Environmental taxes and equity concerns: A European perspective

Background paper prepared for the Spring Alliance conference “Go green, be social”

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This document contains three sections and an annex:

*The **first section** summarizes the main issues at stake when considering energy-climate tax policies from a social point of view.*

- ➔ *This section shows that environmental tax reforms and social progress should not be opposed. Policy tools to neutralize short run negative social effects of carbon taxes exist and in the long run, carbon taxes can have positive social impacts.*

*The **second section** presents a tale of three European countries; it briefly illustrates challenges faced and opportunities seized by each one of them when trying to implement carbon-energy tax reforms over the past twenty years.*

- ➔ *This section shows that countries which included carbon taxes in wider fiscal reform packages, included into wider energy transition packages were successful at integrating environmental, social and economic objectives.*

*The **third section** discusses options and tools for EU policy makers in order to help Member States pursue fair energy transition pathways.*

- ➔ *This section shows that EU level policy instruments, such as the European Semester, can help give general directions for fair energy transitions. But the subsidiarity principle should apply and policy instruments used to protect vulnerable actors should remain at the national, or sub-national level (regions, communities).*

The annex presents EU Semester recommendations on environmental fiscal reforms for the 27 Member States.

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1. Climate change and tax justice: reconciling environmental and socio-economic imperatives

Energy transition policies and environmental fiscal reforms (EFR) in particular are necessary from an environmental perspective but also from a social one. In the long run, EFR help reduce fuel poverty. Included in wider tax shifts, eco-tax reforms can also contribute to employment creation and/or contribute to pension system financing during demographic transitions.

However, in the short run, eco-taxes can have strong negative impacts on low income households and on vulnerable businesses. A variety of compensation mechanisms can be used to counter such effects – and have been used successfully in many countries. Some mechanisms (like subsidies for technological change) stand out as more effective than others (like tax rebates).

Introduction

Energy transition policies are necessary in order to shift to sustainable lifestyles, limit consequences of climate change and meet the EU's legal objectives in terms of Green House Gases emissions mitigation. But the relationship between environmental policies and social justice objectives seem to be ambiguous at first sight.

On the one hand, energy policies can reduce energy poverty, by encouraging households to reduce their energy consumption for instance. On the other hand environmental taxes can generate inequalities and vulnerabilities among certain households or businesses unable to adapt to high energy prices.

It is crucial to develop an integrated reflection in order to understand drivers of this potential opposition and determine the most efficient ways to overcome it. Understanding how social tensions and environmental issues can have root causes is also key.

1. Energy transition is an environmental *and* a social imperative

Environmental gains

The European Union committed to reduce its Green House Gas (GHG) emissions by 20% by 2020. Such a shift in energy production and energy consumption patterns requires strong policy action.

A variety of policy tools can be used to reduce GHG emissions and energy consumption: taxes, quotas, subsidies, legislation, information, etc. Taxes alone cannot solve the climate-energy problem, but when fine-tuned and integrated in a wider range of energy policies, carbon or

energy taxes can be an efficient and cost-effective way to reduce CO_2 emission[1].

Contrary to pollution interdiction, carbon-energy taxes have the potential to let economic actors find *their* preferred adaptation strategy: pay the price or reduce pollution.

By increasing fossil fuel prices, environmental taxes force economic actors to *internalize* the social and environmental cost of pollution. Taxes thus give incentives to industries to **modify their production patterns** and to consumers to **adopt less carbon intensive lifestyles.**

Social gains associated with energy transition policies

Whether energy transition polices are implemented or not, fossil energy prices are very likely to continue to increase and to be volatile, due to global "megatrends"[2]. Carbon taxes help smooth such increases and prepare for it. By encouraging households to adopt low carbon lifestyles and industries to develop low carbon production modes, carbon taxes thus reduce households and businesses' **vulnerability to future energy crises**[3].

Furthermore, since low-income households pay, on *average*, a higher share of their income on energy than high-income households[4], carbon taxes, when efficient at reducing energy consumption levels, **contribute to reduce inequalities associated to energy consumption in the long run**[5].

More generally, by helping reduce fossil energy consumption of oil importing nations, energy transition policies and carbon taxes reduce trade deficits[6]. Instead of increasing assets of OPEC countries, money freed can be used on national grounds – and may contribute to social security financing, reduce taxes and spur employment for instance.

➔ *In the long run, there is no opposition between carbon taxes and welfare objectives, on the contrary energy transition measures can have positive social impacts.*

2. Positive economic side-effects of carbon taxes depend on policy design

The double dividend literature supports the idea of positive macroeconomic gains of carbon taxation

The first simulations of carbon taxes, in the 1980s, all showed negative short run impacts on the economy. In such analyses an additional tax distort prices, increase production costs and harm employment. Such analyses were however weak from an analytical point of view: done within neoclassical economics' framework, they did not take into account the possibility of positive economic feedbacks of carbon taxes, like the development of new sectors of the economy[7].

British economist D. Pearce, who wanted to convince the British Prime Minister of the positive effects of the Swedish reform, **introduced the concept of the double dividend.** On top of environmental gains there could also be economic gains associated to carbon tax reforms. For Goulder (1995) who theorized the concept, carbon tax revenues can be used to

[1] See for instance Sterner (2007) and Andersen and Ekins (2009) who quantify emissions reduction associated to EFRs in six European countries.
[2] See IEA (2013).
[3] In the USA between 2005 and 2007, sharp rises in energy prices induced some households to stop mortgage reimbursements; this in turned fueled the "Great Recession", see Kaufman et al. (2010)
[4] When we focus solely on energy for transport, the picture is not that clear - see below.
[5] See Chancel and Saujot (2013).
[6] See Peersman, G and I Van Robays (2009).
[7] In such models, any increase in production costs necessarily leads to a deadweight economic loss, i.e. less production and less employment. See Chiroleu-Assouline and Fodha (2011).

reduce other distortionary taxes and help increase economic efficiency[8].

Different types of "double dividend" can in fact be distinguished[9]: employment creation when tax revenues are used to reduce labour taxes, fiscal consolidation or additional public spending when they are injected into national budget[10].

Indeed, all these recycling options cannot be pursued at the same time. And tradeoffs can arise. For instance, when carbon tax revenues are recycled so as to reduce taxes on labour, individuals who would not benefit from a rise in employment would also see their purchasing power reduced due to higher energy prices [11].

More importantly, the existence of a double dividend is controversial. Net economic gains associated with double dividends are *conditional* to various factors: tax design, nature of tax or employment systems but also depend on the choice of the mode of recycling of tax revenues.

Figure 1 shows the impact of different recycling options on French GDP, employment, and inequalities. In particular, the figure shows that a reduction in payroll taxes may lead to employment gains but would increase inequalities. This is partly because low income households who would not benefit from a rise in employment would also see their purchasing power reduced due to higher energy prices[12].

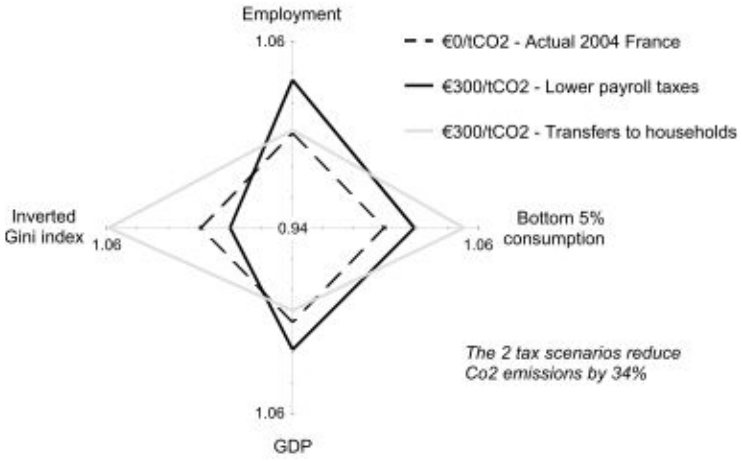


Figure 1 – Policy design matters: impacts of different recycling options in France

Key: The figure shows four types of impacts of two recycling options of carbon revenues in France. Inverted Gini Index shows a reduction in inequalities. Source: Combet (2013)

The possibility of a double dividend with net macroeconomic gains also very much depends on **the reduction of oil imports** associated with carbon taxes, which are not *a priori* guaranteed.

Nevertheless, in a country like Sweden, carbon tax reforms were associated with a reduction of CO2 emissions by 16% between 2000 and 2011 while economic activity increased by 58% over the 1990-2011 time-period. This information does not prove the existence of a double dividend (correlation is not causation), but clearly that carbon taxes need not infer economic losses.

Finally, potential double dividend gains should not take over the first objective of the taxes: behavior change and pollution reduction.

Double dividend and social security systems

In the context of ageing societies and increased financial pressure on collective pension systems, some authors called for the recycling of carbon tax revenues into pension systems. **Some voices however questioned the financial sustainability of such a recycling option.** If carbon emissions are to decrease, how can fiscal

[8] It could however be argued that if efficiency gains can be obtained without the tax, there is no dividend at all. But the carbon tax offers an opportunity to shift tax bases. And can also reduce oil imports, as indicated above.
[9] See Ekins (1997).
[10] Other authors also mention innovation gains associated with carbon taxes.
[11] See Proost and Regemorter (1995).
[12] Combet and Hourcade (2013).

revenues (and hence pensions) be sustained in the mid to long run?

