Transport Sector Solutions

Combatting multiple crises with calculated solutions to save energy, costs and greenhouse gas emissions in the EU

GREENPEACE

Analysis by Greenpeace Central and Eastern Europe (CEE)

GREENPEACE / Transport Sector Solutions

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Executive Summary

Against a backdrop of energy, climate and cost-of-living crises, new analysis by Greenpeace explores how transport-related reforms could lead to energy, cost and greenhouse gas emissions savings in the EU. The transport sector consumes more energy than any other sector in the EU, accounts for almost 30% of the EU's greenhouse gas emissions, and constitutes the second largest expense of European households. But the potential within the transport sector to help save energy, costs and emissions has been largely overlooked by governments.

New Greenpeace calculations show that short-term reforms would **cut the oil demand in the transport sector by 50 million tonnes of oil per year**, and achieve **energy savings of around 13%.** The most effective measures to reduce energy consumption are affordable trains and public transport tickets across the EU, a reduction of flights and efficient car usage.

Short-term reforms **could save European economies €36 billion** per year on transport-related energy spending, and **EU consumers €63 billion on fuel** if short-term measures like teleworking, affordable public transport, and lower speed limits were to be introduced.

These transport-related energy savings reforms would also lead to a **reduction of greenhouse gas emissions by 180 million tonnes** annually, equivalent to the emissions of 120 million fossil fuel-powered cars[1] – almost half of the EU's total car fleet (242 million passenger cars).

Greenpeace calls on the European Commission and European governments to stop ignoring the transport sector's potential to save energy, costs and emissions, and implement the proposed measures. The first priority must be to introduce "climate tickets" for public transport throughout Europe, which will allow people to get around cheaply and in a climate-friendly way.

Key Findings

- Transport reforms could cut the energy demand in the transport sector by 13%, worth more than 50 million tonnes of oil per year.

- The three most effective measures are affordable climate tickets for public transport, a reduction of flights and efficient car usage.

THE FINANCIAL, SOCIAL, AND PEACE-RELATED BENEFITS OF REFORMS
- The energy savings calculated could reduce imports of crude oil into the EU worth €36 billion per year, preventing this amount from going to other oil suppliers with questionable human rights records, like Saudi Arabia.
- EU consumers could save up to €63 billion on fuel, and cushion rising energy bills, if measures regarding car usage were introduced (e.g. increase of home working, lower speed limits, and more efficient driving).
- All people, regardless of their mobility patterns, would benefit financially from the proposed transport reforms, whether through cheaper public

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[1] An average car in the EU is driven 12,000 km per year, and emits around 125 grams of CO_2 per km (1.5 tonnes of CO_2 per year).

transport tickets, less expenditure on fuel costs for cars, or through better access to free mobility infrastructure for cycling and walking.

CLIMATE-RELATED BENEFITS OF REFORMS
- The proposed measures would cut the EU's greenhouse gas emissions by 180 million tonnes per year, equivalent to the emissions of 120 million fossil fuel-powered cars[2] – almost half of the EU's total car fleet ([242](#) million passenger cars).
- Reforms targeted at driving less and more efficiently result in the biggest effect for oil savings, over 50% of the overall savings. Around 19% of the effects are due to flying less, while 15% can be saved by expanding access and affordability of public transport, 7% by strengthening cycling infrastructure, and 8% by shifting goods from road to rail. The total consumption of fossil fuels by cars can be reduced by 22%.
- The introduction of affordable climate tickets for public transport can reduce car trips by at least 5% and lead to fewer traffic jams in cities, as an [evaluation](#) of the German €9 public transport ticket has shown.

Introduction

This winter Europe is facing a major social test, as it juggles rising fear of deprivation, an imminent threat of financial hardship and poverty for many households, due to skyrocketing energy prices, and the need to reduce greenhouse gas emissions as the climate crisis escalates and the war in Ukraine persists.

While Europe is seeking to save energy, contribute to peace in Ukraine, meet its climate goals and address rising costs for households, governments are largely ignoring the potential for energy reduction in the transport sector.

Transport uses [two-thirds of all oil in the EU](#), and [consumes more energy than any other sector](#) – oil that has filled Putin's war chest and has a [history of fuelling wars](#). In a bid to free Europe from Russian oil by imposing a partial embargo, the bloc is still spending around 748 million Euros a day for transport-related oil imports, the majority of which goes to countries with questionable human-rights records such as Saudi Arabia, and risks extending Europe's dependency on fossil fuels.

With record heat waves, massive droughts and raging fires across Europe, this summer the damaging consequences and costs of the climate crisis have been more visible than ever. Extreme weather caused by climate change has further [worsened the current energy crisis](#). Transport is a major driver of the climate crisis, accounting for [30% of the EU's total greenhouse gas emissions](#). It is the only sector in the EU where CO_2 emissions have been rising since 1990.

Transport is the [second largest expense of European households](#) (after housing), and a major contributor to soaring bills pushing household finances to the brink. Increased spending for mobility diminishes the resources of especially low-income households and exacerbates social inequality and exclusion. Prices for petrol and diesel have doubled in the previous six months, driving up inflation and pushing vulnerable groups who are forced to own a car due to a lack of access and affordability of public transport into fuel and transport poverty – transport-related social [exclusion and disadvantages](#).

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[2] An average car in the EU is driven 12,000 km per year, and emits around 125 grams of CO_2 per km (1.5 tonnes of CO_2 per year).

But government responses like fuel tax cuts and rebates have disproportionately benefited the wealthiest in society, who own the largest cars and drive more, extending our transport system's addiction to fossil fuels and exacerbating their negative impacts on the climate and rising social inequality. However, initiatives in Germany and other European countries which made public transport free or more affordable this year, have proven to alleviate energy and living costs, led to less car usage and fewer traffic jams in cities, and enabled access to mobility services for low-income households.

Apart from personal mobility, the transportation of our goods still relies almost entirely on fossil fuels, making it vulnerable to, and aggravating the multiple crises Europe is facing. Around 77% of all goods in the EU are transported on roads, only 17% by train and 6% on waterways. Apart from rising fuel prices, blockages in the Black Sea and airspace sanctions due to the Ukraine conflict and, due to COVID restrictions in China, have significantly affected the logistics and distribution of goods to, from and throughout Europe. This has led to longer transits, shortages of many goods, including food and feed, fewer available vessels and rising shipping costs, with an additional impact on consumer prices.

Fossil fuels tightening their grip on mobility

Right now fossil fuel companies are reeling in record excess profits on the back of the energy crisis and the war. In the first month of the Ukraine conflict alone, the oil industry in Europe made additional €3 billion in record crisis profits with the sale of diesel and petrol. Companies deliberately drove up prices along the oil supply chain, while their average cost base didn't change significantly – and consumers were hit by skyhigh price-hikes. Several governments in Europe have introduced taxes on windfall profits, but these taxes cannot retroactively capture the excessive excess profits that have already accrued. Moreover, they can only temporarily redistribute profits, but they do little to change the underlying system that made these excessive profit margins possible in the first place.

At the same time, the fossil fuel and other industries are lining up to sell alleged alternative solutions to oil-based fuel, such as agro-fuels, hydrogen, or nuclear power that are inefficient, harmful to nature and biodiversity, or putting humanity's future further at risk. These false solutions and an excessive optimism over potential technology are stalling progress towards the transformational change we need in transport to keep global heating below 1.5°C and to stop momentous nature destruction and biodiversity loss.

A looming energy shortfall amid uncertainty about gas supplies from Russia has sparked a renewed demand by the industry in a bid to switch gas for oil for production or power generation, expected to further drive up the price of oil products, increasing scarcity on the market and worsening the energy and cost-of-living crisis.

Against the backdrop of these interwoven crises, the mobility sector offers a high potential for quick and effective energy saving measures - a potential that has so far been largely ignored by policy makers. In contrast to the complex European electricity market with its international interdependencies, or changes in the heating market, which are often only possible in the medium to long term, numerous energy-saving measures can be implemented in the transport system at short notice, flexibly and without high costs for those affected.

