

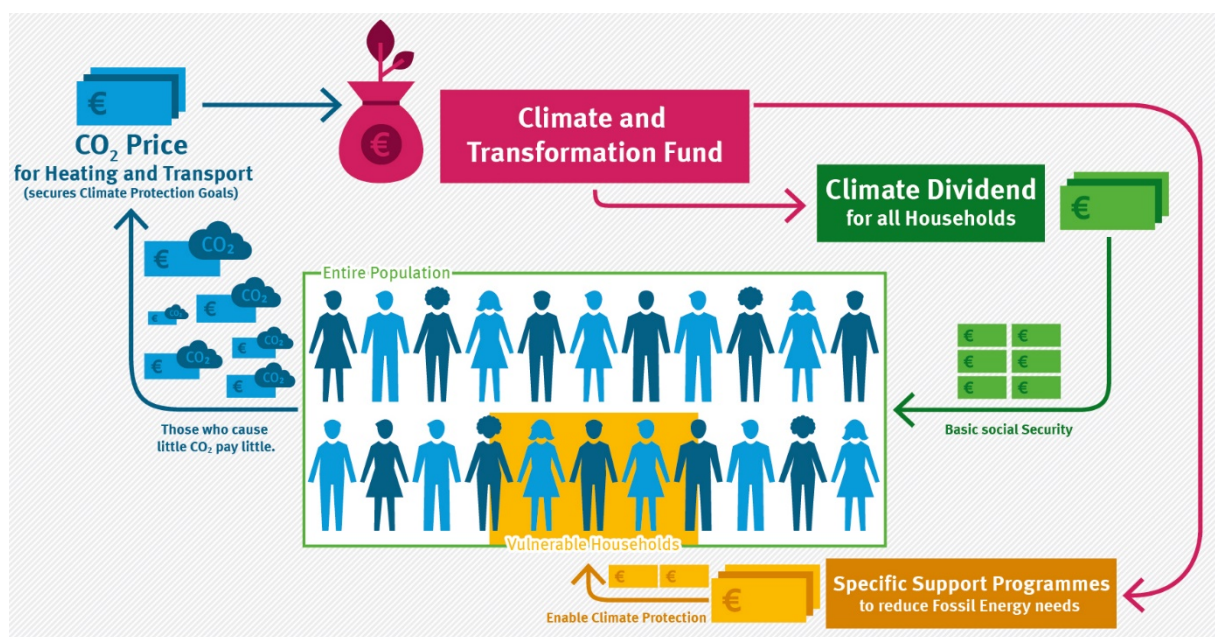
# Socially Balanced CO<sub>2</sub> Pricing in the Transport and Building Sectors

## Challenges, strategies, instruments

### 1 Summary

Ambitious CO<sub>2</sub> pricing via emissions trading is a key lever for achieving the statutory climate targets in the building and transport sectors. This makes climate protection measures economical, ensures target achievement through a binding upper limit on emissions and helps to keep the economic costs of climate protection low. However, it must be ensured that no social hardship arises. This paper by the German Environment Agency (UBA) shows how this is possible. In essence, the UBA proposes redistributing the revenues from national emissions trading (nEHS) to citizens via a climate dividend and supplementary support programs to reduce fossil energy needs for vulnerable households. Figure 1 below illustrates the main elements of the concept. The present paper is the abridged version of the UBA study “CO<sub>2</sub> pricing in the transport and building sector in a socially responsible manner.”<sup>1</sup>

**Figure 1: UBA's policy mix concept for socially balanced CO<sub>2</sub> pricing**



Source: own illustration, German Environment Agency

<sup>1</sup> <https://www.umweltbundesamt.de/publikationen/co2-bepreisung-im-verkehrs-gebaeudebereich>

## 2 Starting point for CO<sub>2</sub> pricing in the transport and building sectors

The amended Federal Climate Protection Act (KSG) has committed the Federal Government to reducing German greenhouse gas emissions by 65% by 2030 compared to 1990 and to achieving greenhouse gas neutrality by 2045. In addition to the overall targets, the KSG sets sectoral targets. This means a 67 million tonnes CO<sub>2</sub>eq target for buildings in 2030, which is a 68% reduction compared to 1990 and an 85 million tonnes CO<sub>2</sub>eq target for the transport sector in 2030, i.e. a 48% reduction compared to 1990.<sup>2</sup> Current projections clearly show that these ambitious official targets cannot be achieved by the climate protection instruments adopted so far. The projected reduction gap for Germany amounts to a total of 195 million tonnes CO<sub>2</sub>eq in 2030 (BMWK 2022), which is 27% of the 2020 total emissions. There is a particularly great need for action in the transport and building sectors and in the building sector, emissions are expected to be reduced by about 57% (a target shortfall of 24 Mt CO<sub>2</sub>eq), in the transport sector by 23% (a shortfall of 41 Mt CO<sub>2</sub>eq).<sup>3</sup>