Over the next two or three decades, it should be reminded that energy scenarios show the persistence of an important carbon base – at least until the 2030s- in EU countries. Carbon prices are also set to increase, compensating carbon emissions reduction. Beyond 2050, however, carbon emissions should be reduced to very low quantities.

Hence, the use of carbon tax revenues for pension systems do not offer a permanent solution, but can prove useful during a demographic transition phase. And in any case, carbon taxes would not replace most of pension system income streams: in a country like France, with very high carbon tax rates[13], the revenues raised would amount to a third of pension financing requirements.

Positive impacts which fail to convince social actors

The past twenty years of double dividend literature were marked by researchers' attempt to explain positive feedbacks between environmental tax reforms and the economy – and potentially social objectives.

However, in the media and in public discourse, positive feedbacks are still highly debated. The failure of environmental tax experts to convince in all countries could potentially be explained by the inability of economic models used by scholars to properly address the distributional consequences of carbon taxes. Economic models focus on employment gains or losses, salary gains or losses, but their analysis is too often too aggregate to understand precisely what happens to households. At best, analyses distinguish only ten income groups – which give a very inaccurate picture of distributional consequences over households. More precise analyses are thus required.

- ➔ Impacts of carbon taxes on energy prices is not the only variable to look at: impacts on employment, incomes, taxes should also be factored in.
- ➔ Double dividend literature shows that carbon tax reform can be positive when included in wider fiscal reforms and smart policy design.
- ➔ However, double dividend arguments often fail to look at micro consequences of carbon taxes, and to properly assess their distributional consequences.

3. Negative short run impacts on households can be neutralized

Negative social impacts in the short run

Whether environmental fiscal reforms yield a "double dividend" or not, e.g. with employment gains, certain categories of households will be affected during a transition period.

Carbon taxes can in fact increase inequalities between households. Like all consumption taxes, carbon taxes are regressive, i.e. low-income groups spend a higher share of their revenues on consumption taxes and on energy taxes than the rich[14] (figure 2). This is because the share of energy in total revenue is lower for the wealthy. In the short and medium-term, carbon taxes, by increasing energy prices, can thus increase inequalities[15]. The regressive nature of carbon taxes can also be enhanced when they are coupled with the suppression of labour taxes, generally more progressive than consumption taxes.

[13] 200 euros per ton, on the 2013-2020 time period. See Combet and Hourcade (2013).

[14] This is simply due to the fact that they consume a higher share of their total income than the rich and also consume a higher share of their income on energy than the rich.

[15] In some cases though, authors show that energy taxes can be progressive, like in Poland. This is essentially because transportation fuels are mostly used by the rich. See Vivid Economics (2012).

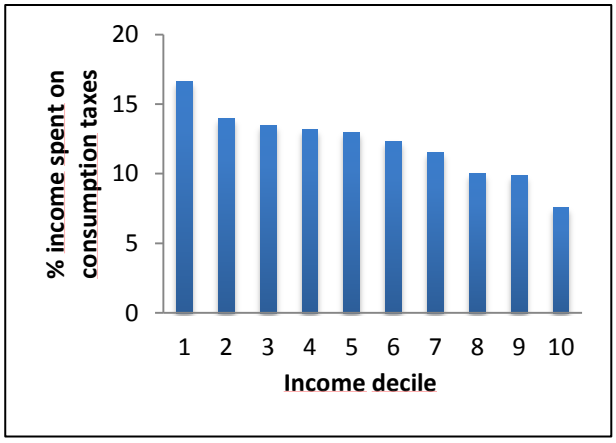


Figure 2 – Consumption taxes are regressive
Key: the first income decile (poorest 10% of the population) spend 17% of their income on consumption taxes.
Source: Authors, based on INSEE (2013)

Negative impacts however depend on the type of fuel being taxed and the country looked at. Energy taxes on households' heating fuels (gas, fuel oil, etc.) are clearly regressive. But taxes on motor fuels (oil, diesel) tend to hit low income groups *relatively* less than high income groups. This is because high income groups tend to spend more on transportation fuels (as a share of their income) than low income groups. This however varies across countries[16].

Moreover, looking at average impacts over income groups (as is done in figure 2) is often erroneous. Income is not a strong driver of energy consumption. As Dresner and Ekins report (2006), there is more variation in energy consumption levels within income deciles than between them. Indeed, other factors play an important role in driving energy consumption: whether the household is urban or rural, lives in a new or an old dwelling, in a warm or cool region, is close to public transport or not. These characteristics do not depend on income and complicate public policies work to identify low income, vulnerable households affected by energy price increases.

Addressing vulnerability in the short run and developing capabilities in the long run

The first way to neutralize negative effects of carbon taxes is by integrating the carbon tax package in wider tax reform, which could reduce other taxes for low-income households, for instance. However, a fraction of households will still be harmed by EFR. In simple terms, this can be explained by the fact that tax administrations do not have precise information on energy consumption levels of households.

Different types of mechanisms can then be set up in order to support such households during a transition period. In fact, most European countries already have an array of schemes to support fuel poor households. In Germany for instance, there is an energy support fee included in social security mechanisms, like in Sweden; in the UK and in France, social energy tariffs reduce energy prices for certain households (not always the more needy, however)[17].

It is important to note that these mechanisms do not have the same environmental and social effects. Reduced energy prices for low income households help them cope with energy prices hikes, but they do not help them develop capabilities to adapt to a higher energy cost world. In fact, reduced prices can lead to rebound effects and lower incentives for energy efficiency. In other words, reduced prices act more like painkillers than a proper treatment of a deep-rooted problem.

To help clarify this issue, two types of support mechanisms should be distinguished:

i) Income support
ii) Energy bill reduction

These two support mechanisms can then be divided into several sub-mechanisms (see table 1 below): while income support can be achieved

[16] See Vivid Economics (2012)

[17] See Chancel (2013).

via a *wider fiscal reform* as mentioned above or through social security benefits, energy bill reduction can be done through lower energy prices or via subsidies to change old and inefficient energy heating devices, and hence reduce energy consumption.

The most efficient option from a social and an environmental standpoint is support to technological change. Households then have the capabilities to actually reduce their energy consumption levels and their energy bill. In Sweden for instance, large scale district heating developments in the 1990s helped households (low and high income) reduce their energy bills. Household insulation can also be very efficient at reducing energy requirements and Germany has launched wide ranging energy efficiency scheme channeled through the KfW.

However, changing infrastructures and developing capabilities takes time. In a country like France, bringing technological support, or insulating to the homes of 1.8 million poor households, spending more than 10% of their income on heating energy, cannot be achieved overnight. **Income support then stands out as good transitory option.** Such a support mechanism offers households a certain degree of freedom - without blurring the energy price signal set by carbon taxes. Households are thus still encouraged to reduce their energy consumption.

But targeting the proper vulnerable households is a very difficult task. In order to remain environmentally and economically efficient, such mechanisms must be limited to a fraction of the population – the most vulnerable**.** Green cheques given to a very large share of the population can be counterproductive - they would eventually transfer the energy price rise on energy to all goods via an inflation mechanism[18]; a**nd reducing prices for fuel poor like it is done in the UK does** not prepare households to the structural increase in energy prices. In addition, special tariffs often tend to benefit wider groups than the vulnerable households one would like to support.

How much should be spent on such support schemes? The answer indeed depends on the project type and the extent of energy poverty in a given country. Vivid Economics holds that a minimum of 8% of energy taxes revenues should be used to compensate the 25% lowest income households in three countries they survey[19]. This is a gross value and a lower bound, but gives an idea of the importance of the income support schemes, relatively to carbon tax revenues.

The precise definition of which criteria should apply for households to be eligible however needs to be publicly debated. What should be the appropriate income level, geographical location, and share of energy spent on budget to benefits such schemes? Support mechanisms will be better accepted when such definitions are made clear.

- ➔ One way to neutralize potentially negative aspects of carbon taxes on low income households is to include them in reforms for more progressive tax systems.
- ➔ But since income is a poor driver of energy consumption, progressive tax systems cannot *alone* solve the issue of negative distributional consequences of carbon taxes.
- ➔ More targeted mechanisms need to be developed, using carbon tax revenues. Reducing energy prices for specific households can be a false gift.

4. Neutralizing negative impacts on energy intensive industries

Indeed, the carbon or energy tax debate largely focuses on alleged negative impacts on

[18] See Combet and Hourcade (2013).

[19] In Poland, Spain and Hungary.

industries – especially those facing international competition.

What instruments should be put in place to support vulnerable industries during a transition phase? **In principle, the main insight drawn from the previous section holds, i.e. that support to technological change should be the priority and** whereas introducing carbon tax exemptions may not encourage actors to develop low carbon modes of consumption or production.

However, tax exemptions for business are common in countries which adopted environmental fiscal reform packages. In Sweden, the industry carbon price was 1/5th lower than the price paid by households. Such exemptions did not incentivize industries to reduce energy consumption: industrial fossil CO2 emissions increased in sectors benefitting from derogations in Sweden (Bohlina, 1998) . In Germany, several thousands of industries benefitted from tax rebates.