This report provides a comprehensive overview of the measures that Europe can take to respond quickly and efficiently to the energy crisis, ease the financial burden on European households and, in the process, take a decisive step toward a fair and climate-friendly transport system.

Time to drain the oil from transport and lay down the tracks for a just, sustainable mobility system

While the oil-guzzling transport system is at the heart of the multiple crises we face – it is also key to solving them. Unhooking European transport from oil is a key step towards a more sustainable and just energy and transport system.

With this analysis, Greenpeace shows the immediate impact that mobility policy decisions can have on our dependence on oil, and how this could help tackle inequality, the cost-of-living, and the climate crises.

Short-term measures in the transport sector and their effects on energy, cost and GHG emissions savings

Public transport
Introducing Europe-wide climate tickets: making public transport affordable and available for all

Public transport consumes the least energy per passenger kilometre, and is by far the most climate-friendly means of transport after walking and cycling. Access to public transport is also key to ensure people can meet their daily basic needs in a sustainable manner, such as getting to and from work, going to the doctor or grocery shopping. Public transport is the mode of transport that puts the least financial pressure on users.

Road transport accounts for half of the EU´s oil demand, and more than 60% of this is used by cars. Put differently, around 30% of all oil used in the EU is burnt by cars. Trains in the EU only emit an average of one quarter of the CO_2 emitted by cars per passenger kilometre, while urban buses emit less than half of the emissions of cars. However, in some regions in Europe, public transport is relatively expensive, forcing many people to use private cars for cost reasons, and in some regions, public transport is not yet sufficiently available or accessible.

In order to save energy, tackle the climate crisis and reduce social inequality, Greenpeace is calling on European leaders to make public transport, meaning long distance trains as well as local and regional transport, affordable and available for all.

How?
The best way to increase public transport use is to introduce affordable and subsidised "climate tickets", as has been done in Austria[3], Luxembourg[4] and – temporarily – in Germany with the €9 ticket for the summer of 2022. The price should be affordable for everyone living in Europe, and even further reduced for socially disadvantaged groups, like people with disabilities, low-income households, youth, families and elderly people.

Public transport must become more inclusive, accessible, and the most affordable motorised means of transport, so that, in the future, no one has to rely on a private car or plane for reasons of cost or access. Furthermore, wherever vehicles and the necessary staff are available and there is demand, additional public transport services should be provided. In most places this could be ordered and financed by the governments. As the purchase of new vehicles usually takes years, additional services are dependent on the availability of vehicles. In times of crises, prolonging the lifetime of existing vehicles can be an option to increase the number of services and connections for many transport companies.

Last but not least, governments should also set out immediate measures to increase the average speed of public transport. On one hand this makes public transport more attractive, and on the other hand it increases capacity (more people can be transported at the same time). Examples of such measures are: pop-up bus lanes, shorter waiting times at red traffic lights and moving private cars to roads not used by public transport to reduce delay

Who can fix this?
National and/or regional governments can immediately introduce affordable climate tickets for rail and public transport in their territory, following the examples of Austria and Germany.

To promote a Europe-wide rollout of affordable and climate-friendly green ticket systems, Greenpeace is calling for strong coordination and financial support from the EU to member states, and guidance from the European Commission on how national governments can establish an adequate system. This guidance should also include recommendations for counter-financing, e.g. through the elimination and redistribution of climate-damaging subsidies and windfall profit taxes on fossil fuel companies. The EU must guarantee the interoperability of systems as well as effective collaboration and coordination among stakeholders to build a Europe-wide ticketing system.

Additionally most governments can order transport companies to increase the number of connections, which can be done more or less immediately if vehicles and staff are available.

What is the impact of this measure?
Cars in the EU consume around 170 million tonnes of oil[5] annually, accounting for about 537 million tonnes of CO_2. According to the EEA, data on occupancy rates for public transport is generally difficult to obtain. An evaluation of the German 9-Euro ticket has shown that the share of people with a public transport

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[3] The climate ticket for all public transport in Austria costs around 1,000 euros per year, the one for Vienna alone costs 365 euros.

[4] Luxembourg offers free use of all domestic public transport.

[5] Total oil consumption in EU 2019 (excluding UK) was 566 million tonnes. Around 50% of oil is used in road transport with 60% of that portion used by passenger cars (=170 million tonnes).

subscription has increased from 13 to 40%, with one fifth of them using public transport as a daily service for the first time. Rail use in June 2022 increased by 42% compared to June 2019, and most cities have reported less traffic jams compared to 2019. Despite reported problems with overcrowded trains, two thirds of the passengers were happy with the offer. The German test clearly shows that affordable tickets lead to an immediate and widespread shift from cars to public transport, without the need for time-consuming investments in vehicles and other new infrastructure. If only five percent of car trips, equivalent to five per cent of kilometres driven or one in 20 car journeys, were shifted to public transport throughout the EU, oil demand could be reduced by around 7.9 million tonnes,[6] equivalent to 25 million tonnes of CO_2.

Flights
Ban on short-haul flights, along with a reduction of business flights and private jet use

Flights have the highest climate impact per passenger kilometre of all modes of mass transportation. In the EU, regular flights emit on average five times as much GHGs as trains. In some countries, where railways already use 100% renewable electricity, such as Austria or the Netherlands, a flight emits up to 80 times more GHGs than its alternative rail connection.

Private jets are the most climate-damaging means of transport, emitting on average ten times the GHGs per passenger kilometre as regular flights. A single private jet flight from London to Nice causes the same amount of GHG emissions as an average UK citizen in an entire year. Private jet flights have their peak during the summer with Nice, Olbia (Sardegna), Ibiza, Cannes, Athens and Palma de Mallorca as typical destinations.

Greenpeace is demanding an immediate ban on short-haul flights in Europe wherever reasonable train or ferry alternatives exist, and the substitution of business flights with virtual meeting technology wherever possible. In addition, the use of private jets must be banned, if a reasonable, alternative means of transport is available. A regulation of private jets was recently suggested by the French minister of transport. On a short-term basis, at least a reduction of 50% can be achieved.

How?
As a recent Greenpeace report shows, there is a reasonable train alternative for around 80% of all short-haul flights in the EU, the UK, Norway and Switzerland, excluding flights to islands without a railway connection. If train connections where passengers have to change three times or more are included, the percentage of short haul flights that could be replaced goes up to 98%.

The second effective intervention point to reduce flights is a reduction of corporate travel.[7] Around 20% of all flights are work-related, and according to recent research from the IEA, up to 70% of these could be replaced by virtual

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[6] 5% of car trips consume around 8.5 million tonnes of oil per year, 7% of this amount was deducted to take account of the estimated use of oil for buses and diesel-powered trains. This assumption is based on data for Germany: 75% of car trips are replaced by electric public transport (train, tram, underground, etc.), 23% by buses and 2% by diesel powered trains. Cars require almost 3.6 times the energy per passenger-km than buses, the same factor was assumed for diesel trains. (Or in other words: buses reduce the demand for oil by 72% compared to cars.)
Solid literature data do not exist.
[7] Corporate travel refers to work-related flights, both for public institutions and private companies.

meeting technologies. Bill Gates, for example, expects a long-term decline in business trips of at least 50%.

Who can fix this?

According to the EU Air Services Regulation[8], EU member states are allowed to ban certain flights for environmental reasons. National governments could and should ban short-haul flights immediately where reasonable train alternatives are available. They should also require public institutions to replace business flights with virtual meeting technologies and ask companies to do the same.

The European Commission should provide a revised Air Services Regulation that includes a mandatory ban on domestic and cross-border short-haul flights across the EU where reasonable train alternatives exist.

In achieving a de facto ban on private jets, a first step towards reducing private jet flights could be to impose high taxes and fees on these flights and abolish the unfair tax benefits (no tax on kerosene) and VIP access to airport infrastructure.

What is the impact of this measure?