While the European Emissions Trading System (EU ETS) has included the energy and industry sectors in an effective CO<sub>2</sub> pricing system since 2005, this has been lacking in the two aforementioned sectors for a number of years. The German Fuel Emissions Trading Act (BEHG) closed this gap in Germany in 2019 and has covered all fuel emissions outside the EU ETS by the National Emissions Trading System (nEHS) since 2021. The nEHS is designed as an emissions trading system with annually increasing fixed CO<sub>2</sub> prices (from 25 euros/t in 2021 to 45 euros/t in 2025) up to 2025, and a 55 to 65 euros/t CO<sub>2</sub> price corridor will apply in 2026. No decision has been taken about the structure from 2027 onwards as yet. However, the Coalition Committee decided as part of the Federal Government's third relief package at the beginning of September 2022 to postpone price increases in the nEHS by one year from 2023. The corresponding amendment came into force in November 2022.<sup>4</sup>

The introduction of a fuel ETS for buildings and transport and its design are currently also being discussed, sometimes controversially, at the EU level within the framework of the European Commission's 'Fit for 55 Programme'. In parallel, the Commission plans to establish a Social Climate Fund, which will be mainly fed by revenues from an envisaged extended European ETS to the building and transport sector. The funds are supposed to cushion the additional burdens using a CO<sub>2</sub> price for vulnerable groups and to initiate measures for reducing consumption and decarbonisation in the medium and long term.<sup>5</sup>

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<sup>2</sup> Purr, K.; Wehnmann, K.; Balzer, F.; Erxleben, F.; Hendzlik, M.; Kahrl, A.; Lange, M.; Lünenbürger, B.; Steinbrenner, J.; Weyland, M. (2021): Treibhausgasminde rung um 70 Prozent bis 2030: So kann es gehen! UBA-Positionspapier, September 2021, <https://www.umweltbundesamt.de/themen/jetzt-handeln-treibhausgasminde rung-um-70-prozent>

<sup>3</sup> Repenning, J.; Harthan, R.; Blanck, R.; Böttcher, H.; Braungardt, S.; Bürger, V.; Emele, L.; Görz, W.; Hennenberg, K.; Jörß, W.; et al. Projektionsbericht 2021 für Deutschland. 2021, [https://www.umweltbundesamt.de/sites/default/files/medien/372/dokumente/projektionsbericht\\_2021\\_uba\\_website.pdf](https://www.umweltbundesamt.de/sites/default/files/medien/372/dokumente/projektionsbericht_2021_uba_website.pdf)

<sup>4</sup> Before the BEHG was amended, a CO<sub>2</sub> price of 35 euros/t applied in 2023, intentionally raised to 45 euros/t in 2024 and 55 euros/t in 2025.

<sup>5</sup> Schumacher, K., Cludius, J., Noka, V., Fiedler, S., Leisinger, C., Tews, K. (2022): Der Klimasozialfonds im Fit-for-55-Paket der Europäischen Kommission – Definition und Quantifizierung vulnerabler Haushalte und notwendige Finanzierungsbedarfe. UBA-Texte 58/2022. Umweltbundesamt. <https://www.umweltbundesamt.de/publikationen/der-klima-sozialfonds-im-fit-for-55-paket-der> (abgerufen am 30.11.2022).

### 3 Ambitious CO<sub>2</sub> pricing is needed to achieve climate targets in the transport and building sectors

Embedded in an effective mix of instruments and measures, CO<sub>2</sub> pricing via emissions trading is a significant lever on the transformative path toward greenhouse gas neutrality in the transport and building sectors. Emissions trading creates predictability and effectively secures the achievement of targets via decreasing emission caps. Furthermore, CO<sub>2</sub> pricing sustainably strengthens the economic efficiency of climate protection measures and helps to keep the economic costs of decarbonisation low.

