

A German Perspective on the U.S. Carbon Tax Debate

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This article supports Prof. Richard Westin's suggestions and justifications for returning carbon tax revenue to the public¹ by providing insights into the debate and eventual design of a tax introduced in Germany in April 1999 by the "red-green" coalition government of the Social Democratic Party (the red) and — for the first time on the federal level — the Green Party (the green). In enacting a carbon tax, Germany was following the examples of many other EU member states that had already done so in the early and mid-1990s.² The EU emissions trading system (ETS) was introduced later, in January 2005.

In a nutshell, the current debate in the United States about whether to use carbon taxes or emissions trading is similar to the one that took place in Germany. As noted above, however, when Germany took up the issue it could look at the several years of practical experience of European countries that already had carbon taxes in place. Therefore, this article will take a similar approach and use the design of the German carbon/energy tax or — as it is often called in Germany and the EU — the Ecological Tax Reform (ETR), of which the carbon tax is a part, as its reference point.

Whenever actions combating climate change are discussed, one issue inevitably raised is that consumers or industry might face higher costs for fossil fuels. In Germany those resulting costs were intensively researched, analyzed, and taken into account while the ETR was being designed.

¹*Tax Notes*, July 16, 2007, p. 191, Doc 2007-15432, 2007 TNT 137-45.

²See Kai Schlegelmilch, ed., *Green Budget Reform in Europe — Countries at the Forefront*, Springer Publishers, Berlin, 1999, available at http://www.wupperinst.org/en/info/entwd/index.html?&beitrag_id=50&bid=43&searchchart=publikationen_uebersicht.

But the costs of *inaction* have also become more evident. Sir Nicholas Stern's³ report on the economics of climate change⁴ concludes that the costs of inaction may be up to 20 times higher than the costs of action. Climate change protection measures therefore are highly profitable for society and the costs of action should be considered an insurance premium against the far higher costs of — that is, the damages caused by — inaction.

Components of the ETR

To structure the comparison between the United States and Germany, the article is divided into three parts based on the components of the ETR: ecological, tax, and reform. They are equally important and influence how carbon tax revenue is used in Germany, as explained below.⁵

Ecological

The "ecological" part is ensured through several features of the German ETR:

- the tax base is energy — which consists of hydrocarbons — as a major emitter of carbon dioxide.⁶ The less energy a taxpayer uses, the less tax it pays — a win-win situation for society and the taxpayer;
- because the ETR is a market-based instrument, its prime objective is to stimulate market reactions; hence, the tax is designed to provide incentives for

³Head of the United Kingdom's Government Economic Service, Adviser to the Government on the economics of climate change and development, and former chief economist of the World Bank.

⁴See Nicholas Stern, "The Economics of Climate Change," available at http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm.

⁵For more details on the ETR in Germany, see Schlegelmilch, "Insights in Political Processes on the Ecological Tax Reform From a Ministerial Perspective," Green Budget Germany Discussion Paper No. 2005/06, available at http://www.foes.de/downloads/diskussionspapiere/GBGDisPap2005_06PoliticalProcessesNV.pdf; Schlegelmilch et al., "Ecotaxes and Emissions Trading in Germany and Europe — Market-Based Instruments for the Environment," Green Budget Germany, Oct. 2006, available at http://www.foes.de/en/downloads/study/Study_Market_Based_Instruments24.pdf, http://www.bmu.de/english/ecological_tax_and_financial_reform/general_information/doc/4328.php, and http://www.bmu.de/oekologische_finanzreform/links/doc/2508.php.

⁶The debate over whether energy or carbon is the better tax base is beyond the scope of this article. But with 80 percent of greenhouse gas emissions emitted through energy consumption, energy could be considered a good proxy for all greenhouse gas emissions without complicating the tax administration.

increasing energy efficiency and the use of renewables by gradually making them more profitable than fossil fuels (this is of great importance because it explains the next feature, although it is not well understood by the public); and

- only a small part of the tax revenue (about 10 percent) is directly recycled through reductions in (or in some cases even complete exemptions from) the energy tax for environmentally benign commodities, energy products, or technologies and through expenditure programs to promote more efficiency and the use of renewables in the heating and transport sectors.⁷

The remaining 90 percent of ETR revenue is returned to the public via lower Social Security contributions (SSC).⁸

Given the name “Ecological” Tax Reform, many people expect the ETR to directly benefit the environment and hence its revenue should be spent on environmental projects. However, it’s not primarily up to the generally less-informed government to decide which projects make the most sense. Rather, it is up to each individual — stimulated by the tax increase incentives — to decide on the most cost-effective options for avoiding carbon emissions. Consequently, the ecological function of the tax does not require dedication of any or all of its revenue to environmental purposes. Also, if both taxes and expenditures thereby increased, the state would gain more influence. That would not be in line with revenue neutrality — another very important feature of the ETR (see section on “tax”).

