CLIMATE CAMPAIGNERS

Policy Brief
Advice for a citizen-centred and climate-supportive utilisation of the COVID-19 Recovery Fund

This project has received funding from the European Union's Horizon research 2020 and innovation programme under grant agreement No. 101003815.

Date of Delivery: 06/2022

Disclaimer

Document Information

This report is Deliverable 7.5 of the H2020 project CAMPAIGNers - Citizens Acting on Mitigation Pathways through Active Implementation of a Goal-setting Network, grant agreement ID 101003815.

Disclaimer

The opinions expressed in this document reflect only the authors' view and reflect in no way the European Commission's opinions. The European Commission is not responsible for any use that may be made of the information it contains.

Please cite this report as:

Philippe COPINSCHI et al. (2022), *Policy Brief. Advice for a citizen-centred and climate-supportive utilisation of the COVID-19 Recovery Fund*. Deliverable 7.5 of the CAMPAIGNers project funded under the European Union's Horizon 2020 research and innovation programme GA No: 101003815.

Lead author

Philippe Copinschi
HEAS
Switzerland

Editors

Manfred Hafner
HEAS
Switzerland

Johannes Reichl
Johannes Kepler
Universität Linz
Austria

Contributing authors

Kathleen Stokes
National University of Ire-
land
Galway, Ireland

Sophie Callahan
ICLEI
Freiburg, Germany

Panagiotis Fragkos
E3-Modelling
Greece

Mehmet Efe Biresselioğlu
Izmir University of Economics
Turkey

Nina Klein
ECOLISE
Belgium

Ricardo Silva
ECOLISE
Belgium

Stepan Vesely Norwegian University of Science and Technology
Norway

Alkistis Florou
E3-Modelling
Greece

Laura Cavalli
FEEM
Italy

Frances Fahy
National University of Ireland
Galway, Ireland

Table of Contents

1. Executive Summary

Future historians may well conclude that this 3rd millennium began somewhere around 2020 with the outbreak of COVID-19, described as the "*last nail in the coffin of globalisation*" (Reinhart, 2020). The pandemic not only highlighted the multidimensional risks (health, economic, etc.) of our global interdependence, but also brought the entire economic system constructed since World War II to a grinding halt. The unprecedented disruption of the world's industrial supply chains and soaring inflation that affected everybody was particularly hard for the low-income segments of society.

The outbreak of war in Ukraine that followed undermined the food supply chain and raised energy prices even higher, resulting in a situation of stagflation (low economic growth and high inflation). This type of economic context has not been seen since the oil shocks of the 1970s that precipitated the abandonment of the Keynesian model and ushered in the triumph of economic liberalism.

The shock we are facing today promises to be far more disruptive than previous ones, as the current energy, food and supply chain crises take hold amidst an ongoing climate crisis.

These intertwined crises will not be resolved without questioning our modes of consumption and production, and hence our lifestyles. Being responsible for more than two-thirds of global greenhouse gas (GHG) emissions through their consumption habits (mobility, heating, food, etc.), households are at the heart of climate issues. Academic research has largely demonstrated that citizen involvement and public policies designed to address behavioural change should be key element of any effective climate policies.

The solutions are known, as detailed in the CAMPAIGNers' Deliverable D1.3: rethinking mobility (especially urban) by promoting public transport and active mobility, reducing meat consumption, and saving on heating needs by insulating houses (Copinschi *et al.*, 2022). The mechanisms that promote or, on the contrary, hinder the adoption of sustainable lifestyles and consumption are known as well. Insights are detailed in the CAMPAIGNers' Deliverable D3.1, which summarises an interdisciplinary assessment of state-of-the-art pro-climate behavioural change research and provides recommendations on the design and implementation of lifestyle challenges for the Climate Campaigners app (Stockes *et al.*, 2022).

For households to adopt more sustainable lifestyles, government support is essential, especially as establishing conducive conditions for transition requires a reorganisation of our production and consumption models: achieving sustainable lifestyles involves reducing our needs in order to reduce our overall consumption.

The provision of unprecedented resources within the framework of the Next Generation EU (NGEU) fund represents a historic opportunity for governments, as well as regional and local authorities, helping them to initiate and accelerate this transition.

The objective of this Policy Brief is to inform policymakers at all levels (European, national, regional, local) on the issues related to lifestyle changes in the context of the fight against global warming, and to encourage them to concentrate efforts and financial resources on 5 priority sectors. These sectors are identified as areas in which public authorities' intervention is most needed (in order to remove the obstacles to sustainable ways of life) and would have the strongest impact in terms of carbon emissions mitigation.

