

‘Balancing with a Doughnut’: Feasta position paper on the revision of the European Commission’s Energy Taxation Directive

Summary points:

[1] Rebating all of most of the revenue raised by a carbon fee or tax to the population as **per capita lump sum allocations** appeals to equity/justice, making the policy more likely to be politically acceptable and even popular - exactly the opposite of the ‘Gilet Jaunes’ situation

[2] An **upstream, supply-side approach to extending the ETS** is the only way to address the climate emergency with anything like the requisite speed and scale

Contents

1. Introduction	1
2. What sort of balancing act is needed to achieve a zero carbon economy?	2
2.1 The doughnut hole needs to shrink, particularly for transport	2
2.2. The doughnut needs to have a clearly defined outer edge	5
3 Extending the ETS into an upstream cap-and-share system	6
3.1 Carbon revenue allocation: the need for an international perspective	7
3.2. Carbon revenue allocation within the EU	7
3.3. Making the doughnut accessible to all: the ETS, climate justice, carbon revenue allocation and the CBAM	8
4. Fossil fuel subsidies	9
5. Conclusion	9

1. Introduction

Evidence indicates that a carbon price, if carefully designed, can be a useful tool to help the economy to adjust to the decarbonisation that is urgently needed to mitigate climate disruption. Moreover, the current widespread subsidisation of fossil fuels will clearly need to be eliminated if we are to achieve decarbonisation. For these reasons, we consider the proposed overhaul and streamlining of the Energy Taxation Directive to be necessary and welcome.

However, there is a delicate balancing act involved in achieving global net zero greenhouse gas emissions by 2050 (and preferably sooner) without causing major economic disruption, both within and outside the EU. This balancing act will require close and careful coordination between EU member states’ energy taxation policies, the Carbon Border Adjustment Mechanism (CBAM), the Emissions Trading Scheme (ETS), and the EU’s international climate finance policy.

It will probably also require imposing a maximum price on carbon - i.e., placing a limit on any carbon tax within the EU - and introducing a quota system.

Owing to the limitations of renewable energy as compared to fossil fuel, certain sectors of the economy which are heavily dependent on fossil fuel, particularly transport, will need to be scaled down. This will entail a comprehensive review of the EU's overall economic policy and the adoption of a more agnostic attitude to economic growth. In line with EU residents' stated aspirations and goals, a shift in emphasis towards promoting wellbeing is also needed.

To promote international climate justice and enable smoother cooperation between the EU and external nations, we would recommend a reconfiguration of the ETS to encompass an 'upstream' system which controls fossil fuel production and imports at source. We also recommend that the ETS be extended to include a group of non-EU partner countries. This would minimise the bureaucracy associated with the CBAM and could provide significant assistance to some Global South countries with the energy transition. We suggest that the Commission recommend to member states that they provide lump-sum allocations of the revenue from a carbon fee,. Additional, carefully-targeted energy taxes on luxury goods could provide a useful complementary source of revenue during the energy transition.

We are making a related submission to the Commission's consultation call on the CBAM, and both that paper and this one contain recommendations concerning the ETS and climate finance.

2.. What sort of balancing act is needed to achieve a zero-carbon economy?

Two dangers present themselves with regard to an energy tax and specifically a carbon price. One is that it will crash the economy, causing immense suffering among the most vulnerable, and the other - even more grave - is that it will not be sufficiently effective in reducing overall greenhouse gas emissions. To make matters worse, both could occur simultaneously. We will examine each of them in turn and explore possible solutions.

2.1 The doughnut hole needs to shrink, particularly for transport

A helpful model for examining the relationship between the environment and the economy is economist Kate Raworth's 'doughnut economy'¹. Raworth postulates that a viable economy will make use of sufficient resources to enable people to live decently (thus avoiding the 'hole' of the economic doughnut) but will not breach biophysical limits (the outer boundary of the doughnut).