The parties supporting the Federal Government committed themselves to CO<sub>2</sub> pricing in their coalition agreement in November 2021 but excluded price increases within the BEHG in view of the already high energy prices at that time and their social implications. The Coalition Committee's decisions in early September 2022 even temporarily lowered the envisaged price level within the BEHG by postponing the planned price increases by one year in each case.

This is problematic because, from the German Environment Agency's (UBA) point of view, it is crucial that emissions trading and CO<sub>2</sub> pricing guarantee the agreed climate targets and provide directional certainty. The social issues behind the current reductions must be solved by incentivising measures for a socially balanced CO<sub>2</sub> pricing, and not by lowering the ambition level. The aim of this paper is to show how this could be implemented. The decision to postpone the already moderate price increases within the BEHG during the fixed price phase, however, leads to a weakening of climate protection which is not necessary from a social point of view.

An ambitious and binding cap and the transition to emissions trading with market pricing are key prerequisites for the above-mentioned climate policy goals in the transport and building sectors. Under relevant conditions, very high energy prices and ambitious sector-specific climate protection instruments lead to relatively low CO<sub>2</sub> prices in emissions trading because they set strong reduction incentives. Conversely, if energy prices are low and flanking instruments are weak, an appropriately designed emissions trading system can only guarantee target achievement by setting relatively high CO<sub>2</sub> prices. Emissions trading thus has a key function in securing climate policy targets and it creates the decisive planning security for the industry and society that a rapid and consistent phasing-out of fossil fuels must take place.

### 4 Currently, the CO<sub>2</sub> price is not a significant driver for the current increases in energy end-user prices

The current dynamics in energy end-user prices are largely dominated by the consequences of the war in Ukraine and the trend in producer prices on the world energy markets. According to BDEW, the CO<sub>2</sub> price in 2021 (25 euros/t) for heating customers was around 0.5 ct/kWh as part of the average household gas price of a single-family house totalling a good 7 ct/kWh.<sup>6</sup> The envisaged annual 5 euros/t growth rates of the CO<sub>2</sub> price mean an increase in gas prices of around 0.1 ct/kWh. So if gas prices were to double in the current year to around 14 ct/kWh compared to 2021 or even triple to over 20 ct/kWh, the BEHG would only have a marginal share in these increases. The situation is similar in the field of liquid fuels. Here, according to the

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<sup>6</sup> BDEW – Bundesverband der Energie- und Wasserwirtschaft e.V. (2022): BDEW Gaspreisanalyse September 2022: Haushalte. Berlin. [https://www.bdew.de/media/documents/220916\\_BDEW-Gaspreisanalyse\\_Sep\\_2022\\_16.09.2022.pdf](https://www.bdew.de/media/documents/220916_BDEW-Gaspreisanalyse_Sep_2022_16.09.2022.pdf) (abgerufen am 2.12.2022)

ADAC, 5 euros/t CO<sub>2</sub> correspond to an additional price increase of about 1.5 ct/litre<sup>7</sup> (ADAC 2022a). This is significantly lower than the daily price fluctuations for diesel and petrol, which amount to up to 12 ct/litre<sup>8</sup> but also amount to only a fraction of the price increases compared to the previous year: in August 2022, the average price for a litre of diesel in Germany was 195.9 ct/litre, i.e. 57.3 ct/litre higher than the previous year's figure.<sup>9</sup>

In the future, however, sharply rising CO<sub>2</sub> prices could lead to significant negative distribution effects and social hardship if no countermeasures are taken.

## 5 The socially balanced design of CO<sub>2</sub> pricing in the transport and building sectors is a central challenge for German and European climate policy

Empirical analyses show that a CO<sub>2</sub> price in the transport and building sectors, on average burdens low-income households relatively more than households with high incomes.<sup>10</sup> Furthermore, CO<sub>2</sub> pricing can lead to social hardship in population groups that have a very high consumption of fossil energies due to structural factors. This applies to long-distance commuters who, due to a lack of alternatives, drive to work in a petrol or diesel car, or to tenants who use oil or gas heating and live in poorly insulated flats. Therefore, it is necessary to develop concepts and concrete proposals for a socially balanced design of CO<sub>2</sub> pricing. As a special fund, the KTF is currently financing a wide range of measures in the field of energy transition and climate protection: such as the refinancing of the EEG levy abolition or measures to promote e-mobility and an energy-efficient and greenhouse gas-neutral building stock.<sup>11</sup>

Against this background, this paper provides an overview of which strategies and instruments can be considered for a socially and climate-compatible design of CO<sub>2</sub> pricing, which criteria are decisive for their evaluation and which strategies make sense according to these criteria.

