

## Summary

This paper is a response from Transport & Environment to the ‘Consultation on structural options to strengthen the EU Emissions Trading System’ (ETS) by the European Commission<sup>1</sup>.

The response focuses on the fourth (‘d’) of six options proposed – extension of the scope of the ETS to other sectors - with a special focus on extending the scope of the ETS to road transport.

We strongly oppose this idea. It will not deliver economic benefits and will seriously jeopardise emissions reductions in transport. We argue that economic arguments in favour of inclusion are flawed, environmental ones naïve, and that it will not work in the long run. Transport emissions are too important a problem of their own to serve as a medicine for a sick ETS.

Additionally we want to point out that a seventh ‘structural option’ to strengthen the ETS is missing and should be implemented as soon as possible: ending the zero-CO<sub>2</sub> rating of bioenergy in the ETS.

We broadly support all the other options (a, b, c, e and f) as ways to revitalise the ETS and, even more importantly, achieve additional savings in greenhouse gas (GHG) emissions.

## Road transport - a significant emitter

One of the lines of thought presented in the document ‘The state of the European carbon market in 2012’<sup>2</sup> is to extend the scope of the ETS to sectors currently not yet included (option ‘d’). One of the most obvious sectors is road transport, ‘worth’ around 900 MT of CO<sub>2</sub>, making it the single biggest non-included sector.

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<sup>1</sup> [http://ec.europa.eu/clima/policies/ets/reform/index\\_en.htm](http://ec.europa.eu/clima/policies/ets/reform/index_en.htm)

<sup>2</sup> COM(2012) 652 final, 14 November 2012

### **What the Commission's report 'The state of the European carbon market in 2012' says**

For reference and ease of reading we include excerpts from the Commission's consultation document. The report presents six possible options to improve the effectiveness of the EU ETS:

*"Option a: Increasing the EU reduction target to 30% in 2020  
Option b: Retiring a number of allowances in phase 3  
Option c: Early revision of the annual linear reduction factor.  
Option d: Extension of the scope of the EU ETS to other sectors  
Option e: Use access to international credits  
Option f: Discretionary price management mechanisms"*

On option d, the focus of our response, the document says:

*"The fourth structural option could be to include sectors less strongly influenced by economic cycles. Whereas the emissions in the EU ETS decreased in 2009 by more than 11%, in the sectors outside the EU ETS this reduction was only around 4%. This difference may be partially explained by differing impacts of the economic crisis on individual sectors. The coverage of the EU ETS could therefore be expanded to other energy related CO2 emissions in sectors currently outside the EU ETS by for instance including fuel consumption in other sectors. This could be a next step in the further development of the European carbon market. It would be consistent with potential energy system changes such as the increased use of electricity, gas and biomass in all energy related sectors in the transition towards a low carbon economy by 2050.  
A more comprehensive extension to all energy related emissions would substantially increase the emissions coverage and can impact the overall ambition level, depending on the level of the cap foreseen for the sectors included. Several policy questions would need to be addressed, such as who would carry the obligation to report emissions and surrender allowances, fuel producers or users, or some kind of a hybrid system. Therefore, this measure requires more analytical work, including on how it would relate to existing policies in these sectors."*

## **How it could be done**

Over time various alternative ways of including transport in the ETS have been mentioned.

A first option is to make fuel suppliers of petrol and diesel in road transport responsible for surrendering CO2 permits. Road transport fuels are taxed at specific rates, hence a watertight administrative system covering deliveries by road fuel suppliers is already in place.

Other implementation options have also been suggested:

- Include fuel used by road freight only; hence exclude fuel used by cars. Requires very strict enforcement to ensure hauliers and van owners don't fill up with 'private' diesel;
- Include car manufacturers – as a substitute for CO2 regulation of cars. However, the metric of the CO2 regulation, gCO2/km, is not fungible with the European Union w i
- Not take fuel supplier but fuel user (individual car or lorry drivers, or individual companies) responsible for compliance. This adds a lot of administrative burden, without clear environmental benefits compared with the 'fuel supplier' option; after all, the choice of responsible entity (fuel supplier vs. fuel user) does not change the overall emissions cap.

Despite the fact that inclusion of road transport in the ETS seems technically feasible, we strongly object to the idea. The sections below describe why.

## But it should not be done - economic arguments in favour are flawed

### **Conventional thinking: 'the more sectors in ETS (and only ETS), the more efficient'**

The thought-process behind extending the EU ETS to cover other sectors is that the broader the coverage of the ETS is, the more cost-effective CO<sub>2</sub> abatement would eventually be. Including transport in the ETS would add a pool of CO<sub>2</sub> abatement measures which could lower overall compliance cost.

