

The ecological tax reform: introduction, continuation and development into an ecological fiscal reform

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Introduction

The Federal Government's aim in connection with the ecological tax reform (ETR) is to provide incentives for **saving energy** and for **energy efficiency** and to promote use of **renewable energy sources**. These pillars of **the new direction in energy policy** – together with the phase-out of nuclear power – are crucial for **climate protection** and for **creating new jobs**. Following the introduction of the ecological tax reform in 1999, the decision was taken to continue the reform until 2003. Furthermore, in 2003, the Act on the Further Development of the Ecological Tax Reform entered into force, and the **expansion to an ecological fiscal reform** (EFR) was initiated; in early 2004, the expansion to an EFR

was continued. This paper explains the reasons for the various aims involved, and it describes the aims of energy-taxation harmonisation in the EU, the pertinent laws in Germany, their amendments, special provisions, relevant revenue, pertinent steering and environmental effects, and the expansion of the reform into an ecological fiscal reform. For readers with little time to spare, we first present a table with the most important taxation rates (for the most part, does not include permitted reductions):

Mineral and ecological taxation rates for various fuels

Mineral-oil tax plus eco-tax stages	Mineral-oil tax until 31 March 1999	Mineral-oil tax plus 1 st stage of eco-tax (1 April 1999)	Mineral-oil tax plus 2 nd stage of eco-tax (Jan. 2000)	Mineral-oil tax plus 3 rd stage of eco-tax (Jan. 2001)	Mineral-oil tax plus 4 th stage of eco-tax (Jan. 2002)	Mineral-oil tax plus 5 th stage of eco-tax (Jan. 2003)	Eco-tax percentage in 2003
Energy source							
Electricity (ct/kWh)	---	1.02	1.28	1.54	1.8	2.05	2.05
Motor fuels							
Diesel fuel (ct/litre ¹)	31.70	34.77	37.84	40.91	43.98	47.04	15.34
Petrol (ct/litre ¹)	50.11	53.18	56.25	59.32	62.39	65.45	15.34
Natural gas (ct/litre ²)	6	7	7	8	8	8	2
LP gas (ct/litre ²)	6	7	7	7	8	8	2
Heating fuels							
Light heating oil (ct/litre)	4.09	6.14	6.14	6.14	6.14	6.14	2.05
Heavy heating oil (ct/kg)	1.53	1.53	1.79	1.79	1.79	2.5	0.97
Natural gas (ct/kWh)	0.18	0.344	0.344	0.344	0.344	0.55	0.37

Source: Federal Ministry of Finance (BMF) 2004, and own calculations; figures have been rounded off.

- 1) As of 1 November 2001 for low-sulphur fuels, as of 1 January 2003 for sulphur-free fuels)
- 2) As part of scheduled reductions in tax breaks, beginning in 2004, the mineral-oil tax on natural gas and LP gas used as fuel was increased by one cent for each fuel, to 9 ct/litre.

Reasons and aims

Fossil energies are scarce and limited. What is more, combustion of fossil fuels produces greenhouse gases (such as carbon dioxide – CO₂) that escape into the atmosphere, where they contribute to the greenhouse effect and global warming. The prices for such fuels do

not include society's resulting costs for climate-protection measures and clean-up and mitigation of environmental damage. **The usage prices for most fuels are too low in the long term** because they only reflect a share of their "true" costs. They provide **too little incentive to exploit existing potential for saving energy, via development and wide use of efficient products and production processes, and to intensify use of renewable energies**. The ecological tax reform is now "internalising" external costs. This means: environmental costs are being made to enter into every individual's decisions.

At the same time, employers and employees are burdened with excessive non-wage costs – in particular social security contributions. This has a negative impact on Germany's competitiveness and contributes to the relatively high unemployment.

The ecological tax reform reduces the tax burden on labour and shifts part of it to environmental consumption. This makes it possible to **reduce two problems simultaneously**. Energy taxes are being introduced or increased in small, calculable stages. At the same time, pension insurance contributions are being reduced and stabilised. The **ecological tax reform thus is largely revenue-neutral**. Its revenue is returned to industry and the public via reduction of other taxes. Decisions on when and where energy is to be saved can be made decentrally, by each individual; this approach will give companies and the public the greatest possible freedom of choice. For this reason, only a small part of the revenue – about 13 percent – will be used directly for environmental programmes and tax reductions that benefit the environment. This measure, which extends beyond a single legislative period, enables the German Government to create reliable framework conditions for investment and purchasing decisions.

The ecological tax reform has introduced a **historic reversal in taxation policy**. Prior to this time, mineral oil tax was increased solely for fiscal reasons, while at the same time wages were burdened with higher and higher social security contributions. In the last 30 years, taxation on labour has steadily increased, while environmental consumption, by contrast, has been taxed relatively little. This trend could be termed an "anti-ecological tax development". The signals being provided by this change in direction are an important foundation for **advancing climate protection**. Since measures to save energy and to intensify use of renewable energies tend to involve work-intensive activities (installation of thermal insulation; development, production, installation and servicing of new technologies

with promising export opportunities), the ecological tax reform also helps to **reduce unemployment**. This effect is reinforced by the reform's role in reducing and stabilising non-wage costs. It also promotes investment and innovation and reduces fossil energy imports, which draw currency reserves out of the country. The money that now stays in Germany can be used to create jobs in Germany: Intelligent engineering services in Germany are now taking the place of oil imports and wasting of energy.