A few years’ experience finally confirmed that the tax was producing positive environmental effects, even though hardly any proceeds were used for environmental purposes. According to figures from the Federal Statistical Office, fuel sales for road traffic have been decreasing continuously, with an overall decrease of 17 percent between 2000 and 2006; after decades of almost steady growth, that’s a real turnaround. The reasons given for this decrease include more efficient driving habits and overall mileage reductions, thanks to higher transport fuel prices (as well as the increase in world oil prices), and the more efficient fuel consumption of new vehicles. But a minor part is also due to carbon leakage because some people fill up their cars abroad where fuel is often taxed lower.

Studies isolating the impact of the ETR from other economic factors confirmed those findings. From the enactment of the tax in 1999 through 2003, CO₂ emissions were reduced by 2.3 percent and are expected to go down by 3 percent overall through 2010. Further, as discussed

⁷In the electricity sector, even minor recycling is not necessary because another effective tool (the feed-in-tariff law, <http://www.erneuerbare-energien.de/inhalt/6465/5982/>) ensures that every kWh of electricity produced from renewable sources that is fed into the grid receives a direct payment from the electric utility of a fixed amount for a period of 20 years — optimal investment conditions leading to a real boom in Germany. Hence, many countries globally have copied this instrument.

⁸See discussion of “reform,” below.

below, the shifting of tax burdens resulting from enactment of the ETR led to the creation of as many as up to 250,000 additional jobs through 2003.

The past few years have also seen a decrease in goods transported on roads. 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 and has continued since then. There were smaller decreases in railway goods transport levels — 1.6 percent in 2001 and 1.1 percent in 2002 — than in the road transport sector. In 2003 railway goods transports increased by 4 percent, and the increases have continued since then.

Transport companies are responding to the increased pressures applied by the tax by using their vehicles more efficiently. According to the Federal Office for Goods Transports, total no-load mileage of German trucks, as a percentage of total mileage, has decreased. With-load kilometers as a percentage share of total kilometers increased from 71.4 percent in 1995 to 73.4 percent in 1998, to 74.1 percent in 1999, and to 75.3 percent in 2000.

Also, in recent years the number of passengers traveling by public transport has begun increasing again. Following a decades-long downward trend in the number of passengers using local public transport through 1998, the next five years saw increases. According to the Federal Statistical Office, the number of people using local public transportation increased from 1999 through 2003 by more than 6 percent.

According to CarSharing, a nationwide umbrella association of car-sharing providers, the number of people who are members of car-sharing agencies and who use their services increased by about 130 percent between 1999 and 2006.

Tax

The “tax” part makes clear that the ETR involves major taxes, which have fiscal relevance on a macroeconomic level, and not just minor charges and fees. This is important for the “reform” part — substantial revenue has to be generated to cause major changes in consumers’ and producers’ behavior. Overall ETR revenues amount to more than 18 billion euros per year, which represents about 2 percent of total German tax revenue. Since introduction of the ETR, tax rates have been increased on transport fuel, heating fuels, and electricity.⁹

Reform

The “reform” part makes clear — and this is of utmost importance and can clarify many misunderstandings — that the ETR involves a major change in the German tax structure, a shifting of the tax burden from “goods” such as labor and income to “bads” such as environmental pollution and resource exploitation. The ETR is *not* about an overall increase of the tax burden, but instead about shifting the tax burden without an increase of the overall tax burden. To that end, the tax burden on labor in the

⁹For further details on the tax rates, see http://www.bmu.de/english/ecological_tax_and_financial_reform/general_information/doc/4328.php.

form of SSC to the pension fund was reduced and is now 1.7 percentage points lower than before the ETR.