Banning short-haul flights in Europe and substituting business flights with virtual technology, could save around 9 million tonnes of jet fuel and 48 million tonnes of GHG emissions.[9]

Short-haul flights that already have a train alternative consume about 4.3 million tonnes[10] of jet fuel in a regular pre-pandemic year, and emit the equivalent of 23.4 million tonnes of GHG emissions, as calculated in a recent Greenpeace report. In 2019, 64.7 million tonnes of jet fuel were used in EU-28. Business flights account for 20% of this amount; with a conservative reduction potential of 40% (which is below most predictions), 5.2 million tonnes of jet fuel could be saved, which is equivalent to 27.7 million tonnes of GHG emissions (including a conservative factor of 1.7 for the non-CO_2 effects).

According to the European Business Aviation Association, private jets caused 2.12 million tonnes of CO_2 in 2019. A 50% reduction would therefore save 1.06 million tonnes of CO_2 per year (or 1.8 million tonnes of GHG emissions), which is equivalent to around 0.35 million tonnes of jet fuel.

Cars
Working from home, lower speed limits and efficient driving

Around 30% of oil in the EU is used for cars, making them an obvious lever to cut the energy demand in the transport sector. Apart from shifting to public transport and cycling, reducing the number of car trips and more efficient driving, especially lowering speeds, are effective strategies to bring down the demand for oil and to reduce CO_2 emissions.

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[8] An EU regulation that sets e.g. traffic rules, customer rights, the control of EU carriers, granting of licences and price transparency in the European aviation market

[9] Calculation for short-haul flights: business trips account for 20%, 40% of business flights can be replaced. Therefore, around 1.9 million tonnes out of the 23.4 million tonnes of GHG emissions (CO_{2e}) and 0.35 million tonnes out of the 4.35 million tonnes of jet fuel are already included in the overall business trip estimation.

[10] 23.4 million tonnes of GHG is equivalent to 13.8 million tonnes of CO_2, considering a factor 1.7 for non-CO_2 effects for short-haul flights. 1 ton of jet fuel releases 3.16 tonnes of CO_2 when burned.

How?
The easiest way to drive less is to stop commuting to work and switch to teleworking wherever possible. Commuting is one of the main reasons for daily travel in the EU, which varies between 27% of the overall total distance covered in Germany and 47% in Croatia (data for only 12 EU countries is available). In the wake of the COVID pandemic, many institutions and companies have introduced home working solutions. Greenpeace is calling on employers and governments to continue, reintroduce and/or strengthen home office agreements and regulations. In addition, as the current occupancy rate of cars in EU countries is only at around 1.45 people per car, there is good potential for car sharing, especially for commuting. Employers can support this with more flexible working hours and internal networking organisation tools, for example. European governments can encourage car-sharing with direct or indirect financial support, and offer certain advantages to carpoolers (e.g. cheaper parking and access to bus lanes for fully occupied cars).

Reducing speed limits is the single most effective measure to reduce the fuel demand of cars. Fuel consumption per kilometre drastically increases according to the speed, rate of acceleration and need for braking. Depending on the type of car, fuel consumption increases by around one third between 100 km/h and 130 km/h, and by two thirds between 100 km/h and 160 km/h.

Another way to reduce the amount of fuel used by cars is to take other measures for more efficient driving. There are dozens of smaller and larger measures drivers can take to save fuel: turning off the engine at red lights, offloading unnecessary weight, using less air conditioning and seat heating, driving in the highest gear possible according to road conditions and reducing the need for braking are just a few examples.

While governments should promote more efficient driving (via all forms of public information channels), Greenpeace is asking for legal reductions[11] to the speed limits on motorways, on country roads and in cities.

In the longer term, phasing out the internal combustion engine in combination with a reduction of the average car size and of the total car fleet is decisive to ending the oil dependency, as will be further explained in the following section. Lower speeds reduce the risk of accidents, and therefore the number of people killed or injured, and their costs. There is also a reduction in other pollutants, like nitrogen oxides, and noise.

Who can fix this?
Almost all relevant driving regulations and related measures for car usage are in the hands of national, regional and/or local governments. However, in the current context, the EU institution should push for all member states to lower speed limits in order to save oil and lower emissions, and in the continuity of road safety recommendations they have already made.

What is the impact of this measure?
Working from home: During the COVID pandemic, 33.7% of employees in the EU were fully teleworking, with a further 14.2% partly working from home. A leading research institute has calculated a teleworking potential of 45% for Austria. A recent calculation by Greenpeace Germany has shown that if 40% of employees

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[11] All EU countries have legal speed limits on all roads, except Germany on its motorways. Therefore, the precise demand for the German government is to "introduce a speed limit on motorways".

continue or restart working from home on two more days per week than before the COVID crisis, fuel consumption would be reduced by 3% in Germany. Comprehensive and comparable data does not exist for the whole EU, however data from 12 EU countries show that Germany has the lowest share of commuting. Therefore, the potential for the whole EU is very likely higher than 3%. When the fact that the German car fleet has one of the highest CO_2 emissions per km in the EU is also considered, Greenpeace conservatively estimates that fuel consumption in the EU could be reduced by 3% through teleworking on two more days a week compared to the level before the COVID crisis, amounting to CO_2 savings of around 16.1 million tonnes – equivalent to around 5.1 million[12] tonnes of fuel.

Car sharing: If the occupancy rate of around 1.45 people/car were increased by 5% to 1.52, 4,6% of car trips would be reduced. This amounts to oil savings of 7.8 million tonnes, equivalent to 24.7 million tonnes of CO_2.

Speed limits: In a country like Germany, where a speed limit does not even exist on most motorways, speed limits of 100 km/h on highways and 80 km/h on country roads could reduce total fuel consumption by 4.6%. A new study from the more mountainous Austria, which evaluates speed limits of 100/80/30 instead of 130/100/50, even expects CO_2 reduction of 10%. The potential for savings differs between EU member states, since there are significant differences in speed limits, driving styles and car fleets. While there is a lack of proper EU-wide data, Greenpeace conservatively estimates that reducing all speed limits by 20 to 30[13] km/h in all EU countries could save around 3% of car fuel consumption and the CO_2 emissions – leading to reductions in CO_2 emissions of around 16.1 million tonnes per year, equivalent to 5.1 million tonnes of fossil fuel.

More efficient driving: According to the German car drivers association ADAC efficient car driving can save up to 20% of fuel. This saving does not include savings from driving more slowly. Data on the total saving potential is not available. Greenpeace believes that with intense, publicly funded information initiatives, at least 5% of fuel can be saved by more efficient driving. This would lead to a reduction in oil demand of 8.5 million tonnes per year, which is equivalent to 26.9 million tonnes of CO_2.

Transportation of goods
Shift goods from road to rail, reduce distances for goods

The transportation of goods by road is almost entirely dependent on oil-burning vehicles. Electric trucks are only used in pilot projects for low weight and short distances. In 2020, road freight transport accounted for 77.4% of total domestic freight transport in the EU (followed by rail with 16.8%) - a 3.9% increase compared to 2012. Rail freight transport only increased by 2.3% during the same period.
The European railway system is predominantly powered by electricity, only a few local lines are not electrified and are powered by diesel engines. According to data from the European Environment Agency, average CO_2 emissions per tonne kilometre from road freight transport are 5.7 times those of rail freight transport. Greenpeace is calling on European leaders to immediately shift freight transport from road back to rail, making full use of existing rail capacity.

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[12] This corresponds to 3% of the 170 million tonnes of fuel consumed by cars.
[13] A reduction of 30 km/h refers to countries where 130 km/h are allowed on motorways.

How?

Governments should ban the transport of certain goods by road, following the example of Austria, which bans the transportation of waste on the road over a distance of more than 100 km, if a train alternative is available. In addition, financial incentives are needed to make rail more competitive, while unfair incentives and benefits that are currently in place for road transport must be abolished. Examples include direct subsidies and reduced taxes for rail transport.

In the long term, however, the amounts and distance over which goods are transported must also be reduced. Instead, we need an economy of short distances and with less consumption and longer-life products.

Who can fix this?