Keeping ourselves out of the doughnut's hole clearly requires energy and resources. One of the challenges we currently face is to ensure that the social foundation of the doughnut does not use so many resources and inflict so much environmental damage that it expands to hit the 'ecological ceiling', which is the outer edge of the doughnut.

How does transport fit into this model? The answer at present seems to be 'not at all well'. As the Commission's recently-published report, "Stepping up Europe's 2030 climate ambition: Investing in a climate-neutral future for the benefit of our people", states²:

"The transport sector is a particular challenge. Options to decarbonise exist, but will require infrastructure development at local and EU scale (e.g. charging stations, hydrogen fuel stations). Modal shift, increased use of inland waterway transport and rail and new forms of urban mobility are all part of the solution. But some hard to abate sub-sectors, notably aviation, will also require the development of advanced biofuels and sustainable alternative low or zero carbon fuels and gases."

¹ <https://www.kateraworth.com/doughnut/>

² "Stepping up Europe's 2030 climate ambition: Investing in a climate-neutral future for the benefit of our people": https://ec.europa.eu/clima/sites/clima/files/eu-climate-action/docs/impact_en.pdf



The 'doughnut economy' model devised by economist Kate Raworth. Source: <https://doughnuteconomics.org/about-doughnut-economics>

At a recent seminar organised by the European Commission for Irish eNGOs, a Feasta representative asked a representative of DG-CLIMA whether the current pace and scale of transport within the EU could be maintained in a zero-carbon economy. The answer we were given was a clear 'yes'. The DG-CLIMA representative appeared to assume that the the only substantial change needed in the transport sector would be in the way that it is powered (by bringing about a shift to electricity and hydrogen). Similarly, the quote above seems to imply that aviation, for example, will be able to remain at its current - or, more likely, resume its pre-COVID - level of activity, despite the serious challenges involved in greening that sector.

There was, furthermore, a suggestion made by the DG-CLIMA representative that the current pace and scale of transportation is actually *necessary* in order for the European economy to be able to function adequately.

This stance is highly troubling to us, as we believe it to be profoundly unrealistic in practical terms.

Thermodynamics indicates that the EU's transport sector actually needs to shrink. The evidence is clear that a 100% electric or hydrogen-powered transport sector is very unlikely to be able to replicate the current pace and extent of transportation in the EU - both private and freight - owing to the intermittent nature of renewable energy, the challenges involved in its storage and the difficulties in sourcing adequate quantities of the mineral resources that would be needed^{3 4}

³ <https://www.feasta.org/2018/01/28/the-real-lesson-of-the-energie-wende-is-that-the-german-economy-uses-too-much-energy-to-be-sustainable-and-needs-to-degrow/>

⁴ https://www.nhm.ac.uk/press-office/press-releases/leading-scientists-set-out-resource-challenge-of-meeting-net-zero.html?fbclid=IwAR3J94YKBNHWf16_tt-4mWDLdIzzQ-iF5uAxv1l0fV6tJV1qVKXW0corj8

It is noteworthy that the Commission's document quoted above assumes a drop in oil use from 37% to 30%⁵ in the period to 2030 - which is a strikingly modest decrease, considering the 2050 net zero emissions target.

While it is laudable that the document also advocates a 39-41% increase in energy efficiency, there is no guarantee that increased efficiency will result in a decrease in overall energy use, particularly in transportation, which is generally under pressure to expand.

Moreover, even if technological innovations become able to overcome the logistical hurdles associated with renewable transport, *it is highly questionable whether the current pace and extent of transportation is desirable from the point of view of overall quality of life and societal wellbeing*⁶.

If ways could be found to meet EU residents' essential needs and improve societal wellbeing within a context of reduced overall transportation - while still allowing for sufficient transport to enable access to necessities and to enhance quality of life, for example by giving people some opportunity to engage in creative exploration of different cultures - that would surely be perceived as an improvement by a majority of EU residents⁷.