Although the intention behind the ETR is to change behavior, it aims for mid- and long-term changes. If tax rates are increased in small predictable steps — as is often the case in Germany and other European countries — the result is overall tax revenue increases for several years, which ensures that sufficient revenue is available for recycling. The rationale is to give consumers and producers sufficient time to adapt; whenever they plan to buy or manufacture new commodities, they know that taxes on energy will increase further while taxes on labor will decrease. The results will be a tendency toward energy-efficient commodities and the creation of more and more new jobs.

In Germany, like in most other EU member states that enacted an ETR, this reform principle has been implemented through, as noted above, use of about 90 percent of energy tax revenue to reduce and stabilize the SSC to the national pension fund. The idea behind this approach is that taxes and SSC on labor, particularly in the private sector, are most damaging to the economy because they contribute to higher unemployment. Unemployment is often mentioned as the number one concern in Germany — hovering above 10 percent for many years, although it has recently decreased.

Although the next items that are discussed here can still be attributed to the debate about reform, they are equally important elements of the discussion of the politics of the choice and the evolution of the tax. In fact, during the discussion preceding the introduction of the tax, there was initially a split in opinion. Some wanted to use most revenue to finance the “energy turnaround,” the “transport turnaround,” and so on, to make fast progress on the environmental front, believing much more in the state’s capacity to decide on the best measures to do so. However, an increasingly influential group argued for instead reducing other, more distorting, taxes and charges, especially those on labor. Eventually that argument was incorporated in the ETR structure, with a small portion of the revenue dedicated to environmental programs, as noted above.

However, as the German ETR has evolved since 2003, additional revenue has been devoted to financing more environmental programs and, to a smaller extent, to the general budget. Since 2003 the initial revenue-share ratio of 90 percent for reducing SSC and 10 percent for environmental purposes has changed to approximately 87 percent for reducing SSC, 9 percent for environmental purposes, and 4 percent for the general budget. This change didn’t really damage the ETR’s credibility, while the continued use of some ETR revenue for environmental programs helps make the ETR somewhat more acceptable to the public.¹⁰

Another important step was to broaden the ETR into an Ecological Fiscal Reform, abolishing or at least reducing environmentally damaging subsidies, such as tax expenditures for energy-intensive companies, coal subsi-

dies, and tax deductions for commuting costs. This began in 2003 under the red-green coalition and was accelerated in 2005 under the new grand coalition of Social Democrats and Christian Democrats, the two largest parties in Germany.

As noted above, the public struggled with the term ETR because many people believed that the revenue from an “Ecological” Tax Reform should be used for environmental purposes. Hence, using the revenue to lower labor costs was not well understood by the public, although it was reasonable to economists because the environmental impacts should basically stem from the price incentive on carbon or energy.

Also, it is important to understand that in Germany, and in Europe generally, there is a broad understanding that funding and other measures are required for environmental protection as a kind of “state intervention” because the market is not — contrary to many theorists’ beliefs — working perfectly. Rather, the market has many obstacles regarding the dissemination of information, equal powers of energy suppliers, technologies and renewables, and energy consumers, the internalization of external costs, and so on. That broad understanding reinforced the public tendency to assume that new revenue from an energy tax should fund environmental efforts.

Using a large percentage of the ETR revenue for the general budget — apparently a concern in the United States — was never seriously discussed in Germany. Given the general debate about the state’s role in the mid-1990s in Germany, in which there was a broad cross-party consensus to not increase the budget, this option never had a chance. Hence, there is no German experience regarding the question now under discussion in the United States.¹¹

One could almost say that in Germany, all backers of the ETR had to “swear” that they would not use a single euro (at the time of enactment, it was still the Deutsche mark) for anything other than reducing labor costs, or as compromise, investing in environmental tax benefits. A carbon tax that is not returned to a large extent could never be enacted in Germany; polls have always confirmed that only an option that redirects revenue is acceptable.

Similar to U.S. public opinion, the German population want business, such as industry and utilities, to pay for reducing greenhouse gas emissions; there has always been a limited willingness for requiring households and drivers to pay. This attitude of consumers seems to be independent of the jurisdiction. However, there is one big advantage for Germans (and other Europeans) over Americans; their positive savings rate of about 10 percent to 12 percent. This greater ability to pay increases flexibility in policymaking.

Public Reaction

Interestingly, even today most of the German population is in favor of the general ETR principle, but only

¹⁰See http://www.foes-ev.de/de/downloads/diskussionspapiere/GBGDisPap2005_06PoliticalProcessesNV.pdf.