This 'purist' line of thinking implicitly or explicitly assumes that no other measures to control CO<sub>2</sub> emissions are in place – because if they are, they 'distort' this theoretically ideal picture of lowest-cost abatement (For example, existing road fuel taxes already trigger CO<sub>2</sub> abatement measures, which would make additional measures triggered by an additional CO<sub>2</sub> price expensive, not cheap).

### **Not only abatement costs are relevant, but also costs of leakage and dependence**

The 'one size fits all' notion is fatally flawed because it assumes that the only economic cost to be minimized in climate policy is the CO<sub>2</sub> abatement cost. But this ignores at least two other very significant costs that are relevant in determining climate policy. And these costs are not merely political; they are real economic costs.

The first is the cost of *carbon leakage*. Many policymakers are concerned about this – the threat of energy intensive, trading industry relocating to unregulated areas when carbon prices become too high, inflicting economic harm on Europe without reducing global emissions. Whilst there is plenty of evidence that such fears have been strongly overblown, and little if any evidence that the ETS has contributed to relocation, it cannot be denied that some so-called 'exposed' sectors are more sensitive for high carbon prices than other so-called 'sheltered' sectors. The more energy-intensive industries are, and the more their products are traded in a global market, the more sensitive they are for carbon leakage. And indeed these two criteria – energy and trade intensity – serve to determine the share of free allowances in the ETS. Hence, *optimal carbon prices in sheltered sectors are higher than in exposed sectors*.

By no means is this new thinking; there is a huge body of literature on optimal taxation building on a 1927 paper by Ramsey, who stipulated that taxation is efficient if it is inversely related to the price elasticity of the taxed good<sup>3</sup>. This is another way of saying: the more sheltered, the higher the optimal carbon price.

The second is the cost of *energy dependence*. There are strong economic and political arguments to reduce dependencies on imports and on one form of energy. Excessive energy dependence causes costs due to transfer of wealth (from energy consumers to energy producers), potential GDP losses (reduction of the maximum output an economy is capable of producing due to the increased economic scarcity of energy) and costs of adjusting to sudden, large price changes<sup>4</sup>. DG MOVE's IMPACT report into the external costs of transport<sup>5</sup> is an example of a study that quantifies these costs.

An economically optimal climate policy for the EU is therefore NOT a policy that only minimizes the costs of abatement, but *a policy that simultaneously minimizes the costs of emissions abatement, the costs of emissions leakage as well as the cost of energy dependence*.

In short: an 'ETS-only' climate policy is economically justifiable for strongly exposed sectors that do not create excessive energy dependence.

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<sup>3</sup> A Contribution to the Theory of Taxation, see e.g. [http://en.wikipedia.org/wiki/Optimal\\_tax](http://en.wikipedia.org/wiki/Optimal_tax)

<sup>4</sup> See for example [http://cta.ornl.gov/cta/Publications/Reports/ORNL\\_TM2005\\_45.pdf](http://cta.ornl.gov/cta/Publications/Reports/ORNL_TM2005_45.pdf)

<sup>5</sup> [http://ec.europa.eu/transport/themes/sustainable/doc/2008\\_costs\\_handbook.pdf](http://ec.europa.eu/transport/themes/sustainable/doc/2008_costs_handbook.pdf)

For all other sectors, additional (i.e. over and above the ETS) regulatory or market-based policies to lower emissions, are well justified from an economic efficiency point of view.

### **Transport: no carbon leakage, huge energy dependence**

Transport is, together with for example housing, a very 'sheltered' sector – it is by definition impossible to replace a trip between Paris and Berlin by a trip between Beijing and Shanghai. Emissions leakage is therefore not a significant concern. Even in aviation, arguably one of the sectors most exposed to global competition, carbon leakage has been demonstrated to be virtually negligible, simply because a flight from New York to Paris cannot simply be replaced by a flight from New York to Moscow<sup>6</sup>. Road transport is unquestionably even more 'sheltered' than aviation.

It is also clear that transport is uniquely dependent on only one type of fuel – liquid hydrocarbons – of which the import ratio stands at 80% and is due to rise to 90% over the next decades.

All this explains why over time, policymakers have introduced significant fuel taxes in road transport. These fuel taxes could be safely introduced because they did not lead to transport being displaced (satisfying the Ramsey rule), and have contributed to lower oil imports and more efficient use of scarce economic resources. In short, it can be argued that, even apart from their CO<sub>2</sub> reduction effect, road fuel taxes have done more good than harm, especially in comparison with other ways to raise revenue that tend to distort economic decision making more strongly.