The dilemma we face when decarbonising transport, however, is that if the supply of fossil fuel is choked off abruptly in the near term, owing to a sharply rising carbon price or some other factor, the result could be economic collapse and chaos. The doughnut hole could finish by swallowing many of us up.

A notorious example of the undesirable and destabilising effects of a poorly implemented carbon price increase was the Yellow Vest movement in France in 2018/19. The Yellow Vest protesters were primarily concerned about an increase in the price of passenger vehicle transport fuel. However, freight transport is also heavily dependent on oil, and the supply chains of many staple products in the EU are currently extremely long and complex, generating an over-reliance on oil in order to provide the basic necessities of life for EU residents.

The COVID-19 outbreak has generated some welcome discussion concerning the fragility of global supply chains and the need to emphasise re-shoring and redundancy in order to build resilience⁸. However, the relationship between supply chains and resource limits appears to be far less widely recognised and debated at present - despite the fact that it presents a still greater risk to economic security.

We cannot expand the outside boundary of the economic doughnut because that would mean overturning climate science and the laws of thermodynamics. So, in order to be sure to provide ourselves with enough doughnut to be able to survive, we will have to shrink the hole instead. This entails significantly reducing the scale and overall pace of transportation, which in turn means placing a much greater emphasis on locally-produced goods so as to shorten supply chains and lessen high-energy-footprint trade. Other sectors will need to shrink in the aggregate too.

⁵ "Stepping up Europe's 2030 climate ambition: Investing in a climate-neutral future for the benefit of our people": https://ec.europa.eu/clima/sites/clima/files/eu-climate-action/docs/impact_en.pdf

⁶ See the Wellbeing Economy Alliance (WEAll) website for discussion and links to further information concerning a shift to a wellbeing-oriented economy: <https://wellbeingeconomy.org> . Feasta is a member of WEAll.

⁷ A 2012 Eurobarometer survey indicated that Europeans' most important sources of happiness are health, love and work, while the principal values shared by Europeans are human rights, respect for human life, and peace: https://ec.europa.eu/commfrontoffice/publicopinion/archives/eb/eb77/eb77_value_en.pdf . While transport is clearly necessary for some kinds of work, the COVID crisis has demonstrated that a significant amount of work can be achieved without commuting. Freight transport could be considerably reduced by reconfiguring supply chains. For an exploration of the relationship between personal travel and the environment, see the Feasta/EHFF podcast 'The future of tourism and business travel.': <https://www.feasta.org/2020/01/31/bridging-the-gaps-podcasts-on-ecology-health-energy-well-being/>

⁸ see for example <https://www.jaggaer.com/gb/managing-supply-chain-disruptions-europe-covid19/> , and <https://www.bbc.com/news/business-52104978>

It therefore entails reformulating much of the EU's economic policy and moving away from viewing aggregate GDP growth as a core goal⁹.

This enormous subject is clearly beyond the scope of this consultation call, but we note in passing that judicious reforms of the monetary and financial system could be a considerable help in alleviating any harm caused by a contracting economy.

A carbon price in this context will need very careful handling indeed, and a great deal of help from other measures. We would suggest imposing an upper limit on the price so as to avoid triggering an economic crash.

It may well also prove necessary to introduce a system of quotas or rationing to ensure that everyone has their fair share of access to fossil fuel, in order to prevent the limited supply of fossil fuel from being quickly bought up and used by those with the means to do so, leaving everyone else behind.

An important problem with limiting the price of carbon is that this might hinder decarbonisation - which of course is the main purpose of imposing a carbon price in the first place. This brings us on to our second point.

2.2 The doughnut needs to have a clearly defined outer edge

If we accept that a carbon price should be limited, the question then arises as to how to ensure that emissions will actually decrease. If transport, for example, does succeed in reducing its carbon footprint, this still does not guarantee that overall fossil fuel use will decrease. Indeed, as mentioned above, we could have a scenario whereby some sectors, including sub-sectors within transportation, are decreasing their emissions while others still release the same amount of emissions, or even more than previously. This is an example of the 'Jevons effect' whereby any energy saved in one area tends to simply be used in another area.