¹¹Neglecting the minor use for the general budget as mentioned above — and actually not in other European countries.

about half favor the actual design of the German ETR. Most Germans want more ETR revenue to be spent for environmental purposes.

This public attitude may also be due to the timing of the introduction of the ETR in April 1999, which coincided with the quadrupling of the world oil price over 18 months (from \$9 per barrel to \$36 per barrel between the end of 1998 and mid-2000; at the time of this writing the price is more than \$90 per barrel). On top of that, the opposition parties and some self-proclaimed muckrakers in the media have blamed the entire price increase on the government. Although only a quarter of the gasoline price increase could be attributed to the ETR, there has been a general feeling that the government was responsible for much more, even though that was never the case.

No sophisticated study could calm the public protest over the enactment of the tax, which reached its height in 2000. Although then-Chancellor Gerhard Schröder was annoyed by the protests, he decided to stick to the agreed-on further increases in the tax (as then already enacted in the law until 2003) because his major interest was the linked reduction of Social Security contributions. Since the reduction of high unemployment was his major concern and his central election campaign promise in 1998, he decided, after some intense discussions in 2000, to continue with the ETR. Hence the link to labor cost reduction and the return of the proceeds were absolutely decisive for the continuation of the ETR.

Eventually, in 2004 and 2005 the issuance and media launch of a comprehensive study¹² consisting of several parts succeeded in producing a positive media echo.¹³ The study focused on sectoral and macroeconomic impacts, innovations (identifying concrete technologies), private households, and entrepreneurs. For the media, the presentation of 16 examples of specific entrepreneurs and industries was crucial to their decision to report positively about the ETR.

Several stakeholders also challenged the ETR in the German Federal Constitutional Court, raising issues of equal protection and international competition. The court rejected those challenges, clearly and strongly giving the ETR its full backing.¹⁴ Hence, the ETR in Germany is legally unassailable.

The issue of progressivity has also come up. To make ETR progressive, the SSC reduction generally helps, but

progressivity also depends on how the tax shift is designed. In Germany it is slightly regressive at lower income levels (as is the nature of consumption taxes) but progressive starting at the gross income level of €55,000. However, generally speaking, middle-income taxpayers are hit hardest by the ETR because transport fuels — at least in Germany and Europe — are mostly used by middle-income taxpayers; lower-income individuals in Europe rarely own cars and rely much more on public transportation. Another important aspect of social justice is the positive impacts from investment programs financed through the ETR. Those investments led to new jobs, thus particularly the jobless benefit. Furthermore, in Germany, with its good welfare system, low-income taxpayers' heating costs are fully reimbursed, although this is not widely known.

The lessons drawn from this history of reactions is that:

- Often winners do not know they are winners, so winners under the ETR have to be made aware, then organized, and then encouraged to speak out loudly in favor of the ETR to reach the media and politicians. That makes it more palatable for politicians to fight for the ETR — generally it's only the losers that raise their voices.
- Communication and marketing are very important for the public to understand an ETR.

Policy Choices

One consequence of Germany's mixed experiences is that the debate on the ETR has practically ceased, at least for now. Still, there is an attempt to possibly revive the debate by introducing a new redistribution as Prof. Westin has proposed for the United States — the pro rata rebate. Under that proposal carbon tax revenue would be distributed pro rata among the adult citizenry and legal residents, much the same as Alaska does annually with its Alaska Permanent Fund. Although this seems a fair approach, the question remains why rich people should receive the same amount as poor people. Further, the rebate would lead to no structural change going forward, just some redistribution of money. There would be little if any creation of new jobs, since labor costs would not be lowered, except perhaps in new industries. Job creation results not from what is in Germany often called an "eco-bonus," but from increased demand and support for environmental technologies. A further step forward that could be made and is now under serious consideration is to integrate environmental concerns into existing taxes and charges and thus streamline them environmentally.

Whether to enact a tax or permit emissions trading is a question that comes up in all countries considering carbon taxes, but it's interesting to note that almost all of the issues discussed above apply also to emissions trading because in the end that is similar to a carbon tax if designed accordingly. In theory, both have similar impacts if designed effectively. While the tax fixes an element of the price, but leaves open the achievable emission reductions, the ETS fixes the emission reductions, but does not fix the price. To achieve an effective design and full comparability, auctioning as a component of the trading scheme is required. The rationale is that

¹²Markus Knigge and Benjamin Görlach, "Quantification of Effects of the Ecological Tax Reform on Environment, Employment and Innovation — Study Part: Impacts of the Ecological Tax Reform on Private Households and Companies" (2004) (Original in German only: Quantifizierung der Effekte der Ökologischen Steuerreform auf Umwelt, Beschäftigung und Innovation — Teilstudie: Auswirkungen der Ökologischen Steuerreform auf Private Haushalte und auf Unternehmen,) available at <http://www.uba.de/uba-info-presse/2005/pd05-059.htm> and <http://www.umweltbundesamt.de/uba-info-medien/oekosteuer.htm>.