### **Making fossil fuels cheaper through tax cuts and subsidies is not a sensible strategy for making CO<sub>2</sub> pricing socially balanced**

One approach frequently proposed in the political and public debate, and also partially implemented in the Federal Government's 2022 relief pacts, is to make fossil energies cheaper through subsidies or tax cuts in order to reduce the burden of energy price increases. It would also be conceivable to use such measures to compensate for income burdens caused by CO<sub>2</sub> pricing. However, as the analysis shows, such a strategy is not very effective in terms of distribution policy due to the lack of focus on the lower income strata and is economically and fiscally inefficient because of the lowering in reduction incentives. This applies to a reduction of the energy tax as well as to a reduction of the value-added tax on fossil energies or a reduction of

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<sup>7</sup> ADAC – Allgemeiner Deutscher Automobil-Club (2022a): Brennstoffemissionshandelsgesetz: Benzin und Diesel auch 2022 teurer. Abrufbar unter: [Tanken: Darum sind Benzin & Diesel 2022 teurer | ADAC](#) (abgerufen am 06.12.22).

<sup>8</sup> ADAC – Allgemeiner Deutscher Automobil-Club (2022c): Wann ist Tanken am günstigsten? Abrufbar unter: [Schwankende Spritpreise: Abends tanken ist am günstigsten | ADAC](#) (abgerufen am 06.12.22)

<sup>9</sup> ADAC – Allgemeiner Deutscher Automobil-Club (2022b): So haben sich die Spritpreise seit 1950 entwickelt. Abrufbar unter: [Spritpreise Entwicklung: Benzin- und Dieselpreise seit 1950 | ADAC](#) (abgerufen am 06.12.22)

<sup>10</sup> Schrems, I.; auf der Mauer, A.; Kemmler, A.; Trachsel, T.; Saad, N.; Bach, S.; Knautz, J.; (2022): Wirkung des nationalen Brennstoffemissionshandels – Auswertungen und Analysen. Download unter: [Wirkung des nationalen Brennstoffemissionshandels - Auswertungen und Analysen \(umweltbundesamt.de\)](#)

<sup>11</sup> 11. „EKF-Bericht“. Bericht des Bundesministeriums der Finanzen über die Tätigkeit des Energie- und Klimafonds im Jahr 2021 und über die im Jahr 2022 zu erwartende Einnahmen- und Ausgabenentwicklung. Berlin. Download unter: [https://www.bundesfinanzministerium.de/Content/DE/Downloads/Oeffentliche-Finanzen/11-EKF-Bericht.pdf?\\_\\_blob=publicationFile&v=3](https://www.bundesfinanzministerium.de/Content/DE/Downloads/Oeffentliche-Finanzen/11-EKF-Bericht.pdf?__blob=publicationFile&v=3)

other state energy price components for fossil energy sources. They also reduce the economic incentives to save fossil energies in the transport and building sectors. This in turn leads either to an increase in greenhouse gas emissions or – after the end of the fixed-price system in national emissions trading – to a sharp rise in CO<sub>2</sub> prices because a strong demand for CO<sub>2</sub> certificates is then limited by a binding cap.

**A climate dividend and support programmes for vulnerable groups can go hand in hand with ambitious CO<sub>2</sub> pricing and social acceptability**

UBA proposes a mixed policy concept comprising the following elements:

1. **Introduction of a climate dividend.** A major part of the revenues from CO<sub>2</sub> pricing in the nEHS should flow back to citizens in the form of a climate dividend. This ensures that, on average, the lower income strata do not suffer a net burden by the CO<sub>2</sub> price but are actually relieved. In a sense, the climate dividend thus represents a basic safeguard against social hardship. High-income households, however, are generally burdened in net terms. This is positive from a distributional point of view and also fair because on average they cause higher CO<sub>2</sub> emissions. In relation to their net income, however, the burden is fairly moderate. The incentives for households to take energy efficiency measures or to switch to non-fossil energies remain essentially effective. This is because those who emit less CO<sub>2</sub> retain a higher share of the climate dividend that they can use for other spending purposes. A climate dividend can contribute decisively to the acceptance of higher CO<sub>2</sub> price levels because of these positive effects and significantly favour the political and social feasibility of ambitious CO<sub>2</sub> prices.
2. **Support programmes for energy cost savings for vulnerable groups.** Specific support programmes should be launched for population groups that are particularly burdened by CO<sub>2</sub> pricing and are not able to sufficiently reduce these burdens on their own by behavioural adjustments or investments in climate protection measures, so that they can reduce their burden through energy efficiency measures or a switch to non-fossil energy sources. These measures not only reduce the dependence of vulnerable households on fossil fuels and lower their energy costs, but also make an important contribution to climate protection, social participation and social security. Funding could be provided, for example, by focusing existing support programmes more strongly on vulnerable groups and the lower-income strata. These central strategic starting points for a socially balanced CO<sub>2</sub> pricing are explained in more detail below.