We can add another challenge to this: the existence of a group of extremely wealthy people for whom price is no object and who either do not believe that climate disruption exists, or do not believe it to be a serious problem. This group represents a small minority of the overall population, but they wield enormous financial power and therefore have significant access to energy. Even if a very high carbon price was economically tenable, its introduction in the absence of other measures could enable this minority to undermine much of the hard work achieved on decarbonisation, because they could still afford to access fossil fuel and would not hesitate to make full use of it.

The counter-argument generally put forward in response to this is that fossil fuel energy will eventually become outmoded and unpopular because renewables will be cheaper, and so everyone will naturally move on from using fossil fuels, regardless of their wealth and their view on climate.

This counter-argument strikes us as dangerously naïve. It is certainly true that the price of renewables has fallen in relation to fossil fuels in recent years. This is because the energy that is required to extract fossil fuel, particularly oil, has increased in recent years as easily-accessible oil becomes scarcer¹⁰. (Even if there was no climate crisis, that would be an important reason to decarbonise the economy.) It is not that renewables have become more efficient than oil was in its 'golden age', but rather that oil has passed its 'golden age' and become less efficient to extract¹¹. However, it will remain attainable to those with the financial means into the foreseeable future.

⁹ There is substantial evidence that it is impossible to decouple economic growth from environmental pressures to any meaningful extent. See for example the European Environmental Bureau's October 2019 report 'Decoupling Debunked': <https://eeb.org/library/decoupling-debunked/> and these two more recent studies: <https://www.tandfonline.com/doi/abs/10.1080/09644016.2020.1783951?journalCode=fenp20> and <https://www.sciencedirect.com/science/article/pii/S1462901120304342?dgcid=coauthor>

¹⁰ http://energy-reality.org/wp-content/uploads/2013/05/09_Energy-Return-on-Investment_R1_012913.pdf

¹¹ See for example <https://surplusenergyeconomics.wordpress.com/professional-area/>

Despite the increasing difficulties in acquiring it, high-quality oil remains a highly potent fuel compared to every other source of energy. To reiterate: renewables cannot provide an exact substitute for oil, which is why it is proving so difficult to bring about the energy transition in the transport sector (and why, as discussed above, the transport sector needs to shrink).

So how can this challenge be addressed?

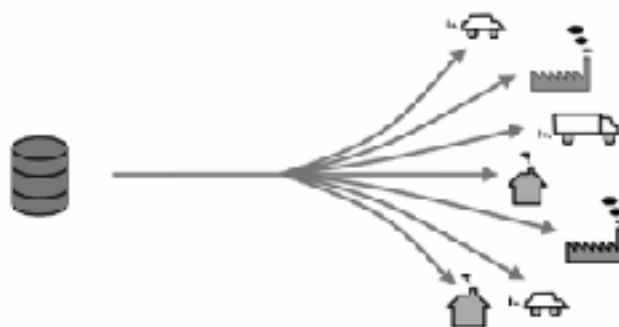
3. Extending the ETS into an upstream cap-and-share system

We recognise that the Commission is considering extending the ETS to cover all of the building sector and aviation, and we note the following text in the 2030 Impact Assessment quoted above:

"Because of the large number of small emitters (many of which are private persons) in the buildings and road transport sectors, a downstream approach such as in the current ETS whereby the emitters themselves are regulated does not seem feasible when extending emissions trading to the two sectors. An upstream approach whereby not the emitters themselves but entities further up the supply chain are regulated, can remedy the challenges associated with the large number of small emitters in the two sectors."

For many years - indeed, ever since the introduction of the ETS¹² - Feasta has been making a case for moving upstream in the monitoring and regulation of greenhouse gas emissions. We are therefore very glad to note that this approach is gaining more attention at present¹³.

