard, and partly based on the degree to which the wastewater is polluted,
- rainwater fees, based on features of the property in question, and
- basic fees, based on various calculation criteria.

The number and nature of the various fee components, and the overall amounts of the wastewater fees, vary. They depend on the structure of the wastewater management area, the local organisational and technical framework and the policy objectives of the local authorities or wastewater management agencies they engage.

Contributions are collected in order to ensure an appropriate degree of citizen participation in financing the investments necessary for adequate wastewater management. They must be paid by property owners as compensation for the economic advantages they enjoy in having access to wastewater treatment facilities. The contribution amounts are calculated on the basis of the property area available for construction, multiplied by a usage factor that depends on the permitted number of floors.

3. Air quality control

To date, the Federal Republic of Germany has **no air quality control fees** relative to **stationary installations**. Instead of such fees, it enacts regulatory measures pursuant to the Federal Immission Prevention Act and its implementing ordinances .

However, it is planned to encourage the reduction of greenhouse gas emissions by awarding and trading emission rights on an EU-level. A directive proposed by the European Commission envisages such an emissions trading system within the Union from 1 January 2005. In a first step, CO₂ emissions from large industrial plants are to be included.

4. Transport

4.1 Road pricing, road-use fees

Since 1995, heavy truck operators are obliged to pay time-based fees for autobahn use. Pursuant to Directive 1999/62/EC of the European Parliament and the European Council of 17 June 1999, motor vehicles or vehicle combinations intended exclusively for road haulage of goods and whose maximum permissible weight is at least 12 tonnes must pay the following ceiling rates:

- per year: up to 3 axles: € 960; 4 or more axles: € 1,550 (without EURO classification);
€ 850 or € 1,400 (EURO I) and
€ 750 or € 1,250 (EURO II and low-emissions).

- per month: up to 3 axles: € 96 , 4 or more axles: € 155 (without EURO classification),
€ 85 or € 140 (EURO I) and
€ 75 or € 125 (EURO II and low-emissions).

- per week: up to 3 axles: € 26, 4 or more axles: € 41 (without EURO classification),
€ 23 or € 37 (EURO I) and
€ 20 or € 33 (EURO II and low-emissions).

- per day: one rate of € 8 .

These ceiling fees are paid in the Benelux countries, Denmark, Sweden and Germany in the form of a heavy truck vignette based on a multilateral agreement signed by these countries on 9 February 1994.

This time-based autobahn charge (vignette) will no longer be in force once the distance-related toll charges are introduced in Germany on 31 August 2003. The basis for this is the "Act on the introduction of distance-related charges for the use of motorways by heavy goods

vehicles¹⁰ which came into effect on 12 April 2002. The toll charge ordinance¹¹ adopted by the Federal Government on 26 February 2003 provides for an average cost of 15 cent/km. The actual toll charge depends on the number of axles and the amount of pollutants emitted by the heavy truck.

4.2 Take-off and landing fees

All airports in Germany that are operated on a private-enterprise basis collect **take-off and landing fees**. In some cases, the fees take various noise certifications into account. The fees are based on the maximum take-off weights of aircraft. The fees for aircraft without noise certifications and for so-called "Chapter 2" aircraft are considerably higher than those for aircraft that meet the strict noise standards of ICAO Annex 16, Vol. I, Chapter 3 (so-called "Chapter 3" aircraft). Noise-dependent landing charges have encouraged the use of low-noise aircraft and have thus proved to be an efficient and sustainable method of noise reduction. The fees also differ from airport to airport. All in all, they represent a relatively small part of overall flight costs. Pursuant to the coalition agreement, the take-off and landing charges are to be further differentiated to include emissions.