The five priorities that we identified are:

.

Recommendations

1. **Reducing the use of private cars**, especially in urban areas (where 70% of Europe's population lives). This can only be achieved through offering attractive alternatives, such as fast and reliable public transport and active mobility, as well as by reducing people's reasons for travel (through the promotion of teleworking, for instance). Rethinking the city to allow the development of public transport and active mobility also helps to resolve urban congestion, reduce energy poverty, improve air quality, and strengthen European energy sovereignty.

2. **Supporting households (especially the poorest) to thermally insulate their homes** instead of investing massively in gas supply infrastructures (LNG terminals, etc.), which threaten to push us into a lock-in situation. This task requires substantial and immediate investments. However, its long-term impact will be significant, as it would strongly (and permanently) reduce household carbon footprint, combat energy poverty, lower Europe's energy dependence on hydrocarbon suppliers (particularly Russia) and create many new jobs that cannot be delocalised.

3. **Encouraging the adoption of more sustainable diets** that significantly reduce the consumption of animal products (meat, dairy) and increase that of organic and locally produced foods by making them both available and affordable.

4. **Achieving a drastic reduction in air travel** by massively reinvesting in rail transport (high-speed trains, night trains, etc.) and by financing R&D into future aircraft and fuels (hydrogen-based fuels, electric planes, etc.).

5. **Organising the transition of our economic systems towards a circular model** in which the materials of products currently in use become resources for the next generation of products. The European Commission recently proposed a new regulatory framework aiming to accelerate the process (EC, 2022). However, everything remains to be put in place to achieve this essential transformation of our economies, including the provision of efficient product recycling and recovery services and conversion assistance for companies. Rethinking our economic paradigm today and enabling citizens to adopt sustainable lifestyles is an essential condition for legating a sustainable world to future generations.

2. The challenges of the post-COVID-19 economic recovery

2.1 To urgently reduce our GHG emissions

As pointed out in the Sixth Assessment report of the Intergovernmental Panel on Climate Change (IPCC) released in February 2022, climate change is a grave and mounting threat to our wellbeing and to a healthy planet. The world is running out of time to make the policy adjustments needed to avoid irreversible climate changes and massive loss of biodiversity that are putting the lives of billions of people at risk (IPCC, 2022).

Showing global leadership, the European Union (EU) has taken major steps in climate change mitigation. Through the European Green Deal (December 2019), the EU committed to reach climate neutrality by 2050 in order to comply with the objectives of the 2015 Paris Agreement that aims at limiting global temperature rise 1.5° C above pre-industrial levels by 2050. The European Union enshrined this commitment into law through the European Climate Law (June 2021), which made both the new emissions reduction target (emissions reduction of at least 55% by 2030) and the climate neutrality goal by 2050 legally binding. Consequently, in July 2021, the European Commission (EC) presented its "Fit for 55" package of policy proposals to achieve these goals (EC, 2021).

However, policies implemented in Europe to-date will only result in greenhouse gas (GHG) emission reductions between 36% and 47%, instead of the targeted 55% by 2030 (CAT, 2021). This trajectory comes despite the decrease in the EU's emissions in recent years (-26% between 1990 and 2019) (EEA, 2020) followed by a major COVID-19-related dip in 2020 (though economic recovery had already caused this to rebound by 2021) (IEA, 2022).

One of the reasons for this critical impact gap is that many national policies are lagging behind policies adopted at the EU level, especially in the areas of energy efficiency and renewable energy uptake. Many of the most ambitious policies decided at the EU level have yet to be implemented by the Member States or translated into national laws.

In addition to the lagging in the local implementation of EU climate policies, the actual EU climate commitments are also in need of substantial improvement. Fully decarbonising the EU economy will require substantial additional GHG emission reductions in the next 30 years if the EU is to become a climate neutral economy by 2050. The effort required could imply a tripling of the mitigation efforts achieved to-date, especially in the transport sector, where emissions have continued their upward trend, and in the agricultural sector, where they are decreasing at a slower rate than overall emissions (EEA, 2020). A combination of technology and behavioural solutions as well as massive social change is vital to achieving this scale of emission reductions.