One reason explaining such exemptions is the fact that industries have now been, for many years, subject to the emissions trading scheme EU-ETS. In order to avoid double taxation, industries are excluded from certain tax reform

Nevertheless, tax exemptions for specific industries should *a minima* be conditioned to energy efficiency schemes, for instance with fines for non-compliers. In Germany, one issue raised in public debate relates to the absence of legally-binding energy efficiency improvement requirements that would condition carbon tax exemptions[20].

➔ Ideally, support to industries should be conditioned to efficiency improvements so as to preserve the environmental efficiency of tax reforms. But this remains an issue in several EU countries.

[20] See section 3.

Conclusion

Energy transition measures, including eco-tax reform packages, can have positive social impacts in the long run.

In the short run, the double-dividend literature holds that when included into properly designed, wider fiscal reforms, eco-taxes can have positive economic impacts, like employment creation and the development of new economic sectors.

However, in the short run, carbon taxes are regressive, like all consumption taxes. But several types of compensation measures exist and have been successfully used in some countries. In order to support low income households, priority should be given to the development of capabilities (through technological change, the development of public transportation, etc.). But more targeted measures, including social transfers on the basis of *constrained* energy consumption requirements, should be developed. Reducing energy prices for low-income households stand out as a false gift.

Table 1 - Support mechanisms for low income households

	Income	Energy bill			
		Reduce energy waste	**Increase energy efficiency**	**Reduce transportation energy need**	**Reduce energy prices**
Informational		Energy management information	Information on energy efficiency	Information on public transports	
Technical		Provide devices which monitor energy consumption	Provide efficient energy devices		
Financial	Welfare benefits « Green cheques » Tax reductions	Subsidies for monitoring devices	Subsidies for technical change	Green cheques dedicated to transport	Reduce energy prices for specific household groups
Legislation					
Infrastructural			Insulation policies taken in charge by authorities	Develop transport infrastructures	

Source: authors

2. A tale of three countries: carbon tax successes and failures in Sweden, Germany and France

This section presents the reform processes (or attempts at reforming) followed by Sweden, Germany and France. The three countries were selected so as to reflected contrasted stories of carbon tax reforms. None is perfect, but some strategies were clearly better than others.

The Swedish case study reveals a successful implementation of a carbon tax, which can largely be explained by its integration within a wider fiscal reform and strong public investments in renewable energy networks as well as a variety of compensation measures for households and businesses.

In Germany, a clear vision for climate protection and energy transition was accompanied by a significant rise in the share of environmental tax revenues in GDP in the early 2000s. A less ambitious follow-up as well as large exemptions for business eventually reduced environmental tax revenues. The debate now revolves around the burden sharing between industries and households in a context of low unemployment but stagnating wages.

In France is one of the EU Member states with the lowest share of environmental taxes in its total tax revenues. Over the past 15 years, there were two attempts at introducing a carbon tax, which both failed. President Hollande's government recently proposed a new carbon tax, which was followed by a call for a wider reform of the fiscal system. Details of this reform are yet to come.

Carbon tax reform in Sweden: a pioneering carbon tax integrated in a wider fiscal reform

1. A carbon tax implemented within wider fiscal reforms.

The Swedish government led by Nils Daniel Carl Bildt (Moderate Party) introduced a carbon tax reform in 1991. The energy tax sat up in the 1970s to raise public revenues, was then complemented by a tax on carbon dioxide and on sulphur. The CO_2 tax was introduced on all major fossil fuels at rates equivalents to 27€ per tonne of CO_2. At the same time, existing energy tax rates were reduced by 50%[21]. The carbon tax was part of a wider fiscal reform package, which consisted in lowered marginal tax rates on

[21] The reform implied a global increase in tax rates on fuels (Hammar et al, 2013)

labour and capital, the suppression of tax shelters and the broadening of the value added tax base. The overall reform was globally regressive: tax reductions on upper income groups incomes were more important than on lower income groups.

Estimates show that tax reductions amounted to 6% of GDP while energy-related tax increases to about 1% of GDP[22]. **The reform thus implied a reduction in fiscal pressure for the average household or business,** which facilitated the introduction of the carbon tax.

T**he successful implementation of this general tax reform can also be attributed to the combination of two political processes[23]:** on the one hand, several voices called for the reduction in marginal tax rates on labor and capital, and thus for a broad reform of the tax base and on the other, environmental policies were gaining support among the Swedish population; and carbon taxes appeared to many experts as a powerful tool to drive the energy transition as well as to generate new sources of revenue.

Bipartisan support for the carbon tax also ensured posterity for the measure and long term visibility for economic actors, allowing them to plan investments and production strategies years ahead. If the opposition party initially opposed the reform, it later on supported the measure. As a matter of fact, the principle of a carbon tax was not called into question by any left or right wing government over the past twenty years[24]. Carbon tax rates were gradually increased over the years.

Another important reform package was implemented in 2001 by Swedish Social Democratic Labour Party. Carbon tax rates were increased (they were at 40€ per ton CO_2 in 2000 and rose steadily to 100€ per ton in 2004 and reached 118€ per ton slightly in 2013) and compensation mechanisms were introduced for certain businesses, in particular those exposed to international competition. Low income households also benefitted from income tax rate reductions.

During the 2007-2012 period, the Swedish government further reduced taxes on labour (by €8.6 billion or 2.5% of 2007 GDP), while increasing environmental taxes (resulting in €0.5 billion additional tax income, or 0.15% of 2007 GDP). This represents another significant tax shift[25]. Between 2000 and 2010, the share of labour taxes in total tax revenue decreased from 59.7% to 56.4%, while the share of environmental taxes increased from 5.4% to 6%. Carbon taxes thus did not fill in the entire gap of labour tax reductions, but rather contributed to it.

2. Fiscal reforms included in a wider energy transition policy

[22] See Swedish Green Tax Commission (1997)
[23] See Hammar et al. (2013)
[24] See Sumner et al. (2011).
[25] Although green tax revenues represented only 6% of tax cuts.

framework, with targeted support schemes.

In Sweden, both vulnerable households and industries were supported by public authorities. Support took many forms.

Support for industries

Businesses benefitted from reduced tax rates (figure 1 below).

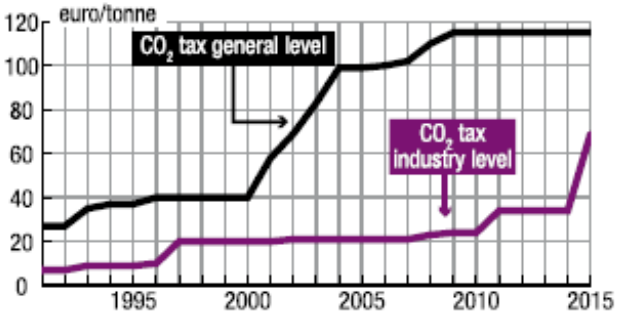


Figure 1 - Industry and general tax rate in Sweden Source Planet for Earth 2013

The carbon tax rate for industries was 1/5th of general rates in 1991; it rose to half of general rates in 2000. The level of carbon tax rate for industries was then kept constant for almost ten years, while the general tax rate increase by factor three over the 2000-2010 decade. **Industries facing international competition currently pay 34€/ton, a quarter of the general price.** The gap is however meant to be reduced, as industrial tax rate are set to double by 2015. **The key message here is that this catch up was extremely progressive**, with tax increases planned well in advance, so as to enable energy intensive businesses to smoothly adapt to the new price environment and thus think about investments into low-carbon solutions.

Nevertheless, industrial emissions in certain sectors like cement, steel industries or refineries increased over the period[26], showing the limit of tax exemptions when they are not conditioned to ambitious technical change strategies. **In addition, if one takes into account emissions related to deforestation, total CO2 emissions increased by 19% in Sweden over the period**[27]**.**

Support for households

Households also benefitted from various types of support schemes. Initially, if all households saw their tax levels decrease, high income households benefitted relatively more of the tax reform. But In 2004, specific tax reduction for low income households were introduced.

Important public infrastructure investments in district heating networks and in renewable energy production were also carried out in the 1990s. Without such investments, households and businesses would have faced an infrastructural or technological "lock-in" –i.e. they would have been "trapped" in carbon intensive heating systems. It is very likely that private actors would have been more reluctant to invest in such infrastructures as early on. Investments backed by public authorities thus ensured the success of the transformation: rising

[26] See Ahman et al. (2012).
[27] See UNFCC (2011).

prices guided households and businesses towards low carbon technologies that were at the same time made available by private and public actors[28].