Integration in EU-wide harmonisation of energy taxes

Germany is not alone in pursuing ecological tax reform; the entire European Union is taking similar measures. On 27 October 2003, EU environment ministers approved a **directive providing for greater harmonisation of energy taxation within the EU**; this move was an important step toward an EU-wide ecological tax reform. **After 10 years of negotiations**, it has finally been possible to define minimum taxation rates for all energy products throughout the entire EU region. The directive on harmonisation of energy taxation, which sets forth a number of multi-year transition periods, entered into force on 1 January 2004, and it **will apply to all accession countries, following transition periods**. As a result, Germany will be required to introduce a tax on coal used for heating purposes. In other areas, this decision will have few direct consequences for Germany – because Germany already has an exemplary, well-developed eco-tax. At the same time, the adaptations that will be necessary in other EU countries **will give German industry competitive advantages**. The new or higher energy taxes that many EU countries will have to introduce represent **a significant development toward EU-wide harmonisation of environmental and fiscal policies**. At the same time, a great deal of potential for further improvement remains, in light of the extensive exemptions and transition periods that had to be included in the directive in order to achieve the necessary unanimity regarding all fiscal measures (each Member State has veto rights). But the directive on energy taxation will also facilitate and make possible, for the first time, approaches that are of basic usefulness in the framework of development of the ecological tax reform into ecological fiscal reform:

- **Introduction of a kerosene tax** on national flights and flights between Germany and EU Member States with which Germany has air-transport agreements that do not prohibit such taxation.
- **Differentiation of taxation of diesel fuel in accordance with private and commercial use**, a move that, for example, could make it possible to end subsidies on private consumption of diesel fuel.

- Limitation of **tax breaks to companies that take part in emissions trading or that have entered into an environmental agreement (or that are members of associations that have entered into such agreements).**

1999: Introduction of the ecological tax reform

With the introduction and continuation of the ecological tax reform, Germany is following relevant recommendations of the European Commission and the Organisation for Economic Cooperation and Development (OECD). By following the examples set by other EU countries such as Denmark, Italy, the Netherlands, Austria, Sweden and Great Britain, Germany has already contributed to greater tax harmonisation within Europe.

The Act on the Introduction of the Ecological Tax Reform increased the price of energy as of 1 April 1999. The mineral-oil tax was increased as follows:

- 6 pfennigs per litre (3.07 ct) on motor fuels
- 4 pfennigs per litre (2.05 ct) on light heating oil
- 32 pfennigs per kilowatt-hour (0.164 ct) on natural gas.
- 25 DM (12.78 euros) per 1000 kilograms on liquid petroleum gas used for heating

In addition

- an electricity tax of 2 pfennigs (1.02 ct) per kilowatt-hour was introduced.

At the same time, **pension contributions were cut** by 0.8 percent, the reduction being equally split between employers and employees. **This lowers the non-wage costs for employers, and employees receive a higher net wage.**

2000 to 2003: Continuation of the ecological tax reform

The Act on the Continuation of the Ecological Tax Reform regulated the gradually increasing taxation in four further stages from 2000 to 2003. The details included:

Increase in the mineral oil tax

- By 6 pfennigs per litre (3.07 ct) on motor fuel on 1 January each year from 2000 to 2003; with an additional tax of 3 pfennigs (1.57 ct) per litre on non-low-sulphur fuels (sulphur content over 50 ppm, equivalent to 50mg/kg) from 1 November 2001. As of 1 January 2003, the threshold will be decreased to 10 ppm (sulphur-free fuels).
- A one-time increase on heavy heating oil of 0.5 pfennigs (0.26 ct) per kilogram, on 1 January 2000.

Increase in the electricity tax

- By 0.5 pfennigs (0.26 ct) per kilowatt-hour on 1 January each year from 2000 to 2003.