National governments should ban the transport of certain goods by road where certain distances are exceeded and rail is an option. This could be done at EU level, but for short-term success it makes more sense to start at national level. Typical goods to be banned from road transport include, but are not limited to, waste, fuels, feed, construction materials, raw materials of any kind and new cars. Considering the time-consuming logistics systems for loading and unloading, rail is a realistic option for distances over 100 km – notwithstanding the fact that, from an environmental point of view, rail transport is clearly better than trucks over shorter distances as well.

In addition, national governments must make rail more attractive compared to trucks, especially granting greater financial support for rail freight transport. The European Commission could take the lead on improving pan-European freight transport, make recommendations, introduce support measures and facilitate the implementation of subsidies.

Shifting transportation from road to rail would impact the job market for truck drivers. However, given the current shortage of drivers, the effect on employment would likely be mitigated short-term. On a more long-term perspective, governments must ensure a just transition for truck drivers and transport workers into sustainable logistics jobs, e.g. in the area of public transport. An increase of public transport would create a need for additional bus drivers – truck drivers could transition into this role. And thirdly, improved working conditions in the trucking sector – such as a reduction of working hours – could also mitigate the effects on employment.

What is the effect?

Road transport accounts for around half of the EU's demand for oil, with more than 60% of this used by cars and around 40% by trucks and vans. Put differently, around 20% – 113 million tonnes[14] – of all oil used in the EU is burnt for the transport of goods on roads. Even if only 3.4% of freight transport by road could be shifted to rail on a short-term basis, with road freight's share decreasing from 77.4% (as in 2020) to 74.8%[15] (as in 2012) and rail freight's share increasing from 16.8% (as in 2020) to 19.1% (as in 2012), the EU could cut its oil demand by around 3.8 million tonnes[16], which is equivalent to 12.1 million tonnes of CO_2.

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[14] Total oil consumption in EU 2019 (excluding UK) was 566 million tonnes. Around 50% of oil is used in road transport with 60% of that portion used by passenger cars.

[15] 77.4% minus 3.4% (77.4-77.4*0.034) = 74.8%

[16] The savings were reduced by an estimated 5%, since there are still some railway lines in the EU which run on diesel. Most transport of goods by rail are for distances longer than 500 km and are therefore mainly using the long distance rail network, which is predominantly electrified. Diesel engines therefore are mainly used for the first and last miles of the respective transport. Data on the share of diesel vs. electrified transport of goods on rail does not exist.

Non-motorised mobility
Improving the infrastructure for cycling and walking – more space for people, less space for cars

Cycling and walking are the greenest ways to get around, especially in cities, and are completely independent from oil.[17] However, the infrastructure of most cities in Europe is centred around cars. Greenpeace is calling on governments to promote a change from polluting to sustainable mobility habits by creating space for active mobility, introducing car-free zones and expanding cycling and walking infrastructure. The European Commission and national governments should promote and increase funding for active forms of transport.

How?
While a full transformation of cities will take decades, there are many immediately effective measures that could re-allocate space from motor vehicles to walking and cycling. During the COVID crisis many cities proved that new bike lanes can be installed quickly. The same is true of other infrastructure for cyclists, like more and safer parking spaces for bikes. Changes in the timing of traffic lights, to give preference to walkers and cyclists, can have a positive effect too. The safety of non-motorised mobility can be significantly improved with lower speed limits and car and truck-free zones.

Who can fix this?
Usually, local governments and mayors are responsible for urban planning and mobility measures. The EU and national governments can promote and increase funding for alternative forms of transport.

What is the effect?
The short-term effects of these measures on the energy demand and GHG emissions of the transport sector are difficult to estimate. In most opinion polls, safety and bad infrastructure are among the top reasons why people do not use bikes – however, it is unclear how many people would actually switch from car to bike if infrastructure was to be improved. Copenhagen, as one of the cities with the best cycling infrastructure in Europe, has 41% bike use and 26% car use. On the other hand, Madrid and Budapest have only 1 to 2% bike usage, which shows the scale of the potential for bike use in these cities.

Greenpeace Germany has calculated that fuel demand for cars in Germany would decline by 2.9% if all Germans cycled as much as the Dutch. Considering that the existing German cycling infrastructure is above the EU average, a conservative estimate is that around 2% of the distances travelled by car could be replaced by walking and cycling in the EU on a short-term basis. With the average annual mileage of passenger cars in the EU at around 12,000 kilometres, 240 kilometres per car need to be moved to bicycles or walking. Reducing car journeys by 2% would save 3.4 million tonnes of oil, equivalent to 10.7 million tonnes of CO_2 annually.

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[17] The use of crude oil for the production of plastic bike and shoe parts is not considered relevant here.

Summary of the effects of the short-term measures

Area	Measure	Potential GHG / CO_{2e} reductions annually (in million tonnes)	Potential fuel savings annually (in million tonnes)	Share of impact of the measures (% of the total oil reduction potential)
Public transport	Affordable climate tickets for all	25	7.9	15%
Flights	Ban on short-haul flights	23.4	4.3	8%
	Reduction of business flights	27.7	5.2	10%
	Ban of private jet use	1.8	0.3	1%
	All three measures combined	51	9.5	19%
Cars	Teleworking	16.1	5.1	10%
	Car sharing	24.7	7.8	14%
	Lower speed limits	16.1	5.1	10%
	Efficient driving	26.9	8.5	17%
	All four measures combined	83.8	26.5	52%
Transport of goods	Shift goods from road to rail	12.1	3.8	8%
Non-motorised mobility	Improving the infrastructure for cycling and walking	10.7	3.4	7%
Total:		178.9	51.2	100%[18]

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[18] Figures may not add up to 100% due to rounding.

> The total saving of 51.2 million tonnes of oil is equivalent to 13% of the total oil demand in the transport sector.

> All measures together could reduce the car fuel consumption in the EU by 22.2% (37.8 million tonnes out of 170).

Effect of measures on cost savings

As governments seek to reduce costs and save energy, transport presents huge potential savings for both economies and consumers. Every day EU economies spend around 748[19] million euros on transport-related oil imports, much of which goes to countries with questionable human-rights records such as Saudi Arabia, and Iraq.

The short-term measures proposed for five areas of mobility – public transport, flights, cars, transportation of goods, and non-motorised transport – could significantly cut the need for energy, and save EU economies around 50 million tonnes of oil and/or petroleum product imports annually, given the EU is almost entirely dependent on non-domestic crude.

With the current crude oil price of 98 USD per barrel[20], EU economies could save at least 36 billion euros per year[21,22] on transport-related energy spending (or 98 million euros per day, which is 13% of the total oil imports from transport at 748 million euros per day). This money would no longer support the economies of conflict-ridden countries with questionable human rights records.

By only implementing the four measures related to car usage (teleworking, car sharing, lower speed limits and efficient driving), the fuel demand for all cars in the EU would be reduced by around 26.5 million tonnes[23] per year. European car drivers can – at a current average price of petrol and diesel of 2 euros per litre – save 67 billion euros per year[24].

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[19] See the following 2 footnotes

[20] One barrel of Brent crude oil costs 98 USD as per 1.9.2022.

[21] This amount was calculated based on crude oil imports. If the savings lead to reduced imports of petroleum products, like diesel, the benefit for the EU's economy would be even higher.

[22] One barrel of crude oil is equivalent to around 0.136 metric tonnes (50 million tonnes of crude oil is equivalent to 357 million barrels). 1 USD currently equals around 1 EUR.

[23] Basis of this calculation: 1 litre of fuel weighs 0.79 kg (average between petrol and diesel); 26.5 million tonnes of car fuel equal 33.6 billion litres.

[24] EU Oil Bulletin (September 2022):
https://energy.ec.europa.eu/data-and-analysis/weekly-oil-bulletin_en#maps-with-fuel-prices-in-euro

Mid- and long-term measures to save energy in the transport sector

While GHGs from other sources have dropped, emissions from transport have continued to climb in the EU. Transport-related emissions were [29% higher in 2019 than in 1990](). Transport alone is responsible for almost [30% of EU emissions]().