However, we believe the full potential of this upstream approach has yet to be recognised. It could easily tackle a far greater proportion of greenhouse gas emissions than those arising from buildings and transport. Indeed, we would go so far as to say that - in combination with other measures explained below - it represents the economy's last best hope in achieving decarbonisation from fossil fuels in a just and equitable manner.



The oil barrel on the left is the source of all the emissions on the right. If we wish to diminish and eventually eliminate overall oil emissions, why not simply reduce the amount of oil in the barrel?

Image source: <http://www.sharingforsurvival.org/index.php/chapter-3-cap-share-in-pictures-by-laurence-matthews/>

From our understanding, the only way to *guarantee* that fossil fuel use within the EU will be eliminated over time is to place a legally binding hard cap - an upstream limit - on its production and imports to the EU.

The economic case for this has been well-argued¹⁴. It would be relatively easy to enforce in practical terms, as the vast majority of fossil fuels originate from a small number of international producers whose activities are already closely monitored. It would also ensure that wealthy

¹² <https://www.feasta.org/2007/03/11/the-great-emissions-rights-give-away/>

¹³ Our proposed system which combines upstream regulation of fossil fuel supply with per capita revenue allocations (discussed further below) is called 'Cap and Share'. More information on it can be found at <http://www.framespotting.com/capandshare/>, <http://www.capglobalcarbon.org> (which takes a global perspective) and <http://www.sharingforsurvival.org>. The latter collection of papers explores the policy implications of such a system in more depth.

¹⁴ <https://link.springer.com/article/10.1007/s10584-018-2162-x>

climate change deniers would be obliged - at least within the EU, and hopefully also elsewhere, as we shall see below - to reduce their emissions.

The most logical approach to implementing a such a cap within the EU would probably be to modify the ETS so that it encompasses the import and production of fossil fuel into the EU bloc, rather than solely the consumption of the products of fossil fuel. This would automatically include many of the emissions that are currently left out by the ETS, and the 'upstream' component would be far easier to monitor than the current piecemeal approach which tries to encompass a wide variety of sectors and is complex and difficult to enforce¹⁵.

3.1 Carbon revenue allocation: the need for an international perspective

Now let us examine the allocation of the revenue from a carbon fee.

International climate justice is very important factor to bear in mind in this regard. Funds that are generated from a carbon fee that is applied within the EU represent financial compensation for the emissions that are generated within the EU. However, when viewed in a global context, we see that EU per capita emissions are actually somewhat greater than the world average.

Were the revenue from carbon fees to be retained solely by EU member states, outsiders, particularly from Global South countries, could argue - with reason - that the EU has 'enclosed' an important part of the atmospheric rent, 'grandfathering' in for themselves a disproportionate right to compensation for EU-based fossil fuel emissions, at the expense of those elsewhere who may emit considerably less.

A possible way to avoid this problem and to help create a decarbonisation model that could eventually be scaled up to a global level is explored in section 3.3 below.

3.2 Allocations within the EU, and additional energy taxes

Regardless of what is done to respect climate justice, it seems clear that at least part of the revenue from a carbon fee would still remain within the EU. The fairest approach to distributing it would probably be to allocate it to member states on a per capita basis.

We recognise that it is ultimately up to member states to decide exactly what to do with their share of the carbon fee revenue. However, our advice, both within the EU and for the potential non-EU partners described below, would be for them to distribute it per capita as lump sum allocations.

As with the upstream cap mentioned above, Feasta's climate group has been advocating for a lump sum distribution of carbon fee revenue for many years¹⁶. It would be relatively easy to administer, as it would not require any means testing, and it would ensure that those who use the least fossil fuel are able to benefit from that financially, while those who use fossil fuel profligately would pay for that use. The danger that people might spend their revenue in carbon-intensive ways would be averted by the fact that fossil fuel supply would be capped.

Member states will probably wish to augment this revenue by introducing or expanding additional, carefully-targeted energy taxes that are unlikely to affect the macroeconomy adversely and that could provide funding to help the most vulnerable in their countries to adjust to the energy transition. These could include a levy on luxury items such as first-class flight tickets, high-emissions vehicles, and luxury goods with a high carbon footprint.