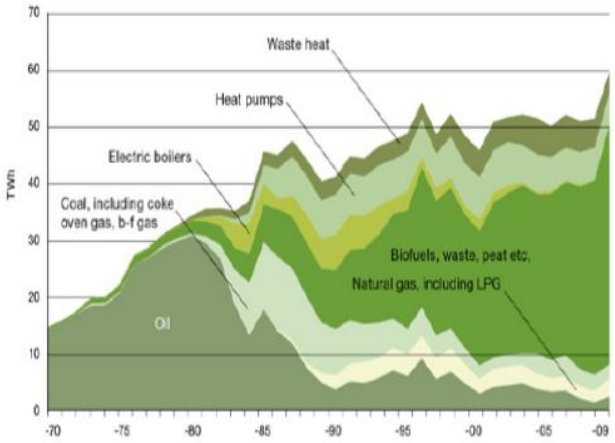


Figure 2. Phasing out of fossil fuels in Swedish energy production. Source: Swedish Env. Ministry 2010

Finally, Swedish households that still have difficulties to pay their energy bills because of long work distances or poor energy insulation, can appeal to government officials in order to determine public support for energy expenses. This support is generally included in social benefits – rather than through a reduction in the energy bill[29]. This contributes to explain why **Sweden in one of the European countries with the highest gas prices but with the lowest level of energy poverty[30].**

Over the 1990-2011 time period, Sweden is one of the rare industrialized economies to have reduced its CO_2 emissions –by 16%-, while economic activity increased by 58%[31]. The Swedish example thus shows the importance of i) including a carbon tax in a wider fiscal package so as to combine economic efficiency and environmental objectives – and potentially social justice objectives, even though the initial 1991 reform was globally regressive; ii) securing bipartisan support for the measure so as to make sure that the carbon price signal will be clear for decades and will enable a gradual, but determinate shift in industrial production processes and infrastructure investments; iii) design a system with a clear price signal but compensation mechanisms: public infrastructure investments to facilitate household technology are key, and can be complemented by tailored support mechanisms for households, integrated within social security payments.

[28] See Hammar et al. (2013).
[29] See Chancel (2013).
[30] See Energy Bill Revolution (2013).

[31] When LULULF emissions (e.g. emissions linked to deforestation) are included, Swedish emissions however increase by 19%. See UNFCC (2012).

Energy tax reforms in Germany: competing visions for a green energy future

3. 15 years of environmental taxation – 3 periods of different visions

The Red-Green years – A clear vision for energy transition but difficult economic setting

The 1998 federal elections brought, for the first time, a social-democrat, green coalition led by Schröder/Fischer to power, which introduced an eco-tax package between 1999 and 2003. It targeted the transport sector with mineral oil taxes to reduce sulphur and fine-dust emissions, reduced environmentally harmful subsidies and introduced an electricity consumption tax. Instead of introducing a general carbon tax, emitting sources were sanctioned following the polluter-pays principle. 90% of the additional tax revenue (about 8 billion €) was channelled into the social security system thereby reducing taxation on labour by 1,2 percentage points. The political will to increase energy efficiency and renewable energy production was complemented by the decision to progressively phase-out nuclear energy.[32]

The Renewable Energy Law (so-called EEG) of 2000 has since given priority to clean energies in the national electricity networks (green energy always flows first) and guarantees a minimum price for clean energy producers. It charges a levy on electricity consumers, which is supposed to balance out the difference between the market price and higher costs of clean energy generation. However, it is not a tax such as the electricity tax of 1999 because it does not enter the Federal budget and is not meant to subsidise the social security system but rather subsidises grid extensions and green energy production sites. The tax package foresaw a number of important tax and EEG exemptions for energy-intensive manufacturing companies being subject to international competition. In total, environmental taxes went up by 1,4 percentage points, the total volume of measure amounting to 27,4 billion € per year.[33]

The Grand Coalition – Neglecting the green child, Pampering industry

Tax exemptions are expanded to support businesses, on the other hand the coalition decided to phase-out subsidies for coal progressively. The total volume of environmental tax measures shrinks to 9,8 billion € per year. Reasons for the decline of environmental taxes can be seen in its own success since the ecological tax reform brought the desired steering effect.

[32] Amendment to the 2002 Atomic Energy Law.

[33] See Green Budget Germany (2012).

Fossil fuels consumption was in steady decline for the first time since 1950 and dropped between 2000 and 2007 by ca. 7%. Additionally, in 2007 the government decided not to increase the electricity tax and its contribution to social security financing to avoid rising energy costs for the industry. Instead, the value added tax was raised from 16% to 19% with the extra amount to stabilize social security charges and labour costs, hence taxing consumption instead of electricity – households rather than industry.[34] All in all, between 2005 and 2009, environmental taxes decreased by 1 percentage point.

The Christian-Liberal Coalition – A half-hearted Energiewende

During the third coalition since the introduction of environmental reforms, despite the adoption of new taxes on nuclear fuel and air traffic, the share of environmental taxes in tax revenues continue to decrease slightly. However, this period has to be seen against the background of the energy "U-turn" performed by the Merkel government following the events in Fukushima. Within months in 2011, parliament passes a law to expire nuclear energy production licences progressively until 2022. Declaring the "Energiewende" a national priority, investments in electricity grid extension, energy efficiency and the development of renewable energy capacity are announced. It is crucial to understand here that the debate changes from climate protection and environmentally harmful subsidies to energy supply and prices. An increase in electricity prices is from now on seen by households and politicians less as an incentive to change behaviour as more of a means to finance the energy transition. In 2012, the general EEG levy rose from 3,5 to 5,2 cents per kilowatt-hour.[35] In fears of inhibiting economic recovery, the government extended again tax and EEG exemptions for companies shifting the burden of the transition to households. The average electricity price for households was at 26 ct/kWh, while for industry it was at 14,9 ct/kWh and 11,6 ct/kWh (2012) depending on consumption.[36] German fossil fuel subsidies remained and amount to 5 billion €; its environmental taxes to 55 billion € in 2012.[37]

4. The German debate: industry vs. households

Competitiveness: Energy-tax exemptions for the industry

The most controversial issue in the actual debate on environmental and energy taxation is the exemption of about 23.000 industrial firms and companies from energy taxes, EEG levies, network charges and carbon emission certificates. Being originally introduced to ensure international competitiveness for firms with a substantial reliance on cheap electricity, the current exemptions include many more, which reduces pressure on industrial innovation, increases the

[34] See Wettmann (2012).

[35] See Information platform of German electricity grid operators (2013).
[36] See Eurostat (2013)
[37] See European Commission (2013).

EEG burden on private households and amounts for revenue losses of approximately 12 billion € per year.[38] **Even though exempted companies are obliged to pursue improvement in energy efficiency no enforcement mechanism ensures its realisation**. [39] Debates during the 2013 parliamentary election campaign asked for a new standard for industry exemptions and compensation measures for poor households. Following recent news coverage and the new coalition agreement, environmental Minister Altmaier plans to maintain the exemptions even though examining to develop them further and bring them in compliance with European law.[40] Comparing the debate to other European countries such as Sweden where energy tax increase for businesses was relatively steadier, one has to acknowledge the zig-zag course on energy by the German government leading to limited time to adapt.

Social Dimension: Effect on poor households

Early discussions with regard to environmental taxes for households focused on the need for low fuel prices and necessity to keep tax exemptions for commuters. Things began to be discussed differently following the nuclear phase-out and increase of EEG levy mostly born by private households. Reports on the "technological lock-in" of parts of the German population too poor to invest in more efficient heating systems fuelled the political pressure. The government acknowledged the need to support the introduction of free-of-charge energy audits and kits to identify and realise possibilities of saving up to 30% electricity, which would "in most cases outweigh rising electricity prices".[41] Also support for low-income households to deal with energy costs is provided through social security channels. An adaptation to inflation and the latest rise in energy costs is however lacking.[42] Other proposals include financing of efficient household appliances and models of progressive tariffs for electricity tax in combination with consultancy offers for energy efficiency. [43] German bank for Reconstruction (KfW) offers credits for energy efficiency measures, which are planned to be extended. So far these had little effects on low-income households.[44]

5. A new government – A new way forward?

Following the parliamentary elections of 2013, another grand coalition between social-democrats and Merkel's Christian-democrats is about to be formed. According to Chancellor Merkel one of the first things the new government should do is reform the Renewable Energy Law (EEG). Part and parcel of this reform will surely be to balance the outlined maxims of competitiveness and the social dimension. To resolve the business vs. household dichotomy in energy taxation, the government

[38] See RLF (2012).
[39] See Wettman (2012).
[40] FAZ (2013) and German Coalition Agreement (2013)
[41] BMU (2013)
[42] Chancel (2013)
[43] Neuhoff et al. (2012)
[44] On the energy poverty definition debate, see IASS Potsdam (2013)

may redefine tax rates in other fields than energy (e.g. reduction in national insurance contributions[45]) and review exemption rules for the industry.[46]

While the red-green government laid the basis with a clear vision for energy transition, the two succeeding governments sent out mixed signals to investors, households and business. After the sudden proclamation of the Energiewende and an increase in electricity prices the lack for a clear vision remained. While costs of renewable energies are reflected by the EEG apportionment on private energy bills, direct and indirect subsidies for fossil energy sources remain unclear, making the energy transition appear costly and rendering it unpopular. The new government has the chance to renew this vision that has been neglected and equip it with the needed social bolster.

German environmental fiscal reforms show that the introduction of taxes combined with a system of exemptions and financial support to the green industries rather promoted activity and employment. This is an illustration of the double dividend. However, while households benefitted from low unemployment, inequalities increased in Germany over the past decade and wages stagnated.