2.2 To fight rising energy poverty in Europe

Energy poverty, which describes a situation in which a household needs to spend more than 10% of its income on fuel to maintain an adequate level of warmth, affected more than 30 million people in the EU in 2020 (Magdalinski, 2021). Since then, energy prices have skyrocketed, driven by rising global demand, tight supply and geopolitical tensions. Between May 2021 and May 2022, the price of crude oil in the global market has nearly doubled, while the EU import price of natural gas

has increased about 3-fold, strongly impacting electricity prices European households pay (Bloomberg, 2022). Even before the outbreak of the war in Ukraine, the rise in the import price of natural gas led to an energy price crisis in the EU. In many European countries, the issue has become increasingly political with growing social discontent.

As a matter of urgency, several governments have decided to reduce fuel taxes or implement compensation measures to help households and businesses to absorb the impact of rising energy bills. Unfortunately, rare are the cases when these measures specifically target the most vulnerable groups, as they ought to (Sgaravatti et al., 2021).

Not only are these subsidies extremely expensive for public budgets, but, often, they are socially unfair (as rich people have bigger houses and tend to drive more and in a more polluting car than the poor). Energy subsidies reduce the price signal that encourages investment in energy efficiency and renewable energy and accelerates the energy transition. While support for the most vulnerable households and businesses should be offered to compensate for the energy price increases, it is essential that these aid measures are properly targeted to ensure their effectiveness. Policies that encourage the energy transition must accompany aid measures, especially by improving energy efficiency of residential buildings and by accelerating the shift to electric (and active) mobility.

2.3 To curtail EU's dependency on Russia's oil and gas

Following the ruthless and unprovoked invasion of Ukraine by Russian troops in February 2022, the EU has begun an urgent review of its energy strategy with the aim of becoming independent of imports of natural gas, oil and coal from Russia. Until now, Russia has been the EU's leading energy supplier: imports from Russia used to account for about 40% of the EU's natural gas consumption, 25% of its oil consumption and nearly 50% of its coal consumption (T&E, 2022a).

Even more than natural gas, Russian crude oil exports generate by far the largest revenues for the country. In 2021, when energy prices hadn't surged to mid-2022 (the time of writing of this Policy Brief) level yet, crude oil, petrol and diesel imports from Russia amounted to roughly €88 billion per year (nearly €250 million per day), while natural gas imports amounted to €37 billion per year (€100 million per day) (T&E, 2022a). As this money is directly helping to finance Putin's war in Ukraine, it is essential for Europe to stop its energy dependency on Russia (Hausmann, 2022).

Oil is primarily used in the transport sector, with road transport accounting for about half of the EU's oil consumption. In contrast, natural gas is mostly used in the residential sector (heating), as a feedstock and a source of heat in the industrial sector, and to generate electricity. Gas is also mainly imported to the EU by pipelines and negotiated on the basis of long-term contracts. For all these reasons, it is more difficult to diversify natural gas supply sources than oil in the short-term.

It is essential that EU measures to rapidly reduce the region's energy dependence on Russia don't undermine Europe's energy security through a prolonged lock-in to carbon-intensive infrastructure. Instead of launching new investment in natural gas infrastructure, the focus should be to accelerate the reduction of natural gas consumption. The "Fit for 55" package aims to reduce natural gas consumption by 30% by 2030 (which is equivalent to two-thirds of Russian natural gas imports). This target could be raised even higher through an accelerated uptake of renewable energy, heat pumps, and energy efficiency. Exiting Russian gas involves above all the fast and effective implementation of EU energy efficiency and renewable energy policies, which could be achieved by hastening the energy renovation of buildings and the deployment of renewable energies and heat pumps.

3. Aim of the Policy Brief

3.1 The importance of reducing households' carbon footprint

The scientific evidence is clear: it will be difficult to reach the targets of the Paris Agreement with technological and policy measures alone, without also addressing lifestyle changes and consumer behaviour. Consumption behaviour of households make up more than two-thirds of global GHG emissions, taking into account indirect emissions (Ivanova *et al.*, 2020). Targeting lifestyles with policies that address behavioural changes to complement current climate policies is therefore all the more relevant.

Household carbon footprint derives largely from energy consumption (such as fuels for transport, electricity, heating) but diet habits also contribute significantly. Reducing GHG emissions relies partially on citizens' choices concerning all aspects of their lifestyle (such as transport, diet, housing, consumption of manufactured products and services). It also relies on structural and systemic changes to increase the efficiency and sustainability of current production processes, supply chains, systems of provision, and infrastructures. According to the IPCC, "*having the right policies, infrastructure and technology in place to enable changes to our lifestyles and behaviour can result in a 40-70% reduction in greenhouse gas emissions by 2050*" (IPCC, 2022).