The conclusion is that transport is a good example of a sector that qualifies for more measures than just an ETS, including higher carbon prices. Transport's fuel taxes are therefore by no means inefficiently high.

### **Inclusion of road transport will make its decarbonisation harder, not easier**

Others argue that it is environmentally effective to include transport in the ETS. This is based on the assumption that the inclusion of transport in the ETS will be implemented ON TOP OF, not INSTEAD OF, existing policies. We dissect his argument below

#### **Inclusion yields very small CO<sub>2</sub> cuts in transport– even assuming other policies are unaffected**

Even if one assumes that other CO<sub>2</sub> reduction policies in transport continue unaffected upon inclusion of the sector in the ETS, the environmental impact of inclusion will be extremely small.

Current ETS CO<sub>2</sub> prices would lead to a CO<sub>2</sub> reduction in the range of 0.5%<sup>7</sup>. A higher CO<sub>2</sub> price would obviously increase these savings. A €30 price, often seen as an aspiration for the ETS, would still cut EU transport CO<sub>2</sub> emissions by only about 3.5%. This is the same order of magnitude as, for example, the tyre energy labelling regulation.

#### **'Other policies will not be affected': a naïve thought**

A wide range of policies is in place that lowers the carbon footprint of transport.

First and foremost, there are fuel taxes. A database maintained by T&E, compiled on the basis of the Oil Bulletin suggests that today's average fuel taxes amount to a little over

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<sup>6</sup> [http://ec.europa.eu/clima/policies/transport/aviation/docs/aviation\\_et\\_study\\_en.pdf](http://ec.europa.eu/clima/policies/transport/aviation/docs/aviation_et_study_en.pdf)

<sup>7</sup> A litre of transport fuel on average on average leads to 2.5 kg of CO<sub>2</sub> when burned; diesel a bit more, petrol a bit less. This implies that 400 litres of transport fuel lead to a tonne of CO<sub>2</sub> emission. This implies that EUR4 a tonne of CO<sub>2</sub> – the current price - equates 1 cent a litre of transport fuel, which is about a 0.7% price increase at today's prices. Although fuel price elasticities are, at about -0.7, higher than many assume, the environmental effect is a 0.7%\*0.7 = 0.5% reduction of fuel consumption and CO<sub>2</sub> emissions.

€0.52/l, up from a little under €0.48/l early 2010. This means that three years' worth of fuel tax *rises* alone amounted to some 4.5€ct/l, or about €20/t CO<sub>2</sub>.

If transport were included in the ETS, widespread pressure to reduce fuel taxes would emerge; quite probably the introduction would go hand in hand with an equivalent reduction of fuel taxes, negating any environmental benefit. Indeed, the current ETS directive states that *'The instrument of taxation can be a national policy to limit emissions from installations temporarily excluded'* (emphasis added), suggesting that taxation would be inappropriate for installations in the ETS. And the transport industry would consistently argue that fuel taxes, let alone rises, would amount to double regulation and should hence not be in place, or introduced respectively.

A second example is the regulation to reduce CO<sub>2</sub> emissions from new cars, which is very effective (average CO<sub>2</sub> emissions of new cars down by 14% since introduction), very cost effective (oil cost savings much higher than extra vehicle costs) – and strongly opposed by carmakers. And indeed, carmakers are already starting to argue that transport CO<sub>2</sub> emissions should be dealt with via inclusion in the ETS, not through vehicle regulation<sup>8</sup>.

There are many more examples of climate policy in transport, such as clean fuel policies (fuel quality directive), CO<sub>2</sub>-based vehicle purchase, circulation and company car taxes, and policies to manage transport demand and to shift it to lower-carbon modes. All these would come under certain forms of pressure were transport to be introduced in the ETS.

### **'Transport will pay for cuts elsewhere': medicine for a sick ETS, not a healthy one**

Still others argue that transport will receive a tight cap, so that its inclusion will create scarcity in the ETS, which drives up carbon prices, which eventually implies that transport would pay for emission reductions in other sectors.

This thought is tempting now given the collapse of carbon prices in the ETS. If inclusion of transport can increase the price from current rock-bottom levels to, say, 20 euros, isn't that a good plan? It is not a coincidence that the Commission is just now considering inclusion of 'other sectors'.

But difficult as it may be, we have to take the long view and look whether the idea is still good when the ETS has recovered, when indeed carbon prices are back at testing levels that drive some investment and change. We have to see whether transport inclusion is indeed a 'structural' improvement and not an emergency patch.