¹³For several articles, see <http://www.ecologic.de/modules.php?name=News&file=article&sid=1254>.

¹⁴German Federal Constitutional Court: <http://www.bundesverfassungsgericht.de/entscheidungen/2004/4/20>.

otherwise, no revenue would be generated, unlike under an ETR, to be used for reducing distorting taxes or environmental programs, and allocation rules are otherwise influenced too much by powerful lobbyists. That was the painful experience in the EU, which led to substantial inefficiencies and even led some observers to argue that the ETS is *per se* ineffective. Although that is not the case, the EU experience shows that an ETS is as similarly effective as taxation. Hence, auctioning would reduce lobbyists' influence in favor of market mechanisms and also would create the continuing incentive to reduce emissions beyond the capped level.

However, in the EU's first phase of the ETS (2005-2007), no member state has included any auctioning in its ETS, so the joint application of permit trading and taxation is justified. For the second phase, running from 2008 through 2012 (the Kyoto period), many member states, having learned from the first phase, will start auctioning up to 10 percent (the eligible maximum according to the EU ETS Directive). But that percentage is so small that carbon taxes will still be necessary.

In EU practice, the ETR and the ETS both perform necessary tasks: While the power sector and other energy-intensive sectors are largely covered by the ETS, households, transportation, and small and medium-size enterprises are covered directly by the ETR. However, increasing electricity prices resulting from the ETS also affect the latter groups. There are some minor overlaps and areas that have slipped through the cracks and are not yet regulated by either system. The primary limitation on the further development of energy taxation such as ETR is the EU Treaty, which requires unanimity in voting on all fiscal matters, while ETS — because it is an environmental issue — requires only a majority vote. That is an often underestimated and crucial institutional limit of great importance in policy choices like ETR vs. ETS.

The major conclusion is that the choice of instrument seems not that important as long as the design is ambitious and effective, but that is exactly where the political courage is often missing. The result is that both ETR and ETS are often both introduced, basically following the above mentioned task sharing. And if permits are not auctioned as part of the ETS scheme, a tax is a necessary companion.

The effectiveness of international climate policy will likely depend heavily on the successful continuation and extension of auctioning within the ETS if this is the global instrument of first choice. However, many countries will still keep energy taxation as an important tool to achieve goals that often go beyond those of ETS, such as job creation through the lowering of labor costs and reduced energy use, not just reductions in greenhouse gas emissions. In the EU and its member states, the ETR had more success until 2004, both in terms of the number of member states adopting ETR and in terms of empirical success from a climate change perspective, although, as noted above, progress at the EU level is very difficult because of the unanimity requirement for fiscal matters. Much more is taking place at the member state level. In fact, Belgium, the Czech Republic, Denmark, the Netherlands, and Sweden announced recently at the global conference on environmental taxes (GCET — see [http://](http://www.worldecotax.org)

www.worldecotax.org) that they would increase their energy taxes in 2008, mostly as an element of an ETR. Introduction of the ETS was much easier because it required only a majority vote under the EU Treaty. Introduction of an ETR in the United States will not be hampered by unanimity requirements.

Conclusion

With some differences as noted above, the U.S. debate over introduction of carbon taxes revolves around many of the same issues debated in Germany. The debate stage, however, has long passed in Germany and the EU generally, with the implementation of both ETR and ETS. However, for potential further development, broadened approaches (streamlining other taxes, extending ETS to other sectors, introducing auctioning) could also increase acceptability and thus the likelihood of expanded implementation of both ETR and ETS.

For the United States a tax shift may have some attraction, but substantial rebates of energy or carbon taxes might be more popular and could reward those using renewables and energy-efficient machines and appliances. Reducing environmentally harmful subsidies might also be an attractive approach in the United States.¹⁵

¹⁵See Green Scissors Campaign at <http://www.green-scissors.org/>.