[45] Vivid Economics (2012)
[46] FÖS (2010)

Carbon tax reforms in France: a decade of failed attempts

6. Understanding previous carbon tax proposal failures in France

Over the past fifteen years in France, two governments, from the political left and right, tried to implement a carbon tax reform and eventually failed to do so. In 2000, left-wing government led by Lionel Jospin proposed to reduce employers' social security contributions, to introduce a carbon tax as well as to increase business taxes. The project was censored by the French Constitutional Court who judged that the reform proposal introduced a form of inequality among businesses (as some businesses benefitted from carbon tax exemptions and not others). The Court also judged that the tax base was not well defined (the proposal targeted the energy content and not the carbon content of fuels).

In 2009, the carbon tax reform proposed by right wing president Nicolas Sarkozy, involved a reduction in employers' social contributions [47] financed by the introduction of a carbon tax. Initially supported by experts on all political sides[48] - but criticized by the left wing opposition parties, the tax proposal lost public support and was eventually censored by the Constitutional Court.

The failure of the government to adequately address the two "recurrent" concerns associated with carbon taxes can explain the failure of the project. The first concern was one of competitiveness. In order to protect industries already abiding to the European Union Emissions Trading Scheme (EU-ETS), the government decided to exempt them from paying the tax – going against the experts commission's recommendations. As a result, 93% of industrial CO_2 emissions were excluded from the carbon tax. This very exclusion of these industries led the Constitutional Court to censor the project on the basis of tax inequality between businesses.

The second type of concern was one of inequalities among households. The general public as well as trade unions eventually turned against the tax reform proposal, **despite simulation results showing positive impacts of the tax in terms of employment and the possible neutralization of inequality impacts via "green cheques" given to households[49]. In fact, "**double dividend" gains of the reforms appeared as too abstract and too theoretical for households and

[47] The « taxe professionnelle », paid by business to local governments, was suppressed.

[48] Michel Rocard, former French Primer Minister and chair of the carbon tax commission said declared that *"There is something extraordinary, totally unexpected for a society as confrontational as ours, in the consensus expressed by almost all aepxerts from all sides involved in these discussion"* Hourcade (2013)

[49] See Combet (2013b)

consumers, who focused on the sole increase of households' energy bills. Later versions of the tax project included compensation measures for low income households, but these were not detailed enough to convince the French public that vulnerable households, constrained in their energy choices, would actually receive support. Such fears were also relayed by certain lobby-groups, who would use inequality arguments to criticize the tax, while their true objectives were not *a priori* social[50].

As a result, even though the tax had the *potential* to reconcile *environmental*, *social* and economic efficiency objectives, the idea of an unfair measure prevailed. The tax was thus stopped by a "double-blade" razor: the fairness argument raised the hair while the second blade, the competitiveness argument, cut it. The general economic context of 2010 (the financial crisis was progressively hitting the real economy) also explains why the carbon tax did not come back on legislators' agenda during this term.

7. Recent development: towards a carbon tax integrated in a wider fiscal reform ?

Since the 2010 tax proposal failure, two main criticisms emerged regarding the French tax system. The first issue, raised during French presidential elections campaign of 2012, related to the inefficient and unfair nature of the general tax system. Analysts showed that the current French tax system is a patchwork of successive reforms carried over the past hundred years or more, leading to an incomprehensible tax system, marked by tax loopholes, and regressivity – low income households pay a higher overall share of taxes than wealthy households[51]. The other issue, relates to the overall level of taxes. With an overall tax rate of about 45% of GDP, some voices call into question the quality and efficiency of French administration and public services.

During the first year of its mandate, French government elected in 2012 tried to correct the current tax system rather than reviewing it more profoundly, as it was initially announced. For instance, the "Crédit d'Impôt Compétitivité Emploi[52]" (CICE) was introduced so as to reduce business taxes while increasing general VAT and increase environmental taxes – more as an add-on the existing system rather than a proper in depth transformation. In October 2013, a carbon tax was voted, set to 22€/tonne CO_2 in 2016, that should contribute to about 4 billion € (0.2% of GDP)- a quarter of the labour tax reduction (0.8% GDP).

It can be supported that such reforms do not address the main issues of the tax system highlighted above: the issue of an unfair and unclear income tax remain. And several tax loopholes, including environmentally harmful (certain being socially unfair), remain. For instance, the reimbursement of travel expenses

[50] Hourcade (2013)

[51] Piketty et al. (2011)

[52] i.e. tax rebate for employment and competitiveness.

benefits richest households while encouraging urban sprawl and highly polluting cars[53].

More recently, the government announced a more general reform of its tax base. Reform proposals do not mean actual reforms, but the message given seems positive. Such as call could be the opportunity to integrate the ecological and the social/economic dimensions of tax reforms.

Introducing the carbon tax reform in a wider fiscal reform could be an efficient way to counter competitiveness arguments as well as inequalities arguments. A fairer tax system may increase overall equity – thus minimizing fears of a regressive carbon tax.

The issue of vulnerable households requiring compensation would nevertheless remain. The tax system is not fit to address all distributional consequences of carbon taxes. One of the main questions then relates to the definition of vulnerability. So far, energy poverty was defined as household consuming more than 10% of energy for heating purpose. Such a definition is too simplistic as high income households can consume high levels of energy. A two-dimensional definition (energy consumption and absolute income) is being discussed.

But then, the identification of vulnerable households in a country with a wide dispersion of energy consumption within income groups remains. **The combination of several types of information and databases, relating to income, family situation, as well as energy consumption** is necessary. But this process is slowed by the fragmentation of expertise on the subject and concerns on privacy.

Finally, the issue of the proper instruments to target energy poor households remains. Traditionally, France has set up energy price reductions for vulnerable groups. But these do not give proper incentives for energy consumption reduction.

France's case study shows the complex interactions between environmental, social and economic concerns that emerge during carbon tax reform proposals; and how they can block environmental as well as social progress.

Narrow focus on energy price increases – instead of a wider focus on the energy bill, on the potential employment gains and the possibility to support households through non-tax mechanisms- tend to prevail, complicating further implementation of carbon taxes.

[53] Chancel and Saujot (2012)

Carbon tax reforms in Sweden

	Energy/carbon characteristics	Non-energy/carbon characteristics	Compensation measures (for households and/or businesses)
1990/91	Increased VAT on energy (+1.6Mds €) Carbon tax, combined with 50% reduction in energy tax (+0.3Mds€)	Reduction and simplification of labour tax rates (-6Mds€)	Strong public support for the development of district heating and renewable energy production networks
2001/06	Increased tax rates on energy and carbon	Reduction in low income households' tax rates	Reduced tax rates for vulnerable industrial sectors.
2007/12	Increase in environmental taxes (+0.5Mds€)	Reduction in employers social contributions (-8.6Mds)	Reduced tax rates for vulnerable industrial sectors.

Carbon tax reforms in Germany

	Energy/carbon characteristics	Non-energy/carbon characteristics	Compensation measures (for households and/or businesses)
1999 - 2003	Eco-tax package targeting transport sector/mineral oil, electricity tax (+9 Mds €), EEG law (-for energy consumers), total env. taxes: +1,4%	Reduction of labour tax rates and social security (-8 Mds€)	Electricity tax exemptions for high-energy consumption industry
2005 - 2009	Retention of energy and electricity taxes, progressive phase-out of coal, total env. taxes: -1%	Increase of general TVA from 16% to 19%	Slight expansion of business tax exemptions
2009 - 2013	New taxes on air traffic, nuclear fuel (+2,3 Mds €), nuclear phase-out (+ EEG levy), fossil fuel subsidies (-5 Mds €), total env. taxes: +0,3%	Clean energy reaches 27% of energy mix in 2012, electricity prices for households over proportionally high, relative high labour tax	Expansion of electricity, carbon, EEG exemptions for business, energy consultancy for poor households, KfW credits for energy efficiency renovation

Carbon tax reforms in France

	Energy/carbon characteristics	Non-energy/carbon characteristics	Compensation measures (for households and/or businesses)
2000 (proposal)	Energy tax on all fuels	Reduction in social security charges. Increase in business tax	Certain businesses exempted from the tax
2009/10 (proposal)	Carbon tax on fossil fuel consumption (17 €/ton)	Reduction on social security charges	EU ETS industries exempted from tax. Green cheque to below median households
2013/14 (proposal)	Carbon tax (22 €/ton in 2016)	Reduction in employers social contributions, increase in VAT	To be defined

3. European Union policy instruments and Member States tax reforms

Launched in 2010, the European Semester is the cornerstone of the EU's strengthened framework for integrated coordination and surveillance of Member States' economic and budgetary policies. As part of the European 2020 strategy for more "inclusive and sustainable growth" and in order to support EU climate objectives, the semester has increasingly been a vehicle for environmental taxation. The efficiency of the EU semester can be questioned, as well as EU's role in integrating social concerns associated with energy transition policies.

This section discusses the opportunities and the limits of EU level policy instruments to push forward environmental fiscal reforms and address potential equity issues. We first present the European Semester, a novel EU level policy tool designed to better coordinate fiscal policies and then discuss its relevance in trying to integrate the environmental and the social dimension before making some proposals.

1. EU level tools to support fair environmental fiscal reforms

What is the EU semester ?