The CAMPAIGNers Project

The EU-funded Horizon 2020 CAMPAIGNers project tackles this issue. Through an engaging app, CAMPAIGNers will create a series of challenges that encourage citizens from 16 cities of all sizes to adopt low-carbon lifestyles. Their responses to these challenges and short questionnaires will deliver insights of unprecedented value on behavioural processes, (local) barriers to change, and motivators. The findings will help design an empirically-based scientific support for cities and other governance levels, to devise policies favouring low-carbon lifestyles.

CAMPAIGNers builds on previous consortium-led projects that substantially improved the understanding of societal structures and interventions towards lifestyle shifts, and identified limitations to the existing evidence base.

Together with local, national and EU policy makers, findings will be analysed in order to establish appropriate intervention levels and policy-ready recommendations will be collectively formulated.

Our research carried out in the scope of the CAMPAIGNers project identified changes in household consumption patterns to low-carbon alternatives, such as transport modal shifts, home energy reduction and dietary shifts that present the most significant mitigation potential, as explained in CAMPAIGNers' Deliverable D1.3 (Copinschi *et al.*, 2022). It underlined that car and plane mobility, meat and dairy consumption, and heating are the most dominant components of EU household footprints. A reduction in car and air travel through a shift toward less carbon-intensive modes of transportation (such as public transport, bike) are standard lifestyle change options incorporated in modelling studies and are clearly identified as priorities.

There is also substantial mitigation potential to reduce emissions from mobility by avoiding or curtailing air travel, e.g. reduce business trips or use rails instead of flights when available. Food is also a significant source of household emissions. Food footprints are dominated by red meat and dairy, which means that adopting a vegetarian or a vegan diet is the best way to reduce individual carbon footprint related to food. The household carbon footprint for housing comes from the energy used for heating (with variation among locations) and from the electricity used for lighting, hot water, appliances, air-conditioning, etc. The mitigation options with the highest potential therefore include purchasing or producing renewable electricity, and refurbishment and thermal renovation of housing. These options, which are unrelated to lifestyle, sometimes involve significant investment requirements.

The mechanisms that promote or, on the contrary, hinder the adoption of sustainable lifestyles and consumption are detailed in the CAMPAIGNers' Deliverable D3.1, which summarises an interdisciplinary assessment of state-of-the-art pro-climate behavioural change research (Stokes *et al.*, 2022).

3.2 The need for public intervention

As underlined in CAMPAIGNers' Deliverable 1.3 not all lifestyle changes involve the same active effort in changing the nature of consumption or the amount of consumption (Copinschi *et al.*, 2022). Moreover, while the potential for individual and household behaviour change is recognised, there are multiple obstacles, including economic and financial barriers, that prevent citizens from playing a more active role. Many of these obstacles could be lifted by specific public interventions.

Some lifestyle dimensions are primarily a matter of individual choice, even if they can be guided, influenced and encouraged by public policies. On the other hand, lifestyles are conditioned by the existence (or absence) of infrastructures and services, especially regarding transportation (availability of efficient and reliable public transport, bicycle lanes, alternatives to air travel, etc.), as outlined in CAMPAIGNers' Deliverable 3.1; in such case, public intervention is required in order to create the conditions for lifestyle changes (Stockes *et al.,* 2022). Last but not least, some lifestyle changes are restricted by the need for the citizens to invest, especially when it comes to housing renovation, purchase of an electric car or bike, installation of solar panels, etc.; in this case, cost might be a barrier and public aid might be necessary.

Policies incentivising to offer low-carbon options can be key in influencing a household's emissions trajectory, especially at important windows of opportunity. Key moments in a household's lifecycle cause its emissions to rise or fall, such as when people decide to build or renovate a house, to buy a private car, or to install a heat pump or a gas boiler. It is therefore all the more important to target these key moments as public policies play a crucial role in shaping people's preferences and orienting their choices (Dubois et al., 2019).

Households have the potential to become active agents of decarbonisation. However, this cannot be achieved through goodwill alone as a strong policy framework is needed to support voluntary emission reduction efforts. The framework should improve infrastructure, create incentives, and regulate specific areas (Dubois et al., 2019).

3.3 How best to use European funds?

The current energy crisis combined with the new geopolitical situation created by the war in Ukraine can either lead to a weakening of climate action, or, on the contrary, be used to accelerate the transition towards climate neutrality. It will ultimately be up to policy makers and the investment choices that will be made. In this context, the NGEU represents a unique opportunity to speed-up the transition to carbon-neutral lifestyles.