¹⁵ This extension of the ETS could be carried out in various different ways, ranging from retaining the current system but adding in 'upstream' measures to restructuring the whole ETS so that it concentrates solely on 'upstream' measures. An outline of different possible approaches can be found here: <http://www.sharingforsurvival.org/index.php/chapter-3-cap-share-in-pictures-by-laurence-matthews/>

¹⁶ See for example <http://www.capglobalcarbon.org/2016/06/05/tackling-climate-poverty-and-inequality-together-managing-the-share-in-capglobalcarbon-on-a-global-level/> and <https://www.feasta.org/wp-content/uploads/2019/06/Feasta-climate-group-submission-on-carbon-tax-allocation-June-28-2019.pdf>

The case for lump sum allocations in a global context is discussed further below.

3.3 Making the doughnut accessible to all: the ETS, climate justice, carbon revenue allocation and the CBAM

When considering the relationship between the ETS (particularly the considerably-expanded ETS that we are proposing), carbon fees, and the proposed Carbon Border Adjustment Mechanism, it is important to keep the overall global target of 100% decarbonisation by 2050 at the latest in mind, along with the need to bring about this transition in the fairest way possible.

We understand that the purpose of imposing tariffs on high-energy-footprint products from outside the EU is to prevent EU companies from being financially penalised for good environmental practices. Clearly, a well-designed CBAM would be vastly preferable to the emissions permit giveaways that have hitherto been used to try and address this problem of carbon leakage.

However, the logistics of judging exactly which products will need to be penalised and by how much will probably prove quite complex, and the greater the number of non-EU countries involved, the greater the complexity will become.

It is also important to bear in mind that, while the EU is not the most emissions-heavy region of the world, its per capita emissions are nonetheless greater than the world average. It would seem unfair and counterproductive for it to systematically penalise countries through the CBAM which in fact have lower per-capita emissions than it does. (Obviously, not all non-EU countries would fall into this category.)

There will also need to be a clear mechanism for determining which non-EU countries are sufficiently carbon compliant to be granted exemption from the CBAM, or to become able to eliminate CBAM-related export tariffs in due course.

The ultimate goal is of course to have a world in which no such mechanism is necessary at all anymore, as fossil fuel use will have been eliminated.

We suggest extending the ETS still further so that it also applies to one or more non-EU countries. Here is how this system could work:

1. A country or bloc of countries is selected by the EU, in consultation with representatives of the countries in question and with development and anti-poverty NGOs. The overall population of this 'partnership region' would correspond approximately to the population of the EU-27. Its average per capita emissions would be such that, when added to the per-capita emissions of the EU and divided by 2, the result would approximate the world average in per-capita emissions.
2. The EU and the partnership region would both agree to impose a cap on fossil fuel production and/or imports. This cap would be monitored by independent inspectors in both regions.
3. Permits would be auctioned annually by an independent Climate Commons Trust to fossil fuel producers and importers within the countries. A floor price would be established to ensure that the permits would bring in revenue of at least €10 per person per month. (This figure is based on World Basic Income's suggestion for a minimum basic income¹⁷. While modest, it could make a significant difference in many low-income countries.) If necessary, a maximum price would also be established, as discussed in section 2.1.
4. Revenue from the permits would be distributed to everyone in both countries on an equal per-capita basis. In the low-income country this would be brought about in consultation with charities and other agencies with experience in distributing cash transfers, and would probably

¹⁷ <http://www.worldbasicincome.org.uk>

make use of the mobile phone network. If a maximum carbon price is imposed, a quota system could also be introduced, again making use of the mobile phone network.