To tackle the rising emissions in the transport sector and to deliver on the Paris climate goals, Greenpeace has developed a [roadmap for decision-makers to decarbonise the European transport sector by 2040](), powering it with renewable energy, without relying on false solutions such as biofuels. The analysis describes how Europe can swiftly revolutionise the way people and goods move, and deliver a fair EU contribution to limiting global warming to 1.5°C.

Based on this "Transport Roadmap 2040", Greenpeace calls on European leaders to introduce the following mid and long-term measures to cut Europe's dependence on oil for transport entirely by 2040:

1. Boost rail and public transport

Railways and other rail-bound vehicles are the most climate-friendly motorised means of transport. According to the Greenpeace [Transport Roadmap 2040](), a massive shift from road and air transport to rail is essential, for both passengers and freight. This scenario assumes that between 2020 and 2040, private vehicle use could decrease from an average of 62% to 42% in large urban areas (with city centres falling far below this figure) and from 79% to 68% in non-urban areas. The share of freight going by rail needs to increase from 15% to 36% by 2040.

As outlined in the section on short-term measures, cheap and simple climate tickets for public transport are key to getting people to switch from cars and planes to community-serving transport. While it is relatively simple to introduce climate tickets on a national level, as they already exist, introducing cross-border climate tickets is more challenging due to the many differences in public transport systems. The EU institutions and all EU member states must start working together to develop cross-border climate tickets, with the final goal of having one affordable climate ticket for the entire EU, that is available for all.

A comprehensive package of measures is essential to boost rail and public transport. Since 2021, the European Commission has intensified its work on improving rail, as outlined in their presentation of its ambitious "[action plan]() to boost cross-border rail connections". There are a wide range of proposed measures, including investments in rolling stock and infrastructure, the introduction of new cross-border connections, a united ticketing system, and legal and technical harmonisation of the various railway systems in Europe. While the plan so far looks promising, the EU has not yet taken sufficient steps to implement its plans. These will require legislative processes and/or binding plans agreed between railway companies and EU member states.

Greenpeace calls for further public investment into rolling stock and rail infrastructure, and for priority to be given to the improvement of existing lines over large investments in new high-speed rail networks. Improvements to existing lines will lead to faster results, whereas the construction of brand-new routes is often linked to severe destruction of nature and biodiversity.

In addition, the general need for transport of goods has to be reduced, e.g. by bringing supply chains for goods as close as possible to the final market, by promoting local markets, by prolonging the life-time of products and by keeping goods recycled and reused within population centres.

How?

Railways and other rail-bound vehicles such as trams are the most eco-friendly means of motorised transport. Their CO_2 emissions per passenger kilometre (pkm) are by far the lowest of all <u>motorised</u> transport. In the EU, trains produce an average of <u>30</u> grams of CO_{2e} per pkm, while fossil fuel-powered cars produce 142 grams and regular flights 160 grams – not to mention private jets with 1000 grams. In some countries, railway companies have already switched to 100% renewable electricity: in Austria, for example, specific direct rail emissions are as low as <u>4.4</u> grams of CO_2 per pkm, the low remaining emissions being attributable to some diesel engines used on non-electrified lines.

The average EU emissions for rail freight are 82% less than road, with <u>137 grams of CO_2 per tonne kilometre (tkm) for road transport and 24 grams for rail</u>, based on the average EU electricity mix. In countries where railways use 100% renewable electricity, such as Austria, this figure is reduced to <u>1.8</u> grams of CO_2/tkm.

Buses in the EU emit an average of <u>80</u> grams of CO_{2e} per pkm, which is 44% less than cars. CO_2 emissions from bus fleets can be easily reduced by increasing the share of electric buses (battery and trolley buses), which are already fully available for urban and suburban use. Apart from the CO_2 savings, buses have major advantages especially for the liveability of urban areas, due to the clearly reduced need for space, less noise and the lower risk of accidents compared to cars.

2. Reduction of flights

Aviation is the <u>most polluting</u> and energy intensive means of transport per passenger kilometre. Per passenger emissions of private jets are, on average, tenfold of regular flights. Even with the most climate-friendly fuels, aviation's energy consumption will always be much higher than that of rail. In addition, the <u>total climate impact of flying is bigger than just CO_2</u> and the non-CO_2 effects have to be considered too. Aviation is the <u>fastest growing source of GHG emissions</u> in the EU (+29% between 2009 and 2019). In 2018, aviation accounted for <u>9%</u> of the EU's oil consumption, and for around <u>4%</u> of all the EU's GHG emissions, equivalent to around <u>150</u> million tonnes of GHG annually.

How?

In order to decarbonise the European transport sector, by 2040 the total passenger kilometres flown in the EU will need to have dropped by 33% compared to 2019, based on calculations from Greenpeace's <u>Transport Roadmap 2040</u>, which assumes that there will be sufficient production of synthetic aircraft fuel based on sustainable and renewable electricity available at a commercial scale by then. However, "E-fuels" such as electric and hydrogen-powered aircraft are a long way from being available at a commercial scale, meaning passenger air travel wouldhave to decrease much further.

The quickest way to reduce the number of flights is a ban on short-haul flights, when a train or ferry alternative is available. As proposed in the section on

short-term measures, around 80% of all short-haul flights in Europe can currently be replaced by a reasonable train alternative. However, in the long term, the reduction target for passenger kilometres in aviation can only be achieved when mid and long haul flights are also reduced. Business flights offer a good opportunity for reduction with advanced online communication tools.

Who can fix this?

The ongoing review of the EU Air Services Regulation – a key EU regulation that sets out a number of measures including: traffic rules, customer rights, the control of EU carriers, granting of licences, and price transparency of the European airline market – offers an opportunity to implement a ban on short-haul flights in all EU countries. For this to happen, the European Commission has to include a ban in its upcoming legislative proposal, and the EU Council and Parliament have to agree. Under the current version of the Air Services Regulation, EU member states already have the right to ban certain short-haul flights based on environmental concerns. However, this option is only being used by France to ban a few ultra-short haul domestic flights without a significant effect on the climate impacts of flights. In order to cover as many flights as possible where a train alternative exists, the European railway system needs to be massively improved, as will be shown in the next section.

A reduction of business flights is mainly in the hands of large corporations and public institutions, which have the largest numbers of staff flying as part of their jobs. Typical sectors with many business flights are international consultants and the whole finance sector. EU, national and regional leaders can directly ask their public institutions to reduce business flights.

The use of private jets can be reduced by a ban, when a reasonable alternative exists, introducing high fees and taxes, which should be used for green investments, and by abolishing unfair advantages of private jet usage like tax exemptions for kerosene or VIP access at airports.

A ban of short-haul flights as well as a reduction of the overall number of flights will undoubtedly have negative effects on employment in the aviation sector. Greenpeace is therefore calling on governments to ensure that the affected workers will get enough financial support to compensate for their individual loss, and more importantly, to ensure a just transition of workers to other sectors. The rail and public transport sector in particular will have an increased demand for qualified staff and could offer good opportunities for many aviation workers.

What is the effect?

The two short-term measures, banning short-haul flights and replacing business flights, could cut greenhouse gas emissions by around 36.6 million tonnes annually - which is a bit less than a quarter of all aviation emissions in the EU including international flights (around 152 million tonnes). The remaining GHG emissions from flying in the EU (more than 115 million tonnes) have to be steadily brought down to zero over the next 20 years. This can be partly achieved by moving to rail following improvements in the infrastructure of currently slow or non-existent rail connections, further reducing the need to travel by air. The remaining flights would only be possible if they could be powered by non-fossil fuels, such as e-fuel made from renewable electricity.

3. Phase out new fossil fuel powered vehicles by 2028

In the EU, road transport is the single largest user of oil within the transport sector, which in turn consumes more than two thirds of the oil in the EU. Greenpeace is calling on European leaders to phase out the sale of new cars and vans with internal combustion engines (ICEs) across the EU by 2028 at the latest. The current proposal by the European Commission to only allow registrations of new cars which are 100% zero-emission vehicles by 2035 is not soon enough to limit global heating below 1.5°C. In order to achieve the EU's contribution to the Paris Climate Agreement, the European transport sector must be fully decarbonised by 2040: considering that vehicles have an average lifetime of around ten years, 2028 is the latest possible deadline to phase out new ICE cars.