**The climate dividend provides a basic safeguard against social hardship and can thus strengthen the social acceptance of an ambitious CO<sub>2</sub> price in the long term.**

According to calculations carried out by the German Institute for Economic Research (DIW) on behalf of the (UBA), about 70% of the revenue from the national CO<sub>2</sub> price<sup>12</sup> would be sufficient to offset the average CO<sub>2</sub> costs for low-income households with a climate dividend.<sup>13</sup> This is illustrated in Figure 2. The figure shows the burdening effect of the BEHG differentiated by energy fuel and heating fuel and the relieving effect of the climate dividend. The burdening and relieving effects are shown as a relative change in relation to the respective average income of

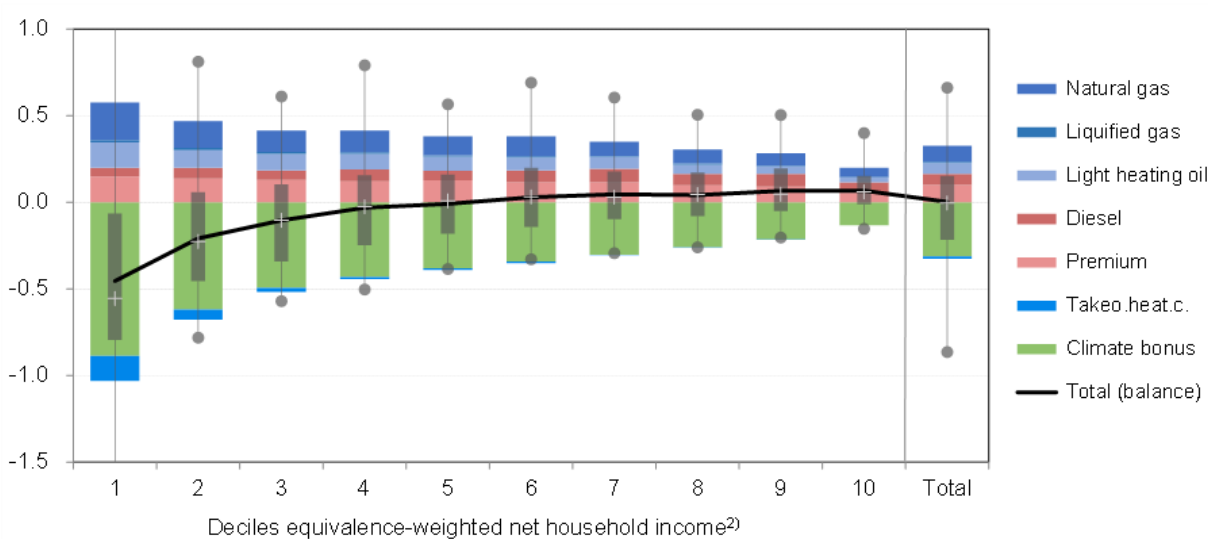
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<sup>12</sup> Only the expenses for the compensation to companies for the prevention of carbon leakage (BECV) created in the BEHG and the system costs for refinancing the DEHSt are retained. The DIW analysis continues to assume that the climate dividend climate dividend will not be offset against the increased heating cost subsidies in the context of basic income support.

<sup>13</sup> Schrems, I.; auf der Mauer, A.; Kemmler, A.; Trachsel, T.; Saad, N.; Bach, S.; Knautz, J.; (2022): Wirkung des nationalen Brennstoffemissionshandels – Auswertungen und Analysen. Download unter: [Wirkung des nationalen Brennstoffemissionshandels - Auswertungen und Analysen \(umweltbundesamt.de\)](#)

the households (stacked columns). A climate dividend that is uniform in its amount leads to less