On the road to 2030 – Decarbonising Europe's road transport sector

Briefing Paper – June 2016

2016 is a crucial year for the future of European transport with the European Commission due to publish its Communication on decarbonising transport this summer. The Commission should present a clear set of policy ideas and measures that will reduce EU transport's carbon footprint. Europe's transport sector has a poor record when it comes to greenhouse gas (GHG) emissions and is the only sector whose emissions have gone up, not down, compared to 1990 levels. Road transport alone now accounts for 25% of Europe's total GHG emissions and will become its largest source of emissions unless remedial action is taken.

Decarbonising transport must be a political priority

The core reason that transport is such a problem is that 95% of energy demand for the vehicles on our roads is still met by fossil fuels. Mobility is crucial to the European economy and to the daily lives of its citizens but with road traffic levels projected to increase by 30% by 2030, and with concerns growing over air pollution in urban areas, cutting transport emissions must be a political priority for the EU.

Reducing transport emissions is vital to EU climate ambitions

At COP21, Europe formally committed itself to cutting its GHG emissions by at least 40% by 2030 – an ambitious target that will only be achieved if strong decarbonising measures are adopted, especially for transport. In its January 2014 impact assessment for its 2030 climate and energy policy, the European Commission estimates that an incorporation of 12-14% renewable energy sources in transport (RES-T) and a 12-20% reduction in transport emissions (compared to 2005 levels) is needed in order to meet the 40% GHG reduction target. But where will these transport emission reductions come from?

A range of solutions is available for reducing oil use

Reducing energy use in European transport will be important because the transport sector consumes over 30% of all energy used in Europe. Reducing energy use, through vehicle, engine and fuel efficiency measures, is crucial but is not the only or best way to reduce transport's carbon footprint. Potential "rebound effects" in energy consumption can occur and undermine any energy savings gained through efficiency. Replacing oil use in transport with renewable, low carbon alternatives must be the ultimate goal.

There is a range of low carbon alternatives that can play a role in displacing oil in our transport fleet, and all of them are potentially important. Sustainable low carbon fuels, such as ethanol, already displace 5% of oil use in European transport. The big advantage of low carbon ethanol is that it is an existing and feasible alternative fuel that can be used in the existing vehicle fleet and infrastructure. It therefore should be promoted. Hybrid vehicles are already on the market and electric-powered vehicles will certainly play a greater role in the future. But low carbon fuels must also be politically prioritised and allowed to compete on a level playing field with oil. Keeping oil in the ground is crucial to limiting global temperature rises to below 2 degrees.

Combustion engines will still dominate by 2030

At the moment, hybrid and electric cars make up less than 5% of all new cars sold on the European market and would require mass vehicle replacement in a short timeframe to make a serious impact on transport emissions. Scrapping existing vehicles will also incur a significant carbon and economic cost. Today's electric vehicles also remain largely dependent on fossil fuels for the power they use because the EU electricity grid is still heavily dependent on fossil fuel. So there needs to be a measure of realism in the debate about the potential of electrification.

In 2030 the vast majority of existing and future vehicles will still run on internal combustion engines, so it should be a priority to reduce emissions from these vehicles first and foremost. The recent diesel emissions scandal has cast doubt over the reliability of engine technology to reduce vehicle tail pipe emissions, meaning the need to decarbonise liquid transport-fuels has become even more urgent.

Low carbon transport fuels are needed to meet the 2030 targets

Low carbon fuel technology, such as blending ethanol in petrol, has a long proven track record and provides the cheapest carbon abatement tool for transport. A recent study by E4Tech[1] found that in the absence of an EU framework promoting

[1] On a RED basis of the total energy consumed in road and rail. Policy scenarios for transport under the 2030 Energy and Climate framework, E4Tech (2016).

the uptake of biofuels (beyond what is currently expected from some Member States), the 12-14% RES-T and 12-20% emissions reduction for the transport sector that are needed would be rendered unachievable - as other options are either not fully available or will not ramp up fast enough before 2030. Without such a binding public policy framework:

- There would be an increased use of fossil fuels in transport – such a scenario would render the 2030 strategy dysfunctional to its stated aims.
- A considerable part of the GHG savings triggered by the lowest carbon biofuels would be lost.
- With the road transport sector accounting for 25% of the EU's emissions, substantial additional savings would be required from the other non-ETS sector to achieve the 30% emissions reduction from non-ETS sectors (compared to 2005) that is required to meet the overall 40% GHG reduction target.

..... **but only the most sustainable low carbon fuels should be promoted by public policy**

Not all biofuels are the same. Some are better than others for the climate. European ethanol has an average certified 63% GHG reductions compared to petrol. Study after study, including the recent GLOBIOM study, shows that European ethanol has a low risk of adverse land use impacts and no effect on food prices. There is therefore no justifiable reason for EU policy makers to not support this important low carbon fuel alternative to petrol. Ethanol produced and consumed in Europe is subject to meeting strict and mandatory sustainability criteria. Such a unique and positive set of EU criteria are set to be strengthened further with biofuels required to achieve at least 50% emission reductions as of 2018 and 60% for new installations.

The EU Commission also already has the stated aim of supporting the take-up and growth of advanced biofuels. EU policies to encourage the deployment of advanced biofuels before 2020 should therefore not only be maintained but improved by mandating their consumption within a defined regulatory framework that would make new investments in advanced biofuels technology and production bankable and feasible by setting clear, realistic but ambitious, long-term targets.

Attacks on biofuels are not supported by facts but risks should not be ignored

The UN FAO recently reported[2] that global food prices are at the lowest in 7 years. This price drop has occurred during a period of unprecedented growth in global biofuels production, which shows that biofuels production does not increase food prices. The World Bank reports[3] that over 60% of food price increases are caused by rising global oil prices and biofuels could actually alleviate food prices by displacing oil use. Deforestation has often been cited as a concern about biofuels production but the UN reports that since 1992 the global deforestation rate has more than halved, once again during a period of biofuels production growth, which proves that biofuels are not driving deforestation. But Europe should be also careful and only support those biofuels, such as European ethanol, that contribute to net GHG savings. Recent studies have shown that the use of palm oil for biofuel creates a considerable risk of land use change emissions through deforestation and, therefore, its use as a biofuel should be suspended until deforestation and the drainage of peatlands due to palm oil cultivation is halted.

Higher biofuels blends will be necessary to achieve the emission reductions needed

A full EU-wide roll out of E10 fuel, a blend of petrol containing up to 10% ethanol and already available in France, Finland and Germany (and in Belgium from 2017), would lead to a 6% reduction in GHG emissions from petrol vehicles. This would present a concrete and crucial step in the right direction, but more ambition, and higher low carbon ethanol blends, will be needed if we are to reach the 12-20% emission reductions needed in transport. E20 is therefore the next and most logical step. For example, Brazil currently mixes its petrol with up to 28% ethanol, so why not Europe?

Stable and consistent policy is essential

Establishing stable policy will be crucial to encourage further investments and innovations in low carbon transport technologies, particularly in advanced biofuels and electric vehicle infrastructure. Public acceptance is crucial and the Commission must propose incentives to encourage consumer uptake of low carbon fuels in transport.

All options to decarbonise transport, including through renewable low carbon fuels, must be kept on the table. Europe's climate ambitions are fundamentally reliant on reducing transport emissions. Europe cannot afford to wait for only long-term potential solutions but should also prioritise already existing and feasible alternatives as well as promote continuous improvement and innovation in the various technologies available.

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[2] Food Price Index, UN Food and Agriculture Organisation (2016)
[3] Rate of global forest loss halved says UN, The Guardian (September 2015)