While the European Parliament agreed to the proposal by the European Commission in June, the EU Council of Environment Ministers has not agreed yet.

How?
The electrification of road vehicles needs to be implemented as part of a package of various measures. Besides the ban on ICE cars, the development of infrastructure for electric vehicles, especially the production of sustainable and renewable electricity and a dense network of functional charging stations, needs to be speeded up, together with measures to promote car sharing and a shift from cars to public transport, walking and cycling wherever possible. The phase-out of the ICE will also have a social dimension, as an increasing number of jobs in fuel production and distribution will become obsolete. Greenpeace is calling on governments to ensure a just transition for affected workers, with priority given to support measures relocating them to other more sustainable transport activities and sectors such as renewable energy generation and distribution.

Companies can massively contribute to speeding up the shift from ICEs to electric vehicles by electrifying their car fleets. Almost 60% of all new cars in the EU are registered by companies, which therefore represents a larger leverage on the market than individual consumers.

The phase-out of ICEs must be accompanied by three measures:
- The electricity supply for all vehicles must come wholly from renewable and sustainable sources.
- A reduction of the car fleet and an increase of the occupancy rate. The Greenpeace Transport Roadmap 2040 has calculated a reduction of the light vehicle fleet size by 27% by 2030 and by 47% by 2040, compared to 2015 levels, as well as an increase of the occupancy and utilisation rate for all remaining passenger transport by 25%.
- Promoting lighter cars and taking heavy and highly polluting cars off the road

Who can fix this?
The EU Council of Environment Ministers has the power to accelerate the phase-out of new ICE vehicles proposed by the European Commission, and to bring it forward from 2035 to 2028 at the latest. They must also strengthen the planned gradual CO_2 car emissions standards between now and 2028. EU member states can also ban the sale of new ICE cars in their own territory.

What is the effect?

Phasing-out ICE vehicles is one of the most important steps to decarbonise the transport sector, since [almost half](#) of the oil consumption in the EU is due to road transport, and within the transport sector, roads account for around [70% of greenhouse gas emissions](#). A quick decision to phase-out new ICE vehicles by 2028 would begin to have measurable impacts from 2023 onwards, deterring carmakers from developing new ICE platforms (the key part of a car which new models are based on) and cars. By introducing this measure, the EU could cut its annual fuel demand by 800,000 tonnes in 2023, which would reach [4.5 million tonnes](#) by 2028, equivalent to 2.5 million tonnes of CO_2 and 14 million tonnes respectively. Fuel savings and CO_2 reductions will accumulate over the years. Compared to the Commission's 2035 proposal, a phase-out of ICEs by 2028 will save a total of approximately 470 million tonnes of fuel and reduce CO_2 emissions by 1.5 billion tonnes.

4. A quota for green fuels for remaining aviation and shipping – *based on sustainable and renewable electricity*

In a future mobility system, fit for achieving the Paris Climate Agreement, sustainable and renewable electricity will be the main form of energy. Fuels made from waste will only have a small niche function due to the limited availability of waste and the need for a circular economy. Neither biofuels nor nuclear energy will ever be a suitable replacement for fossil fuels in the transport sector, due to their inefficiency, and the threats they pose to the environment, the climate, and humanity's future. While electricity-based technology for land transport is already widely available (trains, tramways, trolley buses, e-cars, etc.) or relatively close to becoming mainstream (e.g. vans, buses, freight), alternative technologies for air and waterborne transport do not yet exist on a large scale.

There is little indication that the aviation and shipping sectors will achieve decarbonisation through voluntary measures. While many of the leading airlines have pledged to become carbon-neutral by 2050, the measures they propose to back this up are insufficient or non-existent. Firstly, achieving carbon-neutrality by 2050 will be at least 10 years too late to keep global heating below 1.5 °C. The European transport sector has to be decarbonised by 2040.

Secondly, carbon-neutrality is something entirely different from decarbonisation: instead of reducing flights and phasing out fossil fuels, most airlines claim to aim at reducing emissions by buying carbon offsetting certificates or betting on environmentally-damaging agrofuels. Therefore, political action is needed to focus on the reduction of flights, and to introduce binding quotas for solutions based on sustainable and renewable electricity, leading to an obligatory full phase-out of fossil fuels by 2040 at the latest.

How?

Electric batteries or direct supply of electricity do not seem to be options for large ships and aircraft since the batteries would have to be super large and heavy. Therefore, the best solution for the decarbonisation of aviation and shipping will be reduction, and for the few remaining flights and ships the challenge will be to develop and produce wind power for ships and burnable fuels from renewable electricity, e.g. synthetic e-kerosene or green hydrogen. From today's point of view, e-kerosene is considered as the most likely non-fossil fuel for aviation, while green hydrogen and ammonia are likely to be the main fuels for

shipping. Since these fuels will never be available to cover today´s aviation demand – and even if they can be produced at a large scale they will always be more expensive than fossil fuels – the change in fuel type can only ever be additional measures subsequent to a significant reduction of the need for air transport, as outlined in the previous chapters.

Since these types of fuels do not yet exist at a commercial scale, and will not do so for many years to come, aviation and shipping industries have to be mandated to invest in the development and use of these fuels through a binding fuel mandate combined with a reduction in transport needs for aviation and the development of clean alternatives (e.g wind assisted shipping). The quotas could start at a low level, but need to increase exponentially to reach 100% by 2040 at the latest. The legislation required must exclude false solutions, which will be outlined later in this analysis.

Who can fix this?
Such quota systems can be implemented at the level of the European Commission. The EU Commission made a proposal for sustainable aviation fuels in July 2021, but this proposal is not ambitious enough. It only foresees a share of 63% for alternative fuels by 2050, while calculations by experts show that only a 100% quota for synthetic fuels made from 100% renewable electricity will result in a decarbonisation of the aviation industry by 2040. The European Parliament improved the European Commission's proposal by increasing this share to 85% by 2050, and the Council of Environment Ministers is yet to adopt its own position ahead of the negotiations between the European Commission, European Parliament and the European Council. Greenpeace will push for all three institutions to further improve the proposal.

What is the effect?
The effects of this measure will unfold over time. Greenpeace's Transport Roadmap 2040 calculates a linear uptake of renewable e-fuels in aviation from 2030 onwards. By increasing the efficiency of fuel by 30% up to 2050 and reducing passenger kilometres by 33% up to 2040[25], the EU could cut its GHG emissions by a further 69 million tonnes by 2035 and 114 million tonnes till 2040.[26] But these measures would have to be combined with phasing-out short-haul flights and replacing a large part of business flights with virtual technology. The emissions reduction by 2040 would mean a full decarbonisation of the aviation sector compared to 2019 emissions.

In 2019, the EU's maritime transport was responsible for 144 million tonnes of GHG emissions. Replacing 10% of fossil fuels with green hydrogen by 2030 would save 14.4 million tonnes of GHGs per year, and a projected 50% share by 2035 would save 72 million tonnes of GHGs annually, according to the Greenpeace Transport Roadmap.

5. Rebuilding of urban infrastructure

About 75% of the EU´s population lives in urban areas, and this trend is increasing. More walking and more cycling means that spaces for cars can be used for people -- to meet, for recreation, for sports and so on. On average, cars are unused for more than 90% of the time, and are only used for 1.45 people.

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[25] These assumptions were used in the Greenpeace Transport Roadmap 2040.
[26] In 2019, the EU's greenhouse gas emissions from aviation were around 152 million tonnes.

Therefore cars are currently a very inefficient way of using steel and space. In addition to reductions in GHG, fewer motorised vehicles leads to less air pollutants such as fine dust and nitrogen oxides, and less noise in cities. And last but not least, walking and cycling also have an added value for public health.