The EU Semester is a European policy tool first introduced in 2010[54] to better coordinate and drive Member States (MS) economic and fiscal policies as a response to the financial, economic and public debt crisis. The European Commission has designed this instrument to pressure MS towards economic reforms. Tackling chiefly economic and fiscal issues, the EU Semester can also vehicle pressure on MS on environment-related economic policies in the frame of the EU environmental targets 2020.

The process starts with the **'Annual Growth Survey'** issued by the Commission in November/December of each year, where it sets out the broad EU economic priorities for the year to come. On this basis MS submit an annual '**National Reform Programme'** by April describing the key economic reforms planned for the next 12-18 months. In response to these Programmes, the Commission publishes '**Country-Specific Recommendations'** in May that propose specific

[54] It was put into practice in 2011.

reforms targeted at each MS. These Recommendations are finalised and **endorsed by the European Council** in June, **EU finance ministers ultimately adopt** them in July, which underlines each MS commitment to the recommendations. Throughout the year, the Commission monitors MS on the implementation of the targeted reforms. The Semester can thus be regarded as a step forward in the much-discussed further political and fiscal integration of the European Union.

The **legal background of the EU Semester is the "Six Pack"**, the "Two Pack" and the Treaty on Stability, Coordination and Governance [55] that contains preventive and corrective mechanisms to bring European economies closer to one another. Under the Macroeconomic Imbalance Procedure (MIP), they include corrective action plans and recommendations as well as interest bearing deposit and **fine measures** in case e.g. the deficit exceeds 3% of GDP or if recommendations are not followed and imbalances grow bigger**.**[56]

The EU Semester and environmental policy

In June 2012, the Environmental Council urged the Commission to adopt measures such as sharing knowledge and best practices of shifting taxation away from labour towards taxing resources and energy use, phasing out environmentally harmful subsidies including fossil fuels, moving towards the EU's greenhouse gas reduction objective and taking the product policy forward by further expanding the use of requirements for the resource efficiency of products. [57] Notably, the document states that, "the impact of such measures on the most vulnerable groups in society should be taken into account".

The focus of shifting taxation from to labour to resource use is reflected in the Annual Growth Surveys (AGS) of 2013 and 2014. [58] However, following the AGS 2014, environmental issues are not part of the main focus points of the European Commission.[59] In this section, focus will be put on existing recent recommendations. We look at developments in the 2012 and 2013 EU semester proposals comparatively in order to illustrate trends and inform policy recommendations to the European Union.

Looking at the Country-Specific Recommendations (CSRs) for 2012 [60] and 2013 [61] for the 27 EU countries (see the annex for precise entries), the **recommendation to shift taxation from labour to energy or environmental taxes can be found for twelve countries in 2012 and eleven countries in 2013**. Whereas recommendations were rather general in 2012, a **more specific argumentation** citing examples of sectors to be taxed is employed in 2013. This applies for instance to Belgium and Spain for the concrete recommendation to tax fuels, for Lithuania on environmentally harmful

[55] Also called the Fiscal Compact signed in March 2012 by all MS except the Czech Republic and the United Kingdom.
[56] The Commission is currently conducting in-depth reviews for 14 Member States including France and Sweden under the Excessive Imbalance Procedure 2013.
[57] EU Council (2012)
[58] EU Commission (2013b)
[59] The coming European Semester will focus on *i) Pursuing differentiated, growth-friendly fiscal consolidation ii) Restoring lending to the economy; iii) Promoting growth and competitiveness for today and tomorrow; iv) Tackling unemployment and the social consequences of the crisis v) Modernising public administration.*
[60] EU Commission (2012)
[61] EU Commission (2013c)

subsidies and Lithuania, Romania and Latvia on energy efficiency. Recommendations are simply repeated for Italy (shift to environmental taxation) and Latvia (harmonize fuel taxes). They are even less specific and elaborated on Latvia and Slovakia (shift to environmental taxation) from 2012 to 2013.

As an outlook on a potential future direction of the EU's role in environmental policy, the annex to the AGS 2014 mentions that in order to limit energy consumption, a number of countries (BG, CZ, EE, LT, LV, RO, SK) is working on energy efficiency programmes, which could be financed by ETS revenues and the European Structural Investment Fund, thus directly linking environmental reforms to EU funding.

EU Semester and broader fiscal recommendations

We now look at two dimensions, which can interact with environmental fiscal reforms: the general simplicity – and efficiency- of tax systems and the equity of overall taxes. **Simplification of the tax system** e.g. reducing complexity of mechanisms, reducing loopholes is another important focus of the European Commission. It is mentioned for 7 countries in 2013 with quite developed proposals as opposed to 5 countries with much less specificity in 2012. This hints at the fact that the Commission favours a comprehensive tax reform and has a rather holistic vision for its fiscal proposals.

Distributional aspects are given account to by mentioning a **lack of fairness in the tax systems** in four countries in 2013; interestingly **compared to 2012 this seems to be a new area of sensitivity for the Commission.** Moreover, the Joint Employment Report[62] and a publication of the social partners views[63] with the 2014 AGS, supposed to allow for better and earlier identification of major social problems, show a stronger *social* focus of EU semester contents. It must however be noted that neither of these publications mentions the interactions between environmental and social policies (e.g. issues for low-income households related to energy reforms).

Generally, the Commission has outlined that not mentioning a topic does not in return mean that the MS does not have inefficiencies there. CSRs are rather the top priorities of reform for each MS as assessed by the Commission for each year. Furthermore is the aim to balance equally the number of recommendations between MS.[64]

The reform of the EU Energy Tax Directive

Apart from the semester, the EU has other vehicles to push forward environmental fiscal reforms. The EU ETS is not discussed here, as it is a market based instrument, and not a tax mechanism.

The Energy Tax Directive entered in force in January 2004 and sets minimum tax levels for energy products consumed within EU Member

[62] Accessed at: http://ec.europa.eu/europe2020/pdf/2014/jer2014_en.pdf
[63] Accessed at: http://ec.europa.eu/europe2020/pdf/2014/socjointcontrib_ags2014.pdf
[64] Call with DG ENV officials, 2013.

States. The Commission drafted reform proposals in 2011 in order to increase minimum tax rates and modify the way in which they are set. Reforms are still under discussion.

The proposals would lead to new minimum tax levels on transport and heating fuels, determined not only by the energy content of fuels but, also by their carbon content.[65] Tax minima on motor fuels like diesel would significantly increase and the tax differential between diesel and petrol would be reduced, with diesel minimum tax rates increasing by 20%. Tax minima for heating fuels like natural gas, coal or fuel oil would increase six fold giving it a social dimension to be addressed with similar measures as we suggest in this paper.[66]

From a GHG mitigation perspective, an important criticism that can be opposed to the current proposals is that new tax minima would not reflect the CO_2 emission potentials of fuels. For instance, for one unit of energy, natural gas emits only the half of CO_2 emissions of oil to produce the same amount of energy. Yet, according to the proposals, tax minima for natural gas would be 20% higher than for oil[67]. As a result, several actors have called for an increase in the carbon component in the fixation of tax minima. However, the taxation directive does not appear on the EU legislators' agenda in the near future. Indeed, unanimity rules in fiscal affairs render any agreement on such a directive complicated.

2. Concerns with the EU semester

The previous sections of this paper highlighted the importance to take into account the specificities of each Member State and each EFR project in order to address all its impacts on society. When too general, EU level recommendations on environmental fiscal reforms may seem ineffective to address such issues, because too abstract.

The **unspecific nature of EU Semester country specific recommendations (CSRs) has been criticized by certain environmental NGOs**[68]. Regarding the shift from labour taxation to carbon taxes, such actors claim that there were only soft declarations of intent in previous CSRs. More specific recommendations for countries have been suggested by these actors, which are currently exchanging on them with the Commission[69]. On the other hand, the semester criticized for its lack of implication of national parliaments and stakeholders. In other words, the democratic accountability of the process itself is questioned.

On the specific issue of the support of vulnerable groups of the population, the **EU could nevertheless guide MS through certain general key processes**. For instance, it is important, at MS level, to agree on **who should be supported during energy fiscal reform processes**. Currently

[65] Proposed minimum carbon tax rates are 20€/ton CO_2, whereas respective minima for transport and heating fuels are 9.6€/GJ and 0.15€/GJ.
[66] NGOs on the revision of the Energy Tax Directive, accessed at: http://www.foes.de/pdf/18-04-2012__Letter%20to%20EP%20for%20plenary%20final.pdf.
[67] Vivid Economics (2012)

[68] As outlined by Malgorzata Kicia (2012), DG Environment, European Commission at a presentation in Paris, October 30th, 2012
[69] European Environmental Bureau, Green Budget Europe, Transport & Environment, 2013. See CSR (2013).

"energy poor households" are still referred to, in many MS, as "households spending more than 10% of their income on energy". Without any reference to absolute income, this definition is ineffective. Via the semester, the EU could then call for the integration of an "income" and a geographic dimension in the definition of energy poverty. The definition would be adopted at the national level and could then serve as a basis for compensation mechanisms discussed earlier in this paper. However, it can be questioned whether the EU semester is the right frame to call for precise country specific definitions of energy poverty. As suggested by Arnoldus[70], an EU Recommendation or a Directive could potentially be better suiting tools for that purpose. They would allow for better enforcement, more time for debate and stronger stakeholder involvement than via the Semester.