In the situation of a well-working ETS, the tension between exposed sectors and sheltered sectors pictured above will dominate the debate; for exposed sectors the prices will be perceived as high, whereas for sheltered sectors – such as transport, but also housing – they will remain too low. In the end, political economics suggest that prices in the ETS will be as high as the weakest link – i.e. the most exposed sector – is perceived to be able to bear. And those prices will be way lower than the ones we currently have in transport – the fuel tax.

Transport emissions are just too important a problem of their own to serve as medicine for a sick ETS.

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<sup>8</sup> [www.bmwgroup.com/d/0\\_0\\_www\\_bmwgroup\\_com/forschung\\_entwicklung/publikationen/\\_pdf/cities\\_de.pdf](http://www.bmwgroup.com/d/0_0_www_bmwgroup_com/forschung_entwicklung/publikationen/_pdf/cities_de.pdf)

## Transport in a separate ETS ?

If integrating transport in the ETS is not the solution, would maybe creating a separate emissions trading for transport, and for other sheltered sectors, make sense?

In theory, yes it would. As argued before, higher carbon prices in sheltered sectors make good economic sense. Decision-making would be by qualified majority, instead of by unanimity as is (still) the case for fuel taxes. The cap could be tightened according to the cuts required, and fuel prices would go up correspondingly. And one big advantage is that the additional CO2 prices would be the same everywhere in the EU, eliminating fuel tourism and consequently the downward pressure on fuel taxes<sup>9</sup>.

But there is one problem – two separate emissions trading systems, with two very different CO2 prices, will not be tenable in practice. Sectors and stakeholders (e.g. drivers) in the high-price system will complain loudly about unequal treatment and call for the systems to be integrated into one. The higher the price differential becomes, the higher the pressure to integrate the systems will be – despite the fact that a significant price differential is the whole point of creating two separate systems in the first place.

## Decarbonising transport is hard; inclusion in the ETS makes it harder

So if inclusion in the ETS is not the solution, what is?

The unfortunate reality is that there simply is no silver bullet, neither in terms of technology nor in terms of policy instruments. If there was one it would have been put in place already.

Sustained, decades-long pressure on fuel and vehicle taxes, clean vehicle and fuel laws, low-carbon investment and promotion of more sustainable transport patterns will be necessary to bring about the necessary deep cuts in CO2 emissions.

As we described above, inclusion of transport in the ETS will slow down, not accelerate, that process.

## What about aviation and shipping ?

The sections above describe the reasons behind our opposition to the inclusion of surface transport in the ETS<sup>10</sup>. But we have supported inclusion of aviation and shipping in the ETS. For aviation this has already happened, for shipping it is an option for the future.

The main reason we support inclusion of these two sectors in the ETS is that in these sectors no alternative, more effective, climate measures are in place that could be jeopardised because of their ETS inclusion. At IMO level the so-called 'energy efficiency design index' (EEDI) for new ships was adopted in 2010, at ICAO level an airframe CO2 standard is under development. These two global standards will not be jeopardised because of a regional ETS measure.

Ending the direct and indirect subsidies particularly to the aviation sector (no fuel tax, no VAT on tickets, special – i.e. generous - state aid rules for new regional airports and routes) remains the first priority in our aviation work; ending these will reduce aviation emissions more than its inclusion in the ETS.

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<sup>9</sup> [www.transportenvironment.org/publications/report-fuelling-oil-demand-what-happened-fuel-taxation-europe](http://www.transportenvironment.org/publications/report-fuelling-oil-demand-what-happened-fuel-taxation-europe)

<sup>10</sup> In 2010 surface transport contributed 'only' 77% to CO2 emissions; international maritime and air transport accounted for the remaining 23%.



## What about electric energy ?

Electric energy used in transport will to a large extent already be covered by the ETS. Most electricity used by railways and electric cars is produced by installations covered by the ETS. The more electrified transport becomes, the more its emissions will move from outside (petrol, diesel) to inside the ETS.

We don't think this inclusion of electricity and exclusion of petrol and diesel is problematic. Taxes on petrol and diesel are higher than the CO<sub>2</sub> cost of electricity. This implies an incentive towards electric energy is built in the current system. More problematic is that diesel used in railways is mostly excluded, and fuel used in inland waterways is always excluded from taxation. That situation needs to end.

Finance ministries will have to deal with the expected downfall in fuel tax revenues. Many solutions exist; road pricing is an obvious replacement.

## Transport emissions are not a-cyclical

The mentioned Commission carbon market report says that 'The fourth structural option could be to include sectors less strongly influenced by economic cycles'.