How?
The mobility infrastructure of most European cities needs to be fundamentally replanned and changed from the current car-centred approach to a people-centred approach. In the future, walking and cycling will be the preferred choice for short urban distances, and public transport powered with sustainable and renewable electricity for longer urban distances. The use of private cars, including electric vehicles, needs to be significantly reduced and should be limited to those who cannot use bikes or public transport. In some cases, such as for emergency reasons, the transportation of goods, work tools, or large luggage, where public transport is not available, electric vehicles would be viable alternatives. City centres should become car-free zones, with only a very few exemptions.

Who can fix this?
The European Commission should make sustainable urban mobility plans (SUMPs) that are in line with the 1.5°C goal of the Paris Agreement and include mandatory car use reduction measures for cities across Europe. In line with this, it must only grant access to EU funds to member states for the implementation of mobility plans if they are in line with the SUMPs. In most cases, in member states the mayors and/or city councils are responsible for the implementation of urban plans.

What is the effect?
While this measure is difficult to quantify individually, in the [Greenpeace Transport Roadmap](#) it is considered to be the main contribution to decarbonising the European mobility system by 2040. It can be asserted that urban infrastructure which prioritises people over cars will enable a shift away from fossil fuels in the transport sector.

Social and financial principles

Windfall profit taxes
Stop oil companies from crisis profiteering

The oil industry is reeling in record profits made on the back of the war in Ukraine and the energy crisis: [Research](#) commissioned by Greenpeace CEE shows that the oil industry made at least 3 billion euros in crisis profits, through the sale of diesel and petrol in Europe, within the first month of Russia's invasion of Ukraine. This amount is expected to have multiplied since then. For example, French oil giant Total, reported a profit for the second quarter of 2022 that was [3.4 billion euros](#) higher than in the same period of the previous year, corresponding to a 2.6-fold increase. People were hit by soaring prices at the petrol pump as a result of the oil industry ramping up their prices.

Europe's heads of state and national governments must stop oil companies from war profiteering by taxing their excessive crisis profits. The funds raised should be used for social compensation payments to help households with limited means meet their short-term energy and

transportation needs, and to accelerate the transformation of the oil-dependent transportation sector into a mobility system that serves the people and the planet.

In a reaction to Russia's invasion of Ukraine, the European Commission has already confirmed in its REPowerEU Communication that member states can consider taxing the windfall profits of the whole energy sector. At the same time, the heads of state and governments have clearly stated that the EU must reduce its dependence on coal, gas *and* oil.

Despite this clear commitment, the European Commission has so far largely ignored the oil sector. Even the Commission's guidance on how member states could establish windfall profits, which can be found in the annex to the RePowerEU program, refers only to the taxation of electricity suppliers, ignoring the massive windfall profits that the oil industry has raked up.

Only a few member states have made use of the opportunity to impose windfall taxes and, unsurprisingly, have focused mostly on the additional profits of the gas and electricity market. Greenpeace therefore calls on the European Commission to extend its guidance to Member States on how to impose windfall taxes on the profits of the oil sector to cover this part of the energy sector as well.

Greenpeace is calling on EU leaders to rapidly reorder Europe's energy systems with large investments in energy savings, accelerate the deployment of sustainable and renewable energy, and phase out fossil-powered transport to cut Europe's reliance on all fossil fuels regardless of their origin.

Fair and green taxes

The European tax system as currently applied to transport does not reflect the environmental and climate costs of the sector. For example, rail pays taxes on energy whereas its polluting competitors, such as airlines, are exempt. Road freight does not necessarily pay fees for the use of the conventional road infrastructure, while rail freight pays fees for the use of every kilometre of infrastructure. The environmental and climate impact of road transport (cars, trucks, etc.) is far from covered by current fuel taxes. Improving the existing taxes while creating new tax schemes based on the true costs to the climate will be key in driving the transition in the transport sector. However, because many private and professional users are dependent on their current means of transport, the implementation of taxes must be fair and progressive. This could be via the reallocation of tax revenues to solutions that benefit them, through tax rebates and compensation schemes for those with limited means, and in the context of broader fiscal reforms that really serve the people and the planet.

Without a strict application of both the user-pay and polluter-pay principles, fair competition will not be possible between transport modes, and the necessary reduction of the most polluting transport modes will not be achieved.

Fair support for households

In response to rising fuel prices and energy costs, EU governments have introduced and announced rebates and fuel tax cuts. Curbs on fuel prices and VAT reductions on petrol and diesel seem to make sense on the surface, but upon closer inspection they are driving us deeper into fossil fuel dependency. These measures have a devastating impact on the climate and exacerbate social inequalities. General VAT reductions disproportionately benefit the wealthiest households, because those who drive larger cars or have more than one car consume more fuel.

Instead of extending our addiction to fossil fuels through VAT reductions, governments must introduce measures to reduce our oil consumption, and tax the energy companies which are now making windfall profits from rising oil prices. The revenue from these taxes should alleviate the cost for households with limited means, and be invested to boost the rail and public transport system, as well as the development of alternative fuels made from renewable electricity for aviation.

As a temporary short-term measure to cushion rising energy bills for low-income households, Greenpeace is calling for targeted support for those who are dependent on their cars for commuting, education or to meet family and friends. The most beneficial way to help them would be a 'social and climate' support payment to cushion rising energy costs – either in the form of a direct transfer payment, or, for people with access to public transport, through cheap climate tickets.

Just transition
Ensuring support and a just transition for affected workers

New and additional support is necessary for the reskilling of workers employed in transport sectors which are heavily dependent on fossil fuels and therefore are bound to shrink. The reduction of car sales and in levels of air traffic that are absolutely necessary to reach climate goals will lead to the loss of jobs. The EU and national governments should anticipate these impacts and provide just transition plans and funds for the affected sectors and workers. Sustainable sectors such as renewable electricity generation and public transport are job intensive. With the right level of public investment, they could offer unprecedented levels of new job opportunities for workers. Workers and their representatives must be involved at every step to ensure that their social rights and their security (income, health) are protected in the short and the long term, and that they can gain access to decent jobs.

False solutions for reducing Europe's oil consumption

As European leaders seek a response to Russia's invasion of Ukraine and rising energy costs, they must not be taken in by the following false solutions:

1. Replacing Russian oil with oil from elsewhere

As EU governments have agreed on an embargo on Russian oil, they eye up Saudi Arabia's absolute monarchy and Nigeria as alternative suppliers. But simply switching from Russian oil to oil from elsewhere cannot and must not be the solution as it only extends our oil-addiction and the climate crisis, and shifts our dependency to other autocracies and conflict zones. It has been estimated that between one-quarter and one-half of all interstate wars since 1973 have been linked to oil, and that oil-producing countries are 50% more likely to have civil wars. Fossil fuels have a history of being connected with conflict and war – wherever they come from. Therefore governments must phase them out as quickly as possible, instead of looking for new suppliers. The key priority now has to be a reduction of the demand for oil in the EU through measures such as those described above.

Apart from the connection between fossil fuels and war, new oil exploration projects create high risks for the environment – even if they are conducted in democratic countries. For example, using tar sands as an oil source, as done in Canada, causes dramatic landscape destruction. Fracking is linked with use of toxic chemicals, and the production of fracked fossil fuels creates huge amounts of additional greenhouse gases.

2. New oil exploration in the EU

The EU currently produces only 3% of its demand for crude oil domestically, the remaining 97% is imported. The single largest supplier is Russia, followed by Iraq and Nigeria. While some politicians are entertaining renewed fantasies of oil exploration in the EU, this cannot and must not be the response to our oil addiction. For one, oil drilling and exploration have a devastating history of destroying the environment, harming vulnerable ecosystems and causing human rights infringements. The long history of oil spills around the world has made one thing clear: the only way to prevent an oil spill and other harmful consequences of oil exploration is to keep oil in the ground. New oil drilling would take years to deliver results and is not a feasible way to reduce the EU's dependency on oil. It also requires a lot of investment, which would be better used to boost alternative renewable and truly sustainable energy and to support measures to reduce the demand for oil. Instead of drilling for new oil, the EU must reduce its oil consumption, starting with the proposed short-term measures.