5. Each year, the quantity of permits available would diminish as the cap was lowered. The floor price would be adjusted to ensure the same minimum income.
6. As an income of €10 a month would not go very far in the EU, measures would also be introduced by member states, with the advice of the Commission, to protect low-income people in the EU from the effects of the rising energy bills brought about by this system. These measures would include energy retrofitting of housing, the installation of community heating, diversification of agriculture and subsidising of farmers' markets. They could be paid for by means of levies on the use of luxury high-CO₂ products: for example, the motor tax on high-emissions vehicles in member states could be raised. A levy could also be placed on first class flight tickets, on luxury food products that are flown in from abroad, and on other high-CO₂ luxury goods. Another possible source of funding to address fuel poverty could be from a Robin Hood tax.
7. By 2050, fossil fuel production would no longer be permitted and there would therefore be no more revenue from fossil fuel permits. Other revenue streams such as that from land value tax and other collective-property-based taxation would take over to provide a more permanent income to the populations of both regions. These could constitute a universal basic income, helping recipients to adjust to a rapidly-changing economy and to plan for the future.

It is important to note that all countries involved in this system would be exempt from the CBAM because their fossil fuel emissions would be addressed upstream, like the EU's, and at the same rate as the EU's.

Other countries or groups of countries would be encouraged to join in over time; the prerequisites for joining would be that they would need to have average per-capita emissions that were close to the average per-capita emissions for those countries already in the scheme, and they would need to be willing to allow external inspectors to monitor their production and imports of fossil fuel.

4. Fossil Fuel subsidies

It is clear that fossil fuel subsidies will have no place in a zero-emissions future.

We will not go into detail here on the specific challenges related to phasing out the vast array of subsidies currently in existence in Member States. However, we recognise that in the short to medium term, some subsidies will need to be phased out with care so as not to trigger unwanted economic effects.

If the upstream cap-and-share system proposed in Section 3 is introduced for eliminating fossil fuel imports and production in the EU, it follows that any remaining fossil fuel subsidies will gradually become toothless. By 2050 - even assuming that some of them still exist on paper - they will have no effect at all, as there will no longer be a fossil fuel supply to subsidise.

5. Conclusion

Decarbonisation by 2050 within the EU and elsewhere is clearly of vital importance, but will be a delicate balancing act because of the high dependency of the economy, particularly the transport sector, on oil. The transport sector will need to be thoroughly reconfigured, not just in terms of a switch in energy input and modes of transport, but also in terms of average speed and the amount of kilometres covered.

This will require a comprehensive examination of overall EU economic policy and a much more agnostic attitude to economic growth.

During the energy transition period, any change in energy price will need to be closely monitored to ensure that it does not trigger an economic crash, and a maximum carbon tax or fee will probably need to be imposed. The elimination of fossil fuel subsidies will also need to be carefully monitored. A quota system may need to be introduced, to ensure that everyone, rather than the wealthy alone, has access to some fossil fuel during the energy transition period.

To ensure that decarbonisation does take place despite the need to limit a carbon fee and that fossil fuel subsidies become redundant, we propose that the ETS should be extended and reconfigured so that it limits, and gradually phases out, the production and import of fossil fuel. We believe that this would be relatively easy to administer in practical terms and it would reduce the chances of decarbonisation being sabotaged by wealthy individuals who would not be affected by a carbon price.

We recommend that the revenues yielded be allocated on a lump-sum per-capita basis. Additional levies on luxury uses of carbon could also be applied.

We also recommend extending the ETS to include a group of lower-income partner countries which, taken together, have a similar population to the EU, in order to promote international climate justice and to minimise the bureaucracy associated with the CBAM.

Feasta (the Foundation for the Economics of Sustainability) is an ecological economics think tank, based in Ireland but with international membership. ‘Feasta’ is the Irish word for ‘in the future’. Our aims are to identify the characteristics (economic, cultural and environmental) of a truly sustainable society, articulate how the necessary transition can be effected and promote the implementation of the measures required for this purpose. Feasta is a member of the Irish Environmental Network, the Environmental Pillar, Stop Climate Chaos and the Wellbeing Economy Alliance. Further information at <http://www.feasta.org> .

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