The aim of this policy brief is to identify what needs to be considered when deciding on the use of the NGEU through a simple question: What can public authorities do with the NGEU funds to encourage and help households adopt carbon neutral lifestyles and reinforce the environmental-friendly habits learned during the pandemic?

NextGenerationEU (NGEU)

In 2020, the EU launched NextGenerationEU (NGEU), an unprecedented recovery package to repair the immediate economic and social damage caused by the coronavirus pandemic. This temporary instrument, worth EUR 806.9 billion, comes in addition to the EU's long-term budget for 2021 to 2027 (EUR 1.211 trillion), meaning that, all together, some EUR 2.018 trillion is being made available to boost the European economy.

The centrepiece of NGEU is the Recovery and Resilience Facility, an instrument that provides grants and loans to support reforms and investments in the EU Member States for a total value of EUR 723.8 billion (338 billion in grants and 385.8 billion in loans). The funds under the Recovery and Resilience Facility will be distributed according to national recovery and resilience plans prepared by each Member State. At least 30% of the budget must be dedicated to climate action such as financing projects on clean technologies and renewable energy, energy efficiency of buildings, and sustainable transport. The remaining 70% should follow the principle to "do no harm" to the environment.

NGEU will also reinforce several existing EU programmes and policies, including InvestEU (+6.07 billion) the objective of which is to carry out investments in sustainable infrastructure, research and innovation across Europe; the Just Transition Fund (+10.9 billion) that aims at supporting the transition towards climate neutrality by alleviating the negative distributional impacts of the transition on vulnerable households; and the European Agricultural Fund for Rural Development (+8.1 billion) to support the transition towards a fully sustainable agricultural sector.

Although there is a risk that the climate objectives would be overlooked by the need to urgently bring an economic response to the COVID-19 pandemic consequences, this recovery plan has the means to accelerate the energy transition and build on new habits adopted during the pandemic (such as increased working from home and reduced air travel). Whether NGEU is to propel or undermine the transition to carbon neutrality, will ultimately depend on the decisions the EU makes now, and this includes implementing policies and infrastructure designed to incentivise climate friendly lifestyle changes by citizens.

4. Recommendations

Several areas of government action are essential in order to enable citizens to change their lifestyle and actively participate in our collective effort towards a sustainable future: urban transport, air transport, thermal renovation of housing, food and circular economy as explained in our Deliverable 1.3 (Copinschi *et al.*, 2022). In all these areas, informing and involving citizens is essential for the success of the projects. Changing lifestyles is a structural process that requires well-informed citizens to play an active role in the programming and implementation of the projects at local, national and European levels.

Investing in information and social influence campaigns is imperative. This is because financial levers (e.g. subsidies for a novel behaviour, such as technology adoption) are far more effective in combination with targeted social influence campaigns that inform people about the availability of those subsidies, about others' successful adoption of the novel behaviour, and about the personal, social and environmental benefits of the novel behaviour. Involving citizens and strengthening participatory democracy is a condition for the acceptance and appropriation of lifestyle changes, taking into account that pull measures (e.g. subsidies) are typically more acceptable than push measures (e.g. prohibitions).

4.1 Urban transport

The current energy crisis combined with the new geopolitical situation created by the war in Ukraine can either lead to a weakening of climate action, or, on the contrary, be used to accelerate the transition towards climate neutrality. It will ultimately be up to policy makers and the investment choices that will be made. In this context, the NGEU represents a unique opportunity to speed-up the transition to carbon-neutral lifestyles.

The number one priority of government action concerns urban transport, with the objective of reducing the use of private cars by improving collective and public transport and providing better active mobility (walking, cycling) options. Moreover, avoiding using cars by switching to bikes and public transport is an effective structural way to reduce reliance on imported oil. This action concerns all levels of public authorities: not only cities, but also national and regional governments that play an important role in creating frameworks that give cities legal competence, facilitating cooperation and providing financial support.

The first action to take is to initiate a Sustainable Urban Mobility Plan (SUMP) process and, for the cities that have already adopted a SUMP, to accelerate its implementation in an adaptive and efficient way. This can be achieved by dedicating more financial resources toward the development of public transport and active mobility infrastructures, and by increasing the collection and processing of data to optimise the service offer for all, in an equitable and just manner.