With regard to best ways to support energy poor or vulnerable households, the EU could also guide on **raising awareness on the counterproductive nature of simple tax rebates and exemptions for households and businesses alike** as they discourage the behavioural change needed to fulfil the 2020 targets and thrive in an energy efficient world.

In an effort to render CSRs more compulsive, the EU is trying to expand legal and financial leverages. The AGS 2014 proposes **"contractual arrangements"** for MS to make CSR implementation proposals. These would be voluntary under the preventive arm of the Macroeconomic Imbalance Procedure (MIP) and mandatory under the corrective arm giving the EU a **stronger legal basis for implementation of CSRs**. Being accompanied by financial support to help MS implement their contractual arrangements more rapidly, the Commission points to the structural and cohesion funds of the EU (DG REGIO) as possible channels for environmental reforms.[71] Drawbacks of this proposal are that MS are compelled to implement recommendations only if they already face larger macroeconomic challenges and that the role of EU funds could potentially render national level mechanisms more complex and complicated whereas a key element for success in this area seems to be the clear and simple financing tools.

3. Improving the EU semester content and process to support fair energy transitions

Drawing from the previous section, we now suggest a series of improvements to the EU Semester, in order to support fairer energy transition processes:

1. The Semester could call upon Member States to develop **definitions** of vulnerable actors in

[70] Arnoldus (2013)

[71] Annual Growth Survey 2014, European Commission 2013 and call with DG ENV officials 2013, an imaginable channel could be the European Regional Development Fund (ERDF) of which 5% has to be invested in urban sustainable development. This stream could potentially target energy efficiency measures under a contractual arrangement. This goes along with considerations within DG REGIO for introducing "macroeconomic conditionality", point of concern here could be for example formulations in CSRs for Poland in 2012 and Romania in 2013 that EU funds are used differently and "unevenly".

society with regards to environmental fiscal reforms, essentially by public debate.

   a. Define "Energy poverty" for households based on the criteria of share of energy consumption in heating, transport budget, but also for income range.
   b. Define criteria for energy tax exemptions for business due to competitiveness concerns.

As mentioned above, an EU recommendation or Directive could also be useful tools to achieve this.

2. The semester could spearhead the option of **compensating poor households** with a fraction of the revenue gained by environmental taxation and bring this practice to Member-States by integrating it in country recommendations and EU programmes.

3. Via enhanced peer-review and Member State exchanges, the Semester process could better assist countries to pick **fair but also environmentally-friendly policy tools**, discouraging simple tax rebates for households and environmental tax loopholes for business.

4. The Commission could mainstream work on Country-Specific Recommendations with **civil society (NGOs)** and increase visibility of European Semester in the Member-States.

5. A **forum of exchange** could be established, with Member State representatives of the environmental and financial Ministries to share best-practices and lessons-learned on environmental reforms and protection of vulnerable actors.[72]

The European frame can set guidelines and important directions in the field of environmental tax reforms, but implementation tools remain in the hands of Member States (or sub-national level actors) especially those to support vulnerable groups of a population. What this paper nonetheless aims at showing is that the EU can serve as an informative laboratory of trials and errors.

[72] Environmental Council (2012), p. 8: „ A large number of member states called for improved coordination and exchange of best practices at European level, as well as for making better use of EU funds to promote the transition to a more resource-efficient economy

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Annex – Review of 2012/2013 EU Semester fiscal recommendations, with a focus on energy-carbon measures and social aspects

	Stop environmentally harmful energy subsidies		**Reduce taxation on labour and increase energy/carbon taxation**		**Harmonize energy tax rates on fuels (i.e. reduce indirect subsidies)**		**Other recommendation** (Improve energy efficiency)		**Other recommendation** (cost of energy transition)		**Increase simplicity/efficiency of general tax system**		**Increase progressivity of general tax system**	
	2012	**2013**	**2012**	**2013**	**2012**	**2013**	**2012**	**2013**	**2012**	**2013**	**2012**	**2013**	**2012**	**2013**
GERMANY	-	-	-	-	-	-	(8) taking decisive steps to further foster energy efficiency	-	(11) Continue efforts to keep the overall economic costs of transforming the energy system to a minimum, including by accelerating the expansion of the national and cross-border electricity and gas networks.	(6) Germany is aiming to minimise the overall economic costs of transforming the energy system. This has led to some first results but overall costs have continued to increase and major risks and potential inefficiencies remain.	(6) There is scope for improving the efficiency of the tax system.	(8) Improve the efficiency of the tax system, in particular by broadening the VAT base and by reassessing the municipal real estate tax base.	-	Revenues from recurrent property taxes are particularly low in Germany (0.5 % of GDP in 2011 vs 1.3 % in the EU-27), which may leave room for increasing revenues from the municipal real estate tax (Grundsteuer), in particular by reassessing the tax base.

FRANCE	-	-	(10) The fiscal reform in the course of 2012 is an appropriate measure to introduce a more balanced taxation system that shifts the tax burden away from labour. (…) France has the second lowest share of environmental taxation in the EU in tax revenues, which indicates ample room for increasing such taxes. (15) shifting the tax burden from labour to other forms of taxation that weigh less on growth and external competitiveness, in particular environmental and consumption taxes	(9) Further scope for action is however needed, in particular to rebalance the share of environmental taxes. (14) Take further measures shifting the tax burden from labour to environmental taxation or consumption.	-	-	-	-	-	-	(15) Take further steps to introduce a more simple and balanced taxation system	(9) The French tax system remains complex and lacks efficiency due to the wide range of exemptions, special allowances, but also frequent changes in legislation. (14) Pursue efforts to simplify the tax system and improve its sufficiency, while ensuring continuity of tax rules over time.	-	-

SPAIN	-	-	(12) Introduce a taxation system consistent with the fiscal consolidation efforts and more supportive of growth, including a shift away from labour towards consumption and environmental taxation.	(6) While significant rebalancing of the relative tax burden towards consumption and environmental taxes took place in 2012, the Spanish tax-to-GDP ratio remains among the lowest in the EU.	-	(12) Consider further limiting tax expenditure in direct taxation, explore the scope to further limit the application of the reduced VAT rates and take additional steps in environmental taxation, notably as regards excise duties and fuel taxes.	-	-	(10) Spain also faces multiple and complex challenges in the energy sector which are a serious impediment to the effective functioning of the product and service markets.	-	(8) The efficiency of the tax system can be improved by increasing the share of more growth-friendly indirect taxes	(6) The efficiency of the tax system can be improved further by increasing the share of more growth-friendly indirect taxes and by tackling tax fraud and evasion, in line with the fiscal consolidation efforts.	-	-

BELGIUM	-	-	(14) Significantly shift taxes from labour to less growth-distortive taxes including for example environmental taxes. (9) No shift of the fiscal burden away from labour towards consumption and/or eco-taxes has been undertaken.	(8) Belgium continues to be one of the countries with the lowest share of environmental taxation in total tax revenues. (12) Establish concrete and time-specific proposals for shifting taxes from labour to less growth-distortive tax bases, notably by exploring the potential of environmental taxes, for example on diesel, heating fuels and the taxation of the private use of company cars.	-	(12) … exploring the potential of environmental taxes, for example on diesel, heating fuels and the taxation of the private use of company cars.	-	-	(8) Although productivity levels are high, Belgium's growth is weak and also the costs of intermediary inputs, mainly energy, are high.	(11) Continue to improve the functioning of the energy sector by reducing distribution costs and monitoring retail prices, strengthen the independence of the regulators in the energy, telecoms and the transport sectors.	-	(12) Simplify the tax system by reducing tax expenditures in income taxation, increasing VAT efficiency and improving tax compliance by closing existing loopholes.	-	(8) The Belgian taxation system relies disproportionately on direct taxes and contains loopholes that diminish its fairness.

POLAND	(9) While the motorway and expressway network is being extensively developed with support from EU funds, the need for investment in the rail network is even more pressing, given the very poor state of the infrastructure.	-	-	-	-	-	(13) Step up efforts to improve incentives for investment in energy generation capacity and energy efficiency in the whole energy chain, speed up the development of the electricity grid, including cross-border interconnections	(7) There are still very high potential gains from improvements in energy efficiency in all sectors of Poland's economy, in particular by insulating buildings, and such gains could support growth.	(10) Growth and competition in the energy sector is held back by lagging implementation of EU legislation.	-	(9) The main areas of concern include high compliance costs, complex and unstable tax legislation,	(8) Key problems include transparency, the complexity of the tax system.	-	-
NETHERLANDS	-	-	-	(10) Continue to reduce tax disincentives on labour, including by phasing-out of transferable tax credits for second income earners.	-	-	-	-	-	-	-	-	-	-