3. Reducing regular taxes on fuel

In response to Russia's invasion of Ukraine, several EU governments have suggested or introduced fuel price curbs and the reduction or the suspension of VAT. On the surface, this seems to make sense – making petrol available more cheaply will unburden the customer at the petrol pump. Unfortunately, this measure will only backfire and drive all of us more deeply into fossil fuel

dependency and the climate crisis. This measure also disproportionately benefits richer households, since richer people on average drive larger cars consuming more fuel and they are also often driving more.

Instead of extending our addiction to fossil fuels through VAT reductions, governments must introduce measures to reduce our oil consumption, and tax the energy companies which are now making windfall profits from rising oil prices. The revenue from these taxes should be used to provide financial assistance to alleviate increased poverty in the short term and invested to boost the rail and public transport system.

4. Agrofuels and other unsustainable alternative fuels

In an attempt to free the EU from Russian fossil fuels, some politicians and industry representatives consider biofuels an alternative to replace crude oil. Several conservative members of the European parliament have already called for a removal of certain restrictions on crop-based biofuels. However, crop-based biofuels or so-called agrofuels made from food and feed crops are associated with climate and environmental destruction, human rights infringements and a risk of global food shortages. The war in Ukraine is leading to a massive reduction of grain and plant oil exports from Ukraine, which used to be a leading export nation for these commodities. Biofuels are not only unsuitable as a substitute for fossil fuels for ecological reasons. The agricultural raw materials are now needed to produce food and save people from starvation. Therefore, the addition of biofuels to diesel and petrol should be stopped immediately.

In particular, the use of palm oil, globally the most popular and widely used oil for agrofuels, is highly problematic for the climate and the environment. Palm oil is mainly produced on plantations in tropical rainforest areas such as Indonesia and Malaysia which are associated with deforestation and devastating impacts on biodiversity, as well as food security, human rights, and access to drinking water. Palm oil is by far the worst agrofuel in terms of environmental destruction, but similar problems are linked with soy oil from the Amazon. However, even the production of European oilseed is associated with negative ecological impacts, mainly because its production consumes a lot of energy, including fertilisers made from fossil fuel, and entails a high demand for agricultural land that could otherwise be used to produce food for people. The land use for domestically produced agrofuel will therefore lead to displacement of food production and expansion of farmland globally, often associated with deforestation. Greenpeace therefore opposes the production of biofuels from food and feed crops.

In addition to agrofuels, many politicians promote hydrogen as an alternative fuel. While green hydrogen made from renewable electricity may play a small but beneficial part in our future mobility system, hydrogen made from gas or using nuclear energy is clearly a false solution.

The only acceptable alternative fuels are the ones which are made from truly sustainable and renewable electricity. However, they will never be available to cover today's demand, or in time to combat climate heating. Also, direct use of electricity is far more efficient than converting it to a liquid or gaseous chemical fuel. Fuels made from waste will also always remain as a small niche, and must not compete with the principles of waste reduction and the circular economy.

Products such as tall-oil or other by-products from the paper industry are also proposed as alternative fuels, especially in northern Europe. All these materials

are unsustainable, since the forestry methods used, such as monoculture planting and clear-cuts are unsustainable, and the proposed fuels can often have a better use as a substitute for fossil sources in textiles, batteries and other products.

The EU must ban the use of food and feed crops for any forms of bioenergy and put all subsidies and incentives for it (e.g. blending obligations) on hold. The EU's renewable energy directive must be reviewed to stop counting crop-based biofuels and biogas, including that produced from oilseed rape, sunflower and maize, and forest biomass taken directly out of the forest for energy use (primary woody biomass) as contributions to reaching the EU's renewable energy targets.

5. Unconditional bailouts for transport and energy-intensive industries

As the costs of energy surge across Europe, transport and energy-intensive companies have been significantly affected. Some industries have made renewed calls for bailouts. However, at the same time, energy companies have made record crisis profits by driving up prices for energy, such as fuel at the petrol station.

During the COVID pandemic, airlines across Europe received more than 40 billion euros in bailouts, given as loans, state aid, loan guarantee or recapitalisation. While these bailouts ensured the survival of most airlines, with the exception of Alitalia, they did not prevent a massive reduction in airline staff and did not lead to relevant improvements in the environmental and social performance of the companies.

Greenpeace is therefore very sceptical of new bailouts for transport companies. If any new bailouts need to be given in the light of the Ukraine war, they need to have strong environmental and social criteria attached to them. The key environmental criteria is a binding plan for how the company will achieve full decarbonisation by 2040 at the latest, and the plan needs to include binding targets and measures for each year. All climate reduction targets need to be defined as absolute GHG emission reduction targets, and exclude harmful agrofuels and offsetting.

From a social perspective, key criteria must relate to a just transition for workers and improvements in working conditions, such as fewer temporary contracts, binding collective agreements for all staff, reduction of pay gaps for gender, age and hierarchy and more and better inclusion measures.

Intention and methodology of the calculations

The intention of this analysis is to survey the rough scale of potential energy (oil), cost and greenhouse gas emissions savings in the EU transport sector in the short term, and mid to long-term. The basis for the long-term measures is the Greenpeace [Transport Roadmap 2040, published in 2020, on](#) how to fully decarbonise the mobility system in less than 20 years without having to rely on false solutions such as agrofuels. The proposed short-term measures focus on those transport sectors which consume most oil: passenger cars, trucks and aviation. All proposed short-term measures could be implemented within a few months - with those not requiring legislation even within days or weeks. The measures are ambitious but feasible, as long as politicians, companies and the public have the will to make them happen.

For the calculations, Greenpeace has used data from official and/or reliable sources, such as the European Environment Agency, Eurostat, the European Commission, the International Energy Agency or recognised independent research institutes. However, data on oil and oil product demands and import-export flows and the share of GHG among sectors is particularly variable even among these sources. During this research Greenpeace also discovered certain data gaps, such as the usual clustering of emissions from trucks and buses into one category, the lack of specific data for car usage for most EU countries, or reliable data for the share of business flights vs. leisure flights. For this reason, Greenpeace has had to work with certain assumptions and estimations, and has taken a conservative approach, so that the calculated results are relatively lower than the potential reality. The method of calculation and sources of data are explained in the various sections on each of the measures, mostly in the form of footnotes. The calculations were made to the best of our knowledge, and in consultation with senior mobility and climate experts inside the organisation.

Greenpeace has used the latest available data, however, when it comes to full year data, we have mostly used 2019 as the last ´normal year´ for the transport sector. Both 2020 and 2021 were very atypical years due to the COVID crises, with a very high temporary decline in aviation, a strong decline in general mobility, and a temporary move from public transport to cars.

The following factors were not considered in the research, since they would have a lesser impact on the results than the uncertainties in the key data and the assumptions and estimations used:

- We did not differentiate between petrol and diesel.
- We have used the same factor for calculating kg CO_2 from kg fuel for all fuel types.
- We did not consider losses at oil refineries during the cracking process of crude oil - which are mainly the removal of non-burnable parts of the crude oil and the energy demand of the process itself. Losses in refineries are around 2-3% of the crude oil input.
- We did not consider the jet fuel consumption for air freight. In the EU, around [2.6 billion tonne-kilometres](#) are transported in a year, which - at a specific jet fuel consumption of [0.2 kg/tkm](#) - causes 520.000 tonnes of jet fuel, equivalent to 0.8% of the total jet fuel consumption.
- We did not consider the current use of agrofuels as part of the consumption data. On average, fuels in the EU contain around 3% of agrofuels. Therefore, the use of agrofuels balances the losses in refineries,

and both factors together do not have a relevant impact on the overall results.

- We did not consider CO_2 emissions for the production of new vehicles and or new infrastructure such as new bike lanes and purchase of new public transport vehicles.
- Our calculations assumed a constant fuel consumption for cars per driven kilometre (ignoring the fact that cars consume more fuel per km in the first few kilometres when the engine is cold, or more when driving in cities).
- We used a constant factor of 1.7 for the non-CO_2 effects of aviation which is applied for short-haul flights (ignoring the fact that short-haul flights have a lower factor than long-haul flights).