A SUMP is a strategic plan designed to satisfy mobility needs in urban and peri-urban areas. It aims at developing all transport modes (including all forms of collective mobility such as traditional public transport as well as new services based on sharing, active mobility, etc.) in an integrated manner within a long-term vision that involves citizens and stakeholders and with a clear implementation plan (Rupprecht Consult, 2019). Its core goal is to improve accessibility and quality of life (as opposed to focusing primarily on making the traffic more fluid) by achieving a shift towards more sustainable transport modes. It requires an integrated set of regulatory, promotional, financial, technical, behavioural and infrastructure measures, the implementation of which must be accompanied by systematic monitoring and

evaluation. Amongst other results, it increases the attractiveness of the urban environment, improves quality of life including benefitting public health, improving road safety and security, and reducing air and noise pollution.

Concretely, the development of a network of safe cycle paths is one of the efficient ways to encourage transport mode switching. Implementation can be relatively fast, the investment-to-impact ratio is high and offers many co-benefits for health, for traffic, for the environment, and more. More generally, reallocating more public space to sustainable modes such as walking and cycling to ensure the security of all the vulnerable road users is essential (e.g. through the physical separation of foot, or cycle and micro-mobility paths from motorised traffic wherever feasible).

Regarding public transport, the priority is to improve the supply of existing services and to develop a stronger public transport network, based on the analysis of data collected within the SUMP. Another priority is to electrify bus fleets, which still mostly run on diesel or gas. Offering modern rail stations that directly connect rail with public transport and provide shared mobility services, as well as bigger and better park-and-ride facilities equipped with recharging points for electric vehicles, are also strategic steps to encourage modal shift.

It is important to emphasise that public policies to improve the supply of public transport must, in order to be fully effective, be accompanied by policies targeting demand, i.e. aimed at discouraging car use, notably through specific pricing (urban tolls, low-emission zones, reduction of public space dedicated to cars, etc.)

.

4.2 Domestic heating and cooling

Although there are significant variations from one household to another depending on location and local energy mix, heating is, on average, responsible for around half of household carbon footprint associated with housing in Europe (Ivanova et al. 2020). The two main solutions often considered to reduce emissions from heating are to better insulate the buildings and to replace carbon-intensive heating technologies (such as oil or gas boilers) with low-carbon ones (such as electric heat pumps). These solutions are closely linked as changing a boiler without improving the thermal insulation of the building is unlikely to significantly reduce energy use in the long run.

These two solutions involve large investment costs, both for existing and new buildings. These costs often represent an obstacle for households, especially the poorest who may not have access to financial resources and (affordable) loans. For them, some kinds of financial support (e.g. in the form of subsidies) are an absolute condition to consider renovating their dwellings or installing a heat pump.

In the EU, the Energy Performance Buildings Directive (EPBD Directive, first adopted in 2010) regulates emissions from the buildings sector and obliges Member States to introduce minimum energy performance requirements for new buildings. However, the problem relates more to the existing stock of buildings than to the construction of new ones. The directive failed to significantly accelerate the renovation rate, which remains at around 1% of the overall stock of buildings (CAT, 2021). In October 2020, the EC presented its Renovation Wave strategy as part of the Green Deal, which contains an action plan with concrete regulatory, financing and enabling measures to boost building renovation with the objective to at least double the annual energy renovation rate of buildings by 2030 (EC 2020). These measures are to be implemented by the revision of the EPBD Directive.

Faced with both the energy crisis that is plunging ever more households into energy poverty through rising energy bills, and the climate emergency, it is urgent to massively accelerate the pace of building renovation to significantly reduce the carbon footprint of the residential sector. In

order to achieve this, significant financial resources must be made available by national and local governments in parallel with the establishment of a stronger renovation obligation (for example in order to be able to sell a home or even to rent it), as well as reinforced measures to assist households during all stages of the renovation project, including energy auditing, technical engineering and selection of service providers, and monitoring and control of performance after the work is completed (Ründiger, 2020). Aid must primarily target the poorest households, which are generally also those whose homes are the worst insulated.

4.3 Sustainable diet

Food is a significant source of household emissions, representing about 30% of EU household carbon footprint (Ranganathan 2016). Red meat and dairy dominate food footprints, as animal-based foods are much more resource-intensive and environmentally impactful to produce than plant-based foods. Adopting a vegetarian or a vegan diet, or simply reducing meat consumption, are by far the best way to reduce individual carbon footprints related to food. Opting for organic, local and seasonal food can also reduce one's carbon footprint – in some cases, significantly.

Public authorities can encourage people to gradually change their diet by improving the availability of affordable sustainable products, by subsidising the production and cost of fruits, vegetables or organic products, by dedicating more financial resources to help European organic farmers, by raising awareness through information campaigns that help rational consumers to make better choices, or by improving access to low-carbon, organic and local products, for instance in municipal street markets.