LITHUANIA	(9) (…) transport taxes are the lowest in the Union.	(5) (…) also due to the lowest level of transport taxes in the EU; this does not facilitate reductions in the high energy intensity of the Lithuanian economy.	(9) There is scope for shifting taxation towards energy use as revenue from environmental taxes is the third lowest in the Union, while transport taxes are the lowest in the Union. The implicit tax rate on energy consumption was the seventh lowest in the Union in 2010 whereas energy taxes in GDP terms are only slightly below the EU average. (11) review and consider increasing those taxes that are least detrimental to growth, such as housing and environmental taxation, including introducing car taxation, while reinforcing tax compliance.	(8) Review the tax system and consider increasing those taxes that are least detrimental to growth, such as recurrent property and environmental taxation, including introducing car taxation, while continuing to reinforce tax compliance. (5) Lithuania's revenues from environmental taxes are on a downward trend and were the second lowest in the EU in 2011.	-	-	(9) Lithuania has made some progress in improving the energy efficiency of buildings. A Multi-Apartment Building Modernisation Programme was adopted by the Government in December 2011, but it is weakened by counteracting subsidies available in other policy areas that reduce incentives for inhabitants of residential buildings to improve energy efficiency. Further substantial and accelerated efforts are needed to improve energy efficiency of buildings.	(7) Furthermore, energy efficiency continues to be an issue. Progress has been sluggish as regards the renovation of buildings, including with respect to investments under the JESSICA holding fund, and major challenges in the renovation of private housing remain.	(10) The country's energy system infrastructure lacks competition and interconnections and this is a factor that hinders growth.	(7) Electricity and gas links to neighbours remain underdeveloped. As a result, competition in the energy sector is very limited and energy prices are high.	-	-	-	-

UK	-	-	-	-	-	-	-	-	(11) The UK needs substantial investment to upgrade its electricity generation capacity, given the need to replace a large part of the existing generating capacity, which will close over the next decade, and the need to meet the renewable energy obligation and tighter carbon emissions standards.	(9) The UK needs substantial investment in new electricity generation capacity by 2020, both to replace old plants that are due to close, and to meet the renewables obligation and tighter carbon emissions standards. At 3.8 %, the share of renewable energy sources in final energy consumption ranks 25th out of 27 Member States (EU average 13.0 %).	-	(6) Moreover, the potential revenue contribution from structural reform, e.g. aiming to increase the efficiency of the tax system through revisions of the VAT rate structure, remains relatively under-exploited.	-	(11) Enhance efforts to support low-income households and reduce child poverty by ensuring that the Universal Credit and other welfare reforms deliver a fair tax-benefit system with clearer work incentives and support services.
SWEDEN	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ROMANIA	-		-	(5) Environmental taxes are below the EU average. (10) In parallel, explore ways to increase reliance on environmental taxes.	-		-	(9) Increasing energy efficiency in buildings, district heating, industry and transport is a further key challenge. Romania is the third most energy-intensive economy in the EU whose energy intensity is 2.5 times higher than the EU average. It is also the third most carbon-intensive economy in the EU. Residential buildings in Romania use eight times more energy than the EU-15 average due to an inefficient district heating system and the fact that buildings are not insulated appropriately. (11) Continue to remove regulated gas and electricity prices and improve energy efficiency	(5) Progress in key structural reform areas, such as energy and transport and EU fund absorption, has been uneven.	(11) Promote competition and efficiency in network industries, by ensuring the independence and capacity of national regulatory authorities, and by continuing the corporate governance reform of state-owned enterprises in the energy and transport sectors.	-	-	-	-

AUSTRIA	-	-	(13) Shift the tax burden in a budgetary neutral way, towards real estate taxes, and environmental taxes.	- specific	-	-	-	-	-	-	-	-	-	-
BULGARIA	-	-	-	-	-	-	(12) energy dependency need to be improved	(9) Low energy efficiency remains a significant economic burden on both business and private consumers	-	-	-	-	-	-
CYPRUS	-	(80) Undertake by June 2013 a reform of the tax system for motor vehicles, based on environmentally -friendly principles, with a view to raising additional revenues, through the annual road tax, the registration fee and excise duties, including motor fuel duties.	-	-	-	(102) Increase excise duties on energy, i.e., on oil products, by increasing tax rate on motor fuels (petrol and gasoil) by EUR 0.07 (103) Increase excise duties on energy, i.e., on oil products, by increasing the tax rate on motor fuels (petrol and gasoil) by EUR 0.05	-	-	-	(54) there is a need for a comprehensive development plan for the transformation of the energy sector as well as the right institutional and budget arrangements for managing the revenues.	-	-	-	(90) The tax rates shall reflect the progressivity and revenue of the preceding property tax

CZECH REP.	-	(5) Plans to introduce a CO2 tax and abolish exemptions from excise duties on natural gas for heating have been dropped. The implicit tax rate on energy is below the EU average and vehicle circulation taxes remain very low	(15) Shift the high level of taxation on labour to housing and environmental taxation	(9) Reduce the high level of taxation on labour by shifting taxation to areas less detrimental to growth, such as recurrent taxes on housing and vehicle circulation taxes.	(8) the government adopted measures to combat fraud in the area of VAT and fuel taxes and took first steps to introduce the single collection point	(5) The implicit tax rate on energy is below the EU average and vehicle circulation taxes remain very low.	-	(10) Take further measures to improve energy efficiency in the buildings and industry sectors..	-	-	-	-	-	-
DENMARK	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESTONIA	-	no	-	Reduce but no specification on the shift	(7) Fuel excise duties are insufficient in shifting consumer patterns.	no	(11) in particular in buildings and transport, and strengthen environmental incentives concerning vehicles and waste, including by considering incentives such as the taxation of vehicles	(7) in particular in buildings and transport, and strengthen environmental incentives concerning vehicles and waste.	-	(7) diversify energy sources and promote competition in the energy market	-	-	-	-
FINLAND	-	-	-	-	-	-	-	Yes- but not specified how	-	-	-	-	-	-

GREECE	-	-	-	-	-	-	-	-	-	-	-	-	-	(107) on the broad parameters of the framework, including:… (iv) only exemptions (focused on hardship cases) that are mutually agreed and clear progressivity
HUNGARY	-	(7) Regarding energy taxation, measures taken do not provide incentives to reduce energy consumption and have distortionary effects (12) Gradually abolish regulated energy prices	(12) Make the taxation of labour more employment-friendly …by shifting part of the tax burden to energy taxes and recurrent taxes on property.	(10) Continue making taxation of labour more employmentfriendly by alleviating the tax burden on low-wage earners, … and by shifting taxation away to environmental taxes	-	-	-	-	-	-	-	-	-	-
IRELAND	-	EAP	-	EAP	-	EAP	-	-	-	-	-	EAP	-	EAP

ITALY	-	-	(14) Take further action to shift the tax burden away from capital and labour to property and consumption as well as environment	(12) Shift the tax burden from labour and capital to consumption, property and the environment in a budgetary neutral manner	-	-	-	-	-	-	(14) simplify the tax code	(9) The structure of the tax system remains complex and weighs heavily on labour and capital… action is still needed to simplify the tax system, streamline tax expenditures, align the property tax base with market values	(14) Take measures to reduce the scope of tax exemptions, allowances and reduced VAT rates	(9) The review of VAT exemptions or reduced rates and of direct tax expenditures may require some adjustment in social transfers to minimise its distributional impact
LATVIA	-	-	(7) Further broadening the tax base to other sources of environmental taxation, in particular pollution, as well as more broad-based taxation of energy sources, would help in achieving environmental goals while providing room for a tax shift away from the taxation of labour	(5) & (9) reduce taxation of low-income earners by shifting taxation to areas such as excise duties, recurrent property taxes and/or environmental taxes.	(7) Environmental taxes remain relatively underdeveloped and are heavily dominated by motor-fuel taxation, while taxation on other energy sources, pollution and the use of natural resources is below the EU average	(5) Environmental taxes remain relatively underdeveloped and are heavily dominated by motor-fuel taxation, while taxation of other energy sources, pollution and the use of natural resources is below the EU average	-	(10) Continue improving energy efficiency, especially of residential buildings and district heating networks, provide incentives for reducing energy costs and shift consumption towards energyefficient products	-	-	-	-	-	-

LUXEMBOURG	-	-	-	-	-	(8) by increasing fuel taxation so as to reduce the taxation gap with neighbouring countries. The vehicle tax reform should also be accelerated.	-	-	(11) Ensure that the targets for reducing greenhouse gas emissions from non-ETS activities will be met, in particular by increasing taxation on energy products.	(10) Step up measures to meet the target for reducing non-ETS greenhouse gas emissions, in particular by increasing taxation on energy products for transport	-	-	-	-
MALTA	-	-	-	-	-	-	(12) step up efforts to promote energy efficiency and increase the share of energy produced from renewable sources by carefully monitoring the existing incentivising mechanisms	(11) Continue efforts to diversify the energy mix and energy sources,	-	-	-	-	-	-
PORTUGAL	-	EAP	-	EAP	-	EAP	-	-	-	-	-	EAP	-	EAP
SLOVAKIA	-	-	(11) reduce distortions in taxation of labour across different employment types, also by limiting tax deductions; link real estate taxation to the market value of property; make greater use of environmental taxation	Not exactly shift (5) Slovakia has scope to raise additional resources by broadening the tax base, limiting the scope for tax non-compliance and evasion and by increasing recourse to taxes that are less detrimental to growth, such as property taxation and environmental taxation	-	-	-	-	-	-	-	-	-	-

			(7) This encourages a shift towards more flexible job arrangements with negative short- and long-term impacts on public accounts.											
SLOVENIA	-	-	-	-	-	-	-	-	-	-	-	-	-	-