5. Nature conservation

Pursuant to the definition given in Section II, environmental levies (*Umweltabgaben*) include the payments introduced by the *Länder* as a special form of compensation measures pursuant to Article 19 (4) of the Federal Nature Conservation Law (*BNatSchG*) (such payments go by various names, including "*Ausgleichsabgabe*", "*Ersatzgeld*", "*Ausgleichszahlung*", etc.). They differ from the non-tax environmental levies described above, however, in that they are payments under nature conservation law that are collected as **substitutes** for the **natural compensation** (i.e. compensation for damages to natural assets) that the Act **primarily** requires.

¹⁰ „Gesetz zur Einführung von streckenbezogenen Gebühren für die Benutzung von Bundesautobahnen mit schweren Nutzfahrzeugen“

¹¹ Mauthöheverordnung

For the sake of clarification, the following brief list of the main requirements imposed by Article 19 of the Federal Nature Conservation Law (provisions governing encroachments on nature) is provided:

1. Interventions on nature and landscapes must be avoided where possible (avoidance requirement).
2. Unavoidable interventions must be counter-balanced or compensated for in other ways (compensation requirement).
3. Where intervention can neither be avoided, compensated for on a prior basis or substituted, then it must be decided, by weighing all the arguments for and against the intervention, whether it takes precedence over the interests of nature conservation and landscape management. If this is not the case, the project in question must be prohibited.
4. In cases involving intervention that cannot be compensated for or substituted, but are permissible, the *Länder* may issue regulations regarding substitute measures.

All German *Länder* have made use of the authorisation of Article 19 (4) of the Federal Nature Conservation Law, although they have done so in different ways. Most *Länder* have, under certain conditions which vary from *Land* to *Land*, also enabled the provision of monetary payments in lieu of substitute measures. Due to the fact that unavoidable interventions generally have to be compensated for, the revenues generated here are relatively low.

Information as of April 2003.

VI. Annex

Overview of mineral oil duties

Type of mineral oil	Tax rate in 2003	Charge €/MWh	Charge €/GJ	Charge €/t TEC	Charge €/t CO ₂	Charge €/l
1	2	3	4	5	6	7
I. Motor fuels						
1. Leaded petrol	€721.00 €/1,000 l	78.89	21.91	641.39	296.94	0.72
2. Unleaded petrol	654,50 €/1,000 l	72.58	20.16	590.04	273.17	0.65
3. Petroleum, kerosene	654.50 €/1,000 l	67.76	18.82	550.91	255.05	0.65
4. Diesel fuel	470.40 €/1,000 l	47.45	13.18	385.81	178.62	0.47
5. LP gas (fuel)	161.00 €/1,000 kg	12.58	3.49	102.24	47.34	0.08
6. Natural gas (fuel)	12.40 €/MWh	12.40	3.44	100.81	61.10	--
II. Heating fuels						
7. Light heating oil	61.35 €/1,000 l	6.08	1.69	49.39	22.87	0.06
8. Heavy heating oil	25.00 €/1,000 kg	2.24	0.62	18.21	8.43	0.02
9. LP gas (heating fuel)	60.60 €/1,000 kg	4.73	1.31	38.48	17.82	0.03
10. Natural gas (heating fuel)	5.50 €/MWh	5.50	1.53	44.72	27.10	--

Notes:

The figures relating to natural gas are based on gross calorific value, otherwise on "net calorific value". 1 MWh (Megawatt-hour) = 3.6 GJ (Gigajoules) = 0.123 t TCE (tonnes of coal equivalents). Conversion of l/kg to MWh: petrol = 12.10 MWh/t; kerosene, diesel fuel, light heating oil = 11.90 MWh/t; heavy heating oil = 11.40 MWh/t; liquefied petroleum gas = 12.80 MWh/t. Density: no. 1 = 0.755 kg/l, no. 2 = 0.745 kg/l, no. 3 = 0.808 kg/l, no. 4 = 0.830 kg/l, no. 5 = 0.510 kg/l, no. 7 = 0.850 kg/l. Conversion factor for CO₂ and thermal energy: mineral oil = 2.16 kg CO₂/kg coal equivalent, natural gas = 1.65 CO₂/kg coal equivalent. Figures partially rounded.