4.4 Air travel

Aviation traffic in Europe grew by 67% between 2005 and 2019, and its emissions by 24% (T&E, 2022b). Given the current oil-based technologies, aviation is clearly incompatible with the Paris Agreement goals. Although the energy efficiency of aircrafts has been continuously improving, it is far from enough to reduce aviation-related GHG emissions at a sustainable level in a timely manner. Disruptive scenarios (e.g. commercial electric aircrafts and substantial use of zero-carbon synthetic fuels) will be needed but won't become a reality before decades at best (Bleijenberg 2020).

Therefore, the absolute priority would be for governments to implement policies which discourage flying, first of all by ending the sector's outrageous tax exemptions which constitute an incomprehensible distortion of competition within the transport market. Without real justification, airlines are still allowed to buy fossil jet fuel tax free, the majority of Europe's aviation emissions are still exempt from the EU Emissions Trading Scheme (EU ETS), and VAT still doesn't apply to air tickets. The huge public subsidies given to loss-making airports also contribute to artificially cheap air tickets, which result in more people taking more flights, even when more sustainable modes of transportation are available (especially rail). It is more than urgent to rectify this under-pricing of aviation and finally internalise its negative environmental externalities (T&E 2022b).

In addition to putting an end to the huge direct and indirect public subsidies for the aviation sector, public authorities should pursue two types of action regarding air travel. The first action to be taken is to encourage people to take the train instead of the plane for journeys of less than 1000

km (for instance Paris-Berlin) by offering upgraded rail services including night trains with sleeping berths/cabins. Rail remains one of the safest and cleanest transport modes and should therefore be at the core of the strategy to make EU mobility more sustainable. The next action to be taken is to support research and development (R&D) on future electric and hydrogen aircrafts and on sustainable aviation fuels (SAF).

Encouraging people to travel by train rather than by plane requires important improvements in the speed and quality of rail services. Indeed, the main reason people prefer traveling by plane rather than by train is travel time, and, to a lesser extent, ticket price. Due to the tax exemptions enjoyed by the aviation sector, ticket prices are in favour of planes (Bleijenberg, 2020). Three objectives should be prioritised: connecting all large cities in Europe by high-speed rail, improving the general speed and quality of the railway services and substantially increasing the number of intra-European night trains (Bleijenberg, 2020).

The Trans-European Transport Network project – a network of rail, inland waterways, short-sea shipping routes, and roads that connects more than 400 major cities with ports, airports and railway terminals – is a partial response to this issue. Its aim is to cut travel times between these cities by creating competitive high-speed railway connections throughout the Union by 2040. With appropriate investments, the current objectives of doubling high-speed rail traffic by 2030 and tripling it by 2050 could certainly be exceeded. More generally, to better compete with the intra-European aviation market, it is crucial to develop a unified European railway approach that reduces travel times of international trains, and ensures better interoperability (Bleijenberg 2020).

Given the current pace of technological development, new aircraft design (hydrogen propulsion or electric aircrafts) won't be introduced before the 2040s. To unlock any potential for these new-age aircrafts, a full-scale industrial strategy alongside ambitious and binding regulations needs to be implemented. Public and private funding will be necessary to make up for decades of excessive fossil subsidies that have disincentivised the market from developing and deploying low carbon technologies (T&E, 2022b). Government regulations and financial support are essential to help ensure new clean technologies are developed and deployed; with the right measures in place, electric, hybrid-electric and hydrogen planes could start flying in the 2030s. Speeding up the deployment of these new technologies will also protect and enhance the competitiveness of the European aeronautics industry (T&E, 2022b). For the part of the fleet that won't be running on electricity or hydrogen, sustainable biofuels will be necessary and require government financial support and appropriate regulatory framework.

4.5 Circular economy

Product design dictates up to 80% of its life-cycle environmental impact (EC, 2022). The climate crisis obliges us to rethink our economic and production model to ensure a better use of the limited resources and materials that are needed in our everyday products. This can be done by ensuring that products consume less energy, by designing them to be used more efficiently and for longer, by relying on recycled materials instead of primary raw materials, and by promoting new circular economic models instead of the prevailing linear "take → make → dispose" model, which leads to significant pollution and waste of resources.

Promoting circular economy is the purpose of the new proposal from the European Commission (EC) for a Regulation on Eco-design for Sustainable Products, released in March 2022. This initiative aims to enable European citizens to easily repair and recycle all the products they buy by establishing a framework for setting eco-design requirements for specific product categories to significantly improve their circularity and energy performance, starting with clothing and electronic devices (EC, 2022).