But a look at EEA data reveals that transport (excluding aviation and shipping) is hardly less cyclical than sectors covered by the ETS. According to the latest EEA analysis<sup>11</sup>, surface transport CO<sub>2</sub> emissions stood at 912.6 MT in 2011, which is 6% below the 2007 level of 967.4 MT. That is not significantly less volatile than the sectors under the ETS that saw, according to the consultation document, their emissions fall by 11%.

## A seventh option: end zero-CO<sub>2</sub> rating of bioenergy

Finally, we want to present a seventh option for a structural improvement in the way the EU ETS works.

At present, operators do not have to surrender EUAs against emissions from any type of bioenergy<sup>12</sup>. This is based on the assumption that all CO<sub>2</sub> emitted during biomass burning was previously absorbed and would not have been absorbed had the biomass not been harvested. But this assumption has been severely challenged over the past five years<sup>13</sup>.

*'To reiterate: only biomass grown in excess of that which would have grown anyway, or biomass that would otherwise have decomposed anyway, is 'additional biomass' containing 'additional carbon,' and has the potential to reduce carbon emissions when used for energy. The basic error in the carbon neutrality of biomass assumption is the failure to count the*

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<sup>11</sup> <http://www.eea.europa.eu/publications/approximated-eu-ghg-inventory-2011>

<sup>12</sup> As of 1 January 2013, use of 'unsustainable' biofuels and bioliquids will not count however due to entry into force of 'COMMISSION REGULATION (EU) No 601/2012 of 21 June 2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council. However, the vast majority of bioenergy use under the ETS is solid biomass which is not regulated.

<sup>13</sup> For example: Bird N., Pena N. & Zanchi J., *The upfront carbon debt of bioenergy*, Graz, Joanneum Research, June 2010, Joint Research Centre, *Carbon accounting of forest bioenergy; Conclusions and recommendations from a critical literature review*, November 2012, [www.biograce.net/app/webroot/biograce2/img/files/BioGrace-II-GHG-expert-workshop\\_Heidelberg\\_Pres8\\_Agostini\\_2012-10-23.pdf](http://www.biograce.net/app/webroot/biograce2/img/files/BioGrace-II-GHG-expert-workshop_Heidelberg_Pres8_Agostini_2012-10-23.pdf), [http://www.ieep.eu/assets/1008/IEEP - The GHG Emissions Intensity of Bioenergy - October 2012.pdf](http://www.ieep.eu/assets/1008/IEEP_-_The_GHG_Emissions_Intensity_of_Bioenergy_-_October_2012.pdf)

*production and use of biomass that land would generate if not used for bioenergy (the counterfactual)*<sup>14</sup>.

This wrong zero-carbon treatment of bioenergy is a serious problem.

Bioenergy, mainly in the form of solid biomass, is the primary renewable energy source in the European Union, accounting for about 60% of all renewable energy used in the region in 2010. The National Renewable Energy Action Plans of the Member States forecast that bioenergy will maintain its dominance up to 2020.

Estimates of the size of zero-rating loophole *in the ETS* are difficult to make; they require predictions of bioenergy use in the ETS as well as information on the real carbon footprint of the bioenergy used. But the loophole is far bigger than the one in transport, because quantities are much higher, and likely to be well over 100MT of CO<sub>2</sub> a year.

The zero rating distorts competition between energy options, leading to overconsumption of bioenergy. Bioenergy already is a favoured option amongst policymakers, because it is 'easy' to implement, for example by giving the power sector a mandate for the share of renewable electricity, avoiding difficult negotiations over wind parks for example.

In the short run the EU should extend binding sustainability standards (including emissions from indirect land use change, ILUC), to cover not just liquid biofuels but solid and gaseous biomass too, and only allow 'sustainable' bioenergy to qualify for preferential treatment.

But in the medium term a more fundamental solution is needed; some options have been proposed<sup>15</sup>.

- the tailpipe approach, in which only combustion emissions are counted;
- the point of uptake and release (POUR) approach, in which both atmospheric uptake of carbon by plants and emissions from combustion are counted;
- The lifecycle GHG approach – as deployed in the field of biofuels. This option treats bioenergy in a technology-neutral way i.e. gives it the credit it deserves on the basis of its lifecycle climate performance, not on the basis of its name.

Better accounting rules for LULUCF cannot replace the need for this proper carbon accounting since most biomass comes from regions not covered by any Kyoto Protocol arrangements.

In any case, Europe cannot reduce carbon emissions if it does not count them properly. Option 'g', ending the zero carbon rating of bioenergy, must be part of any structural reform on the ETS.