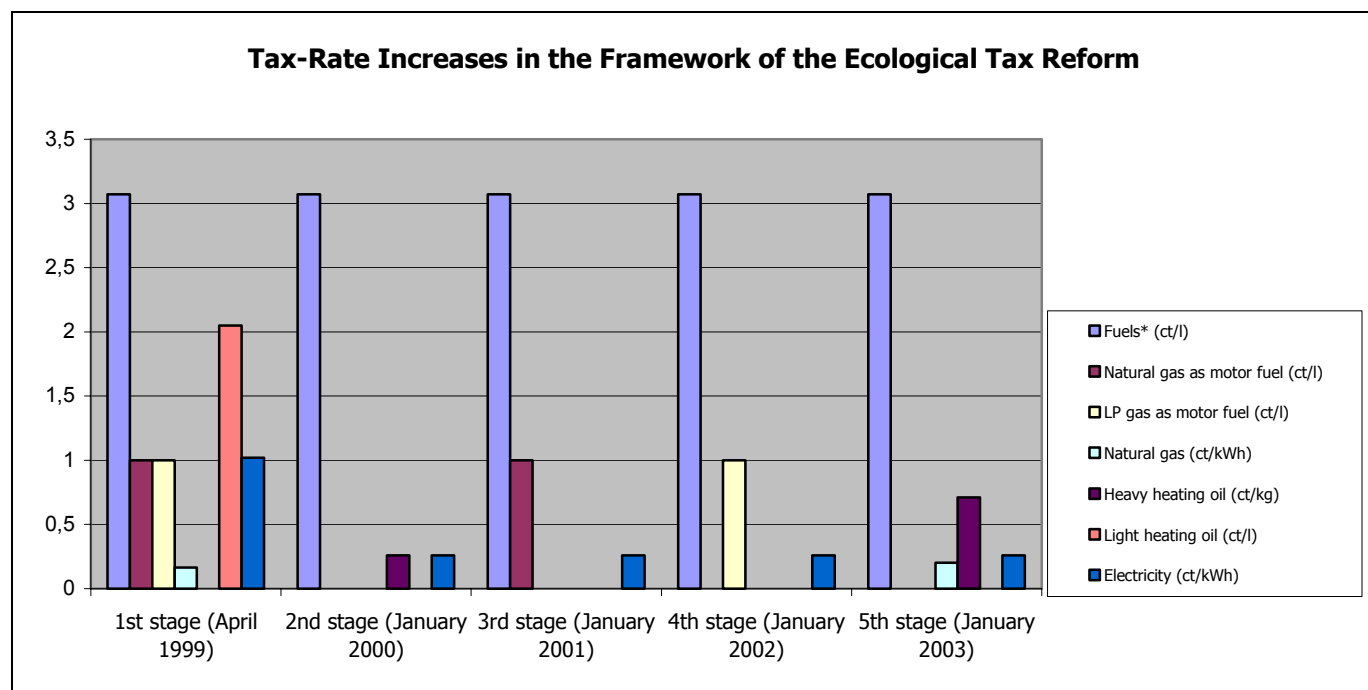


Figure 1: Source: Eco-tax – save or pay? Federal Environmental Agency, November 2002.

* from 1 November 2001 for low-sulphur fuels, from 1 January 2003 for sulphur-free fuels (figures rounded off)

In order to **prevent distortion of competition, and to strengthen the reform's ecological steering effects**, a number of **special provisions** were introduced in the context of the ecological tax reform. The following section briefly summarises the most important provisions applying until the end of 2003. A **reduced rate of 20% of the regular tax rate** was introduced for the manufacturing sector and forestry and agriculture, on the condition that a base amount of DM 1000 (€ 511) per year and energy source was exceeded. Furthermore, the manufacturing sector was given the additional option of applying for a **tax cap** ("Spitzenausgleich"). Where their burden from increased tax rates (disregarding the mineral oil tax on motor fuel and heavy heating oil) was 1.2 times greater than their tax relief from the reduction in pension contributions, companies were refunded the full differential amount. **To prevent social hardship**, night-storage heating systems installed before 1 April 1999 were only subject to half of the increased rate of the electricity tax. To promote **beneficial ecological effects**, the tax rate for the public rail system was reduced by 50%, as of 2000. In addition, the local public transport system paid only half the rate of increase of the mineral-oil tax on fuels. Taxation on natural gas and LP gas used for transport purposes was greatly reduced in comparison to taxes on petrol and diesel fuel. Additional special provisions applied for efficient power stations with combined heat-power

generation (CHP) and for highly efficient gas-steam power stations. Additional details are provided in the section on special provisions.

2003: Further development of the ecological tax reform

The **Act on the Further Development of the Ecological Tax Reform** entered into force on 1 January 2003. This dismantled **environmentally harmful tax reductions** and adapted heating-fuel taxes on natural and liquid gas and on heavy heating oil. This act **provided for the following specific measures:**

- Dismantling of reduced eco-tax rates for the manufacturing sector and for agriculture and forestry – from a previous reduced rate of 20% for electricity, heating oil and natural gas to a reduced rate of 60% of the regular eco-tax rate.
- Modification of the tax cap for energy-intensive companies: Where a manufacturing company's eco-tax burden is greater (previously: 1.2 times greater) than its tax relief from the reduction in pension contributions, the company is now refunded only 95 percent of the differential amount (previously: 100 percent); as a result, the de facto tax rate is no longer zero percent – it is three percent (5% of 60%).
- Dismantling of the electricity tax break for night-storage heating systems installed before 1 April 1999 to 40 percent (1.23 ct/kWh) of the regular electricity tax rate (previously: 50 percent; 1.02 ct/kWh); complete elimination of tax breaks as of 1 January 2007.
- Adjustment of the regular mineral-oil tax rate on natural gas used for heating, to 0.55 ct/kWh (previously, about 0.35 ct/kWh); on LP gas, to 60.60 euros/1,000 kg (previously: 38.34 euros/1,000 kg); and on heavy heating oil, to 25 euros/1,000 kg (previously: 17.89 euros/1,000 kg); efficient combined heat-power (CHP) generating systems and gas-steam power stations are exempted.
- Extension of the low tax rate for natural gas in the traffic sector, until 31 December 2020 (previously: 31 December 2009).
- Extension of the tax reduction for mineral oils used to heat greenhouses and closed growing rooms to 31 December 2004 (previously: 31 December 2002).
- Allocation of an additional 160 million euros for the expanded KfW CO₂-oriented building-renovation programme, with which subsidies are also being provided for conversion of night-storage heating systems and coal-fired furnaces.

Cutting down of existing tax reductions in 2003 generated additional revenue of 1.4 billion euros. Furthermore, around 2.8 billion euros were generated through the fifth stage of the ecological tax reform (decided on in 1999), via an increase in the electricity tax and in fuel taxes (see figure 1).