Despite growing interest in the circular economy, defined as "a model of production and consumption which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible" (European Parliament, 2015), progress in many sectors is still very limited. People who would be willing to repair their broken electronic appliances or recycle and reuse their clothes face multiple constraints.

The lack of availability of circular solutions (such as recycling centres or repair shops) prevents citizens from adopting more sustainable patterns of consumption, even if they want to. Beyond the establishment of new norms and requirements of repairability, public authorities should use different forms of financial support for circular activities and services.

5. References

Bleijenberg, A., 2020, *Air2Rail. Reducing CO2 from intra-European Aviation by a Modal Shift from Air to Rail*, Delft, March 2020

Bloomberg 2022, Online data.

Climate Action Tracker (CAT), 2021, *Assessment of the European Union's Climate Governance*, published online on 15 September 2021, https://climateactiontracker.org/countries/eu/, retrieved on 9 March 2022.

Copinschi, Ph. et al., 2022, *Report on Target lifestyles*. Deliverable 1.3 of the CAMPAIGNers project funded under the European Union's Horizon 2020 research and innovation programme GA No: 101003815.

Dubois, Gh. et al., 2019, "It Starts At Home? Climate Policies Targeting Household Consumption and Behavioral Decisions Are Key to Low-Carbon Futures", *Energy Research & Social Science*, 52, pp.144–158.

European Commission (EC), 2020, Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A Renovation Wave for Europe - Greening our buildings, creating jobs, improving lives, COM/2020/662 final.

European Commission (EC), 2021, Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. 'Fit for 55': delivering the EU's 2030 Climate Target on the way to climate neutrality, COM/2021/550 final.

European Commission (EC), 2022, Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. On making sustainable products the norm, COM/2022/140 final

European Environment Agency (EEA), 2020, *Trends and drivers of EU greenhouse gas emissions*, Report 03/2020.

European Parliament, 2015, "Circular economy: definition, importance and benefits », News, 2015-02-12.

Hausmann, R., A. Łoskot-Strachota, A. Ockenfels, U. Schetter, S. Tagliapietra, G.B. Wolff and G. Zachmann (2022) 'Cutting Putin's energy rent: 'smart sanctioning' Russian oil and gas', *Working Paper* 05/2022, Bruegel.

Intergovernmental Panel on Climate Change (IPCC), 2022: Summary for Policymakers [H.-O. Pörtner, D.C. Roberts, E.S. Poloczanska, K. Mintenbeck, M. Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem (eds.)]. In: *Climate Change 2022: Impacts, Adaptation, and Vulnerability*. Contribution of Working Group II to the Sixth Assessment Report of the IPCC,. Cambridge University Press.

International Energy Agency (IEA) 2022, Online data and statistics.

Ivanova, D. et al., 2020, "Quantifying the Potential for Climate Change Mitigation of Consumption Options", *Environmental Research Letters*, 15.

Magdalinski, E., et al., 2021, "Europe needs a strategy to end energy poverty", European Energy Policy, *Policy Paper* 259, Jacques Delors Energy Centre, February 2021.

Ranganathan, J. et al., 2016, "Shifting Diets for a Sustainable Food Future." Working Paper, World Resources Institute (Washington, DC).

Reinhart, Carmen, 2020, interview on "Bloomberg Daybreak: Americas", 22 May 2020.

Ründiger, A., 2020, "Energy renovation: what is the outlook for the recommendations of the French Citizens' Climate Convention after the recovery plan?", IDDRI, Blog Post, October 13, 2020.

Rupprecht Consult (ed.), 2019, *Guidelines for Developing and Implementing a Sustainable Urban Mobility Plan*, Second Edition.

Sgaravatti, G., S. Tagliapietra, G. Zachmann, 2021, "National policies to shield consumers from rising energy price"', Bruegel Datasets, first published 4 November.

Stokes et al., 2022, *Interdisciplinary Assessment of State-of-the-Art Pro-Climate Behavioural Change Research*. Deliverable 3.1 of the CAMPAIGNers project funded under the European Union's Horizon 2020 research and innovation programme GA No: 101003815.

Transport & Environment (T&E) 2022a, "How Russian oil flows to Europe. Imports, dependency, trade value, port and pipelines", A Briefing by T&E, 7 March 2022

Transport & Environment (T&E) 2022b, *Roadmap to Climate Neutral Aviation in Europe*, March 2022

www.climate-campaigners.com

info@climate-campaigners.com

/climate-campaigners

This project has received funding from the European Union's Horizon research 2020 and innovation programme under grant agreement No. 101003815.