Phasing-out of the reduced tax rates for the manufacturing sector and for forestry and agriculture will enhance incentives for greater energy efficiency. Industry has had sufficient time, over around four years, to adjust to the ecological tax reform. It is therefore tenable and appropriate within the framework of the ecological tax reform to dismantle subsidies for industry, which amounted to around € 4.8 billion in 2004 alone (according to the Federal Government's subsidies report), by € 380 million (almost eight percent) per annum. A moderate amendment to tax breaks will correct possible distortions in competition. And thus the **tax cap**, which is especially relevant for energy-intensive enterprises, will also be modified. Previously, an enterprise had the right to reimbursement of the differential amount assuming it paid eco-tax that exceeded 1.2 times (from 2003: 1 times) the reduction in pension insurance contributions, with the result that there was actually no relevant extra burden – apart from a reasonable deductible amount. If the rate reductions were now simply increased, the steering effect would be limited because this would also result in higher reimbursement amounts. The tax cap was therefore reduced from 100% to 95%. There is now a real incentive for efficient energy use even for energy-intensive enterprises in the manufacturing sector.

The **dismantling of tax reductions for night storage heating systems** and the expiry of these reductions in 2007 is progress from an ecological perspective, since most of the energy used in this area is wasted. This inefficient method of heating runs counter to the principles of energy saving and efficient energy use, and to the phase-out of nuclear power. Promotion of these heating systems is therefore being gradually abolished. To promote conversions to efficient heating systems, relevant modernisations are now being supported with additional funds from the ecological tax reform, made possible through expansion of the KfW CO₂-oriented building-renovation programme.

Tax relief from the mineral oil tax for cultivation under glass, i.e. in structures such as greenhouses and closed growing rooms, remains in place until 2004. This is primarily justified by similar tax reductions for competitors in the Netherlands.

The adaptation of the natural gas tax rate to 0.55 ct/kWh was due primarily to fiscal reasons and might seem environmentally problematic on first sight. In terms of relevant energy content, natural gas had a strong tax advantage over light heating oil, which is also used to heat rooms. This advantage has been reduced in order to achieve a systematic taxation that is oriented more strongly to CO₂ output and energy content. The ecological advantage of natural gas will, however, continue to be reflected to some extent in taxation.

In addition, this tax adaptation creates further incentives to save energy and to use efficient combined heat-power generation plants. It thus enables investments in energy saving to pay off more quickly.

2004: Further dismantling of subsidies

In early 2003, the Bundestag and its "red-green" (Social Democrats-Green coalition) majority passed a Tax Preference Reduction Act (Steuervergünstigungsabbaugesetz). A short time later, this legislation failed to pass in the Bundesrat, however. The proposed act was a comprehensive initiative aimed at dismantling **environmentally harmful subsidies** – especially in the area of expenditures. The proposed act would have reduced the owner-occupied-homes premium ("Eigenheimzulage") and focussed it on families, would have completely eliminated the VAT exemption for international flights and would have reduced the distance-based commuters' deduction to 15ct per kilometre of relevant distance. After the proposed legislation was rejected by the Bundesrat, in which CDU-led (or CSU-led) Länder have a majority, the legislation was referred to the mediation committee. In December 2003, a result was reached in the area of scheduled reduction of tax breaks, on the basis of a proposed compromise submitted by the minister-presidents Koch and Steinbrück. The result was oriented largely to the **"lawnmower method" of subsidy reduction proposed in the Koch-Steinbrück paper**. This means that subsidies are reduced across the board, by a certain percentage rate, without any discussion of individual subsidies or setting of political emphases. On the other hand, **this principle was not applied comprehensively**. For example, special provisions for companies, in the framework of the ecological tax reform, and kerosene-tax exemptions for air transports were left untouched. Nonetheless, the paper was the only proposal with any chance of passage, in light of the ratios of representation in the Bundesrat. Unfortunately, reduction of environmentally damaging subsidies was accompanied by some reduction of **ecologically motivated subsidies**. The changes took effect on 1 January 2004:

- The **commuters' distance-based deduction** has been reduced from 36 ct/km for the first 10 km and 40 ct/km for each additional km to a unified rate of **30 cents per km of commuting distance**.
- The premium for owner-occupied homes (**Eigenheimzulage**) has been retained, but it has been reduced by 30 percent, and it now covers both existing ("old") and newly built ("new") structures.

- The **mineral-oil tax on natural gas used as a fuel** has been increased by 12 percent, from 1.24 ct/ kWh to 1.39 ct/kWh. A positive aspect of this development is that tax breaks for this fuel still amount to some 80 percent compared to premium petrol and to some 70 percent with regard to diesel fuel. Natural gas fuel thus remains available to high-mileage drivers at low cost, in comparison to conventional fuels. The reduction of subsidies also includes the mineral-oil tax on **liquid petroleum gas used as a fuel**; this tax was increased by 12 percent, from 16.1 ct/kg to 18.032 ct/kg.
- The **reduced taxation rate** of 50 percent for **public railway transportation** and trolleybus transports has been increased by 12 percent. This corresponds to an increase from 1.02 ct/kWh (the current rate) to 1.142 ct/kWh.
- Tax breaks for local public transportation are also being reduced by 12 percent, in a single step. For example, the mineral-oil-tax reimbursement for petrol and diesel fuel has been reduced from 6.14 ct/litre to 5.402 ct/litre. The eco-tax rate thus amounts to 9.938 ct/litre.
- In the area of **investments in transport systems**, there will be **no one-sided cuts to the detriment of railways**, pursuant to an agreement between the leadership of the SPD and Green factions. In connection with the mediation procedure relative to the tax reform, and the subsidy-reduction proposals of Koch/Steinbrück, a total reduction in railway investments of 820 million euros, over the next three years, had been discussed. This would have meant annual reductions of four percent in federal funding for railway construction.

Special provisions

The ecological tax reform includes numerous special provisions, some of which intensify the reform's ecological steering impact, and some of which prevent economic or social hardship. The Act on the Continuation of the Ecological Tax Reform of 1 January 2003 and the 2004 tax reform have reduced a number of environmentally harmful tax breaks, in the framework of an ecological fiscal reform, thereby enhancing the efficiency of the intended ecological steering. The following section presents the special provisions that apply as of 2004 (or earlier).

...Provisions for preventing competitive disadvantages

Since 2003, a **reduced rate of 60%** of the regular tax rate has applied for the manufacturing sector, forestry and agriculture and aquaculture and fish farming. The base amount, up to which the full tax rate is to be paid, is 512.50 euros per year.

Furthermore, the manufacturing sector has the option of applying for a **tax cap** ("Spitzenausgleich"): Companies whose eco-tax burden, in spite of reduced tax rates (this does not apply to the mineral oil tax on motor fuel and heavy heating oil), is more than 1.2 times greater than their relief via the reduction in pension contributions receive a reimbursement totalling 95 percent of the pertinent excess amount. As a result, this means that companies must pay at least three percent of the regular tax rate (5% of 60%).

The tax-cap policy gives due consideration to the **competitiveness of energy-intensive enterprises**. It thus can prevent any transfer of production to locations abroad. Furthermore, **agriculture and forestry operations** receive a subsidy of 21.48 ct/litre on the diesel fuel (agricultural diesel) they use. Their tax rate is thus 25.56 ct/litre.

...for preventing social hardship

Night-storage heating systems are often found in apartments rented by people in lower income groups. Therefore, in order to prevent any social hardship, electricity for operation of **night-storage heating systems installed prior to 1 April 1999** is subject, as of 2003, to only 60 percent of the regular tax rate (1.23 ct/kWh); this special provision will expire completely as of 31 December 2006. At the same time, funding for the **KfW CO₂-oriented building-renovation programme has been increased, using eco-tax funds, by a total of 160 million euros per year** – in part, in order to support conversions to environmentally friendly heating systems.

... for promoting environmentally friendly mobility

Public rail transports and trolleybus transports are subject to an electricity tax of only 56 percent of the regular rate (1.142 ct/kWh). The **local public transportation sector** receives mineral-oil-tax subsidies amounting to 5.402 ct/litre on petrol and diesel fuel (tax of 60.048 ct/litre on petrol and 41.538 ct/litre on diesel fuel), 1.337 ct/kg on LP gas (16.695 ct/litre) and 0.1 ct/kWh on natural gas (1.38 ct/kWh).

Reduced tax rates apply to **low-sulphur and sulphur-free fuels**, since such fuels significantly reduce emissions from traffic and facilitate the development and use of more efficient engine technology. Fuels with sulphur content of more than 10 ppm are subject, as of 1 January 2003, to a tax increase of 1.53 ct/litre. The EU requirements regarding the reduction in the sulphur content (50 ppm from 2005) were thus already met in 2001, and by 2003 sulphur content fell considerably below the EU's prescribed level. Thanks to early announcement of the differentiated tax rates, the relevant fuels were available early on in the required amounts. The fuels may be used in all types of automobiles; no technical

modifications are required. This extra tax premium **has not led to an additional burden**; instead, it has prompted a speedy market shift towards tax-privileged low-sulphur and sulphur-free fuels.

The **ecological tax reform also promotes use of vehicles that run on natural gas or LP gas**. The tax rates on LP gas used as fuel (9 ct/litre; until 2009) and on natural gas used as a fuel (9 ct/litre, until 2020) are considerably lower than the tax rates on diesel fuel (47.04 ct/litre) and petrol (65.45 ct/litre).

Bio-fuels are a useful alternative to fossil fuels, and thus they have long been exempted from the mineral-oil tax. In the framework of the ecological tax reform, on 7 June 2002 the Bundestag passed an act on the exemption of all biogenic fuels from mineral-oil taxes. In November 2003, via the 2003 Taxation-Amendment Act (Steueränderungsgesetz), this exemption for all bio-fuels was upheld and expanded for the period from 2004 through 2009. The mineral-oil-tax exemption applies to all "bio-" heating fuels, to biogas and synthetic petrol and diesel fuel produced from solid biomass, to bioethanol, biomethanol and hydrogen from biomass and to all admixtures. As a result, an important framework for enhancing the competitiveness of these climate-friendly fuels has been established. Pure biodiesel and pure bioethanol contain about 50 percent less CO₂ than conventional diesel fuel and petrol. Sales of biodiesel have increased markedly since 1999. In 2003, a total of 650,000 tonnes of biodiesel were sold.

... for promoting environmentally friendly and efficient power generation

Combined heat-power (CHP) generating systems use fuels considerably more efficiently than conventional power stations, since they generate heat and power simultaneously. What is more, they can be located decentrally – near sites at which power and heat are used. Highly efficient CHP facilities with a monthly or annual utilisation rate of 70% or more are fully exempt from the mineral oil tax (0.55 ct/kWh for natural gas). Mineral-oil-fired systems that use at least 60 percent of the energy in mineral oil are exempted from the "eco-tax component" (0.366 ct/kWh for natural gas and 2.05 ct/litre for light heating oil).

Highly efficient gas-steam power stations without heat extraction and with net electric efficiency of at least 57.5%, and that were completed after 31 December 1999 and begin regular power-generation operations by 11 March 2006, will have full exemption from the existing mineral oil tax for five years after they are commissioned. In almost all other European countries the energy used in electricity generation is not subject to any taxation. Germany is therefore partly eliminating this distortion of competition and taking into account

the changed conditions in a liberalised electricity market. Significantly, this move will remove a **competitive disadvantage in comparison to coal and nuclear fuels, which can be used untaxed for electricity generation**. On the other hand, all electricity is being taxed.

Gas-steam power plants can play an essential role in providing an environmentally sound replacement capacity for nuclear power plants.

Electricity generated from renewable energies – generated solely with windpower, hydropower (for generators with power ratings below ten megawatts), solar power, geothermal power, landfill gas, sewage-treatment gas or biomass – is exempted from the electricity tax. On the other hand, to qualify, the power must be taken from a grid fed solely with power from such energy sources. A relevant, practical example: power that is generated by a user's own photovoltaic system or biogas system and that is used directly, without being fed into the public grid. The previous output limit (0.7 MW per plant) has been abolished; in the case of hydropower, the output limit has been considerably increased, from the previous 5 MW to 10 MW per plant. The tax exemption for **contracting arrangements**, i.e. arrangements under which a system for heat and/or power generation is contractually operated for another party, has been correspondingly adjusted and made equal to that for user-generated power. This represents an important incentive for an efficient and decentralised energy supply, e.g. in the form of **small combined heat-power (CHP) generation** plants and energy services. Mobile small CHP systems receive the same taxation status as stationary small CHP systems as long as they always remain in the same location during their operation.

Overview of special provisions

Purpose Sectors	To prevent distortion of competition	To prevent social hardship	To promote environmental protection
Manufacturing	<ul style="list-style-type: none"> - As of 2003, the manufacturing sector is subject to a reduced tax rate of 60% of the regular tax rate; in addition, a regular tax rate of 3% applies in the framework of the tax cap (Spitzenausgleich) 		
Agriculture and forestry	<ul style="list-style-type: none"> - Agricultural and forestry operations pay only 25.56 ct/litre for the diesel fuel they use (agricultural diesel) 		
Power generation			<ul style="list-style-type: none"> - Efficient CHP stations with a utilisation efficiency of at least 70% are exempted from the mineral-oil tax. CHP stations with a utilisation efficiency of at least 60% are exempted from the eco-tax. - Highly efficient gas-steam power stations with a net electrical utilisation efficiency of at least 57.5% are exempted from the mineral-oil tax and eco-tax for a period of 5 years from the time they are commissioned. - Power that a user generates from renewable energies himself, for his own consumption, is exempted from the electricity tax. - Contracting arrangements are placed on an equal footing, for taxation purposes, with user-generated power.
Transport			<ul style="list-style-type: none"> - Fuels with sulphur content exceeding 10 ppm are subject to an additional tax of 1.53 cents per litre - The local public transportation sector pays a reduced mineral-oil tax rate of 60.048 ct/litre on petrol, 41.538 ct/litre on diesel fuel, 16.695 ct/kg on LP gas and 1.38 ct/kWh on natural gas. - Railway and trolleybus transports are subject to a reduced electricity tax of 56% of the regular tax rate (1.142 ct/kWh). - Reduced tax rates for LP gas used as fuel (9 ct/litre) and for natural gas used as fuel (9 ct/litre)
Households		<ul style="list-style-type: none"> - Until 31 December 2006, night-storage heating systems installed before 1 April 1999 are subject to a reduced tax rate of 60% of the regular tax rate 	

Revenue

The revenues from the ecological tax reform will be almost fully returned (over 90 percent) to taxpayers. The largest share of revenues (some 90%), amounting to about 18.6 million euros, has been used for gradual reduction and stabilisation of employer and employee pension contributions – from 20.3% in 1998 to 19.1% in 2001/2 and 19.5% in 2003. **Without the eco-tax, these contributions – as a result of the general demographic development, which by itself tends to drive contribution rates upward – would be 21.2% in 2003 and 2004** (figure 2). Part of the revenue – several hundred million euros per year – is being used to promote renewable energies (about 100 million euros in 1999 and 2000; 2001: about 150 million euros; 2002 and 2003: € 190 million in each year; 2004: € 200 million; 2005: € 220 million; and 2006: 230 million euros).

In combination with fundamental reforms, revenue from the ecological tax reform can thus contribute to the long-term safeguarding of the pension insurance system. The eco-tax therefore continues to ensure that labour remains affordable for enterprises and that social insurance contributions by employees remain stable at a lower level than in 1998.

Only 1 billion euros will be used for budget consolidation. This is a temporary and thus justifiable deviation from the principle of strict revenue-neutrality of the ecological tax reform. Fundamentally, the ecological tax reform thus **still consists of a shift of the tax burden from labour/employment to energy consumption, with some direct support for environmental protection.**

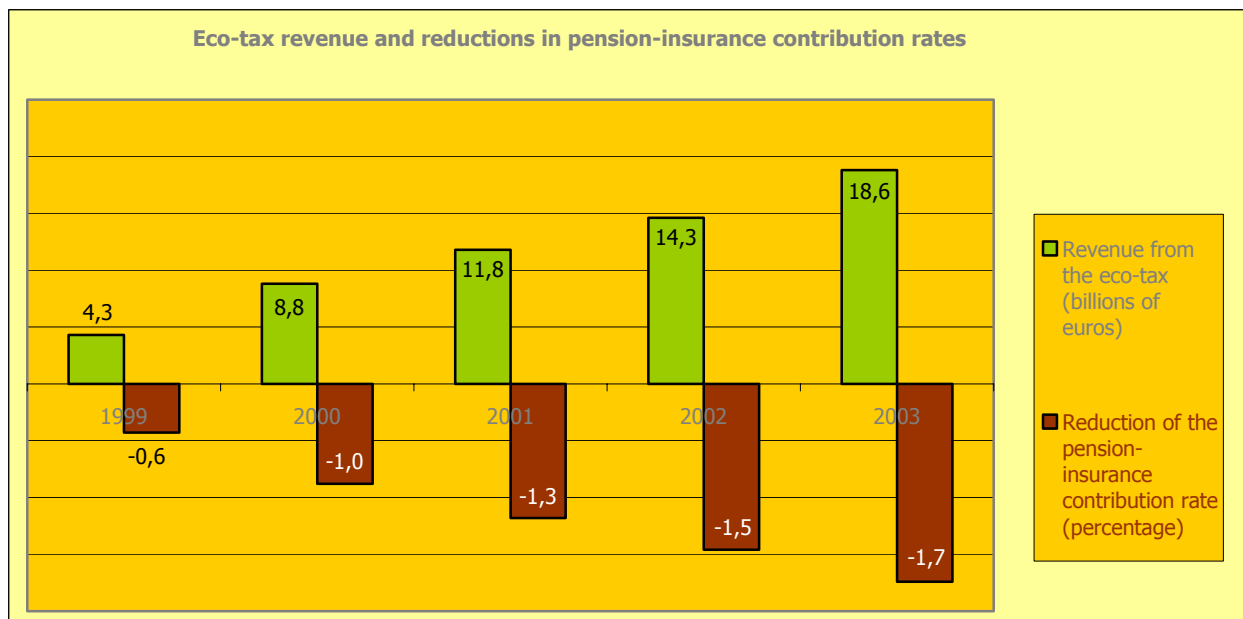


Figure 2, Source: Federal Ministry of Finance (BMF) 2004 (2003: estimated figures)

Since 2003, an additional 160 million euros are being allocated annually for financing the KfW CO₂-oriented building-renovation programme, with which subsidies are also being provided for conversion of night-storage heating systems and coal-fired furnaces. As a result, part of this additional revenue also directly benefits the environment. **Together with the aforementioned tax reductions for the benefit of the environment, a computed level of some 13% of the revenue serves environmental protection** – and the environment also profits from reduced energy consumption, since the increasing energy taxes provide greater incentives to save energy.

Steering and environmental effects

Several **leading economic research institutes** have confirmed that the ecological tax reform, with its gradually increasing stages, is a practical and effective concept. In a study on the overall social impacts of the ecological tax reform, the German Institute for Economic Research (DIW), together with other institutions, identified clear signs of the **desired ecological effects**. Energy consumption is decreasing. CO₂ emissions could be reduced by 2-3 percent by 2005.

In contrast, **economic development is barely affected**, while the impacts on the labour market are positive, with the creation of **up to 250,000 new jobs by 2003**. The ecological tax reform thus also provides incentives to convert illegal employment into regular contract-based employment. In 2003 illegal employment decreased in Germany for the first time in many years; the **decrease in illegal employment amounted to 1.6 percent**. According

to findings of the Institute for Applied Economic Research (IAW), the trend is best explained as the result of measures that reduce the heavy taxation and deductions on wages. Reduction of non-wage costs of employment, in the framework of the ecological tax reform, is aimed precisely at this link.

Since its introduction in April 1999 – and in combination with the particularly sharp increase in crude oil prices in 2000, the high U.S.-dollar exchange rate, and the resulting public discussion – the ecological tax reform has already **enhanced awareness of the need to save energy**. In the transport sector in particular, there are **clear indications of a trend reversal. Fuel consumption fell for the first time in four consecutive years (2000-2003)**, after having increased almost constantly in the past. As to the steering effect of the ecological tax reform, the DIW has calculated that transport-sector CO₂ emissions will decrease by 3.84 percent by 2010 compared to the reference year, 1998.

According to figures from the Federal Statistical Office, **fuel consumption in road traffic** (in each case, figures are based on amounts of mineral oil taxed in Germany) has been decreasing continually, with decreases of 2.8 percent in 2000, 1.0 percent in 2001, 2.3 percent in 2002 and 2.9 percent in 2003 (for 2003, figures are available for January to September). The biggest contribution to this development was **petrol sales**, which fell by 4.5 percent in 2000, by 3.0 percent in 2001, by 3.3 percent in 2002 and by an additional 4.27 percent in 2003 (January to September). In 2000, 2002 and 2003, sales of **diesel fuel** decreased by 0.7, 1.2 and 1.59 percent, respectively. A slight increase was registered for diesel fuel in 2001, although this increase, at 1.4 percent, was much smaller than that seen in 1999 (+4.7 percent). **The reasons given for this decrease include efficient, more reserved driving habits and overall mileage reductions, due to the higher petrol prices, and the lower specific mileage fuel consumption of new vehicles.** Consumers are again taking fuel mileage into consideration in their automobile purchases: In a representative survey of German drivers, Gesellschaft für Konsumforschung (GfK), a market-research institute located in Nuremberg, found that 63 percent of all respondents indicated that high fuel prices would affect their next automobile purchases. Pursuant to a recent survey carried out by the Emnid market-research institute, for **89 percent of all respondents, "environmental friendliness" is the most important factor to consider in choosing new a automobile.**

At the same time that fuel consumption has decreased, the **number of environmentally friendly natural-gas-powered cars has increased to 13,000**. This is due to tax concessions for the use of natural gas in the traffic sector and to a commitment to set up a nation-wide network of natural-gas service stations by 2006.

Goods transports on roads have also decreased in the past few years. The Federal Statistical Office reports that tonnage in road transport of goods decreased by 2.9 percent in 2001, 4.3 percent in 2002 and 1.5 percent in 2003. Decreases in railway goods-transport levels, at 1.6 percent in 2001 and 1.1 percent in 2002, were smaller than in the road-transport sector. In 2003, railway goods transports actually increased by four percent. Transport companies are responding to the increased adaptation pressures by using their vehicles more and more efficiently. Pursuant to the Federal Office for Goods Transports, total no-load mileage of German trucks, as a percentage of total mileage, has continued to decrease, while the percentage share of with-load kilometres has increased further – in 2000, somewhat more strongly than in the years before: with-load kilometres as a percentage share of total kilometres increased from 71.4% in 1995 to 73.4% in 1998, to 74.1% in 1999 and to 75.3% in 2000.

In addition, in recent years **the numbers of passengers travelling by public transport have begun increasing again.** Following a downward trend in the numbers of passengers using local public transport up to 1998, these numbers again registered constant increases over five consecutive years. According to the Federal Statistical Office, the numbers of people using local public transportation have grown continuously since 1999: +0.4 percent in 1999; +0.8 percent in 2000; +0.8 percent in 2001; +0.5 percent in 2002 and +1.5 in 2003.

According to CarSharing, a nation-wide umbrella association of car-sharing providers, the numbers of people who are members of car-sharing agencies and who use their services increased by 26% in 2000, by 22 percent in 2001 and by 8 percent in 2002 (in each case, the increases are with regard to the previous year).

Manufacturers of **solar thermal plants for warm water treatment** have recorded two-digit growth rates – a boom in renewable energies that is also due to the eco-tax on heating fuels and to the market incentive programme for renewable energies, financed by the eco-tax. As of the end of 2002, a total of over 4.2 million square meters of **solar collectors** were in place in Germany.

The climate, the environment, the job market and innovative enterprises all benefit from the ecological tax reform, as the reform makes it possible to reduce automobile traffic, with its high external costs; replaces automobile transports with more environmentally sound modes of transport; and reduces energy consumption and the related environmental pollution by promoting use of alternative fuels. These positive trends need to be reinforced via a reliable framework; a reliable planning framework is one of the keys to energy-saving investments, which can take a number of years to pay off.

Development into an ecological fiscal reform

The coalition agreement provides for a **further review of the ecological tax reform by 2004**. The purpose of this review is to decide whether to develop the reform further, and, if the decision is positive, to decide how such development should proceed. A key issue in this connection is anchoring the eco-tax in a broader ecological fiscal reform that would also dismantle additional ecologically harmful, economically dubious subsidies and tax breaks. In addition to the above measures, the coalition agreement of 16 October 2002 also specifies the following measures as part of **an ecological fiscal reform**:

- Reduction in the VAT rate for rail passenger transport from 16% (current rate) to 7%, as of 2005;
- Abolition of the VAT exemption for air traffic to other EU countries;
- Supporting taxation of kerosene at the European level;
- Ecologically oriented, revenue-neutral further development of motor vehicle tax, with CO₂ as the basis for assessment;
- Programme to support the building of "passive" (zero-energy) houses, providing for 30,000 residential units;
- Further reductions in subsidies for the German hard-coal mining industry.

As far as environmentally harmful subsidies are concerned, such as the billions of euros for the coal industry, the question arises, and rightly so, as to why citizens are expected to still pay even higher taxes to finance them. Reductions in environmentally harmful subsidies, with the aims of reducing taxes, promoting energy-saving, enhancing energy efficiency and increasing use of renewable energies, are thus justified.

Further information about the ecological tax and fiscal reform

Further information is available in the Internet at <http://www.bmu.de/oekologische-finanzreform>, <http://www.umweltbundesamt.de/uba-info-daten/daten/oekosteuer.htm>, <http://www.bundestag.de> and <http://www.bundesfinanzministerium.de> (legal texts: http://www.zoll-d.de/e0_downloads/f0_dont_show/gesetze_testen/sammlung_aller_gesetze/stromsteuergesetz.pdf and http://www.zoll-d.de/e0_downloads/f0_dont_show/gesetze_testen/sammlung_aller_gesetze/minoestgesetz.pdf), <http://www.bundesfinanzministerium.de/Steuern-und-Zoelle/Oekologische-Steuerreform-.727.htm> (detailed information provided by the Federal Ministry

of Finance); applications for support of renewable energies and energy-saving measures can be downloaded at <http://www.bmwi.de>, <http://www.bafa.de> and <http://www.kfw.de>. An overview of all available support is provided at <http://www.bmu.de> and <http://www.bine.info/foerderinformationen.php>. Further information about energy-saving is provided at www.bmu.de/klimaschutz, <http://www.bmu.de/energiespartipps>, <http://www.co2online.de> and <http://www.deutsche-energie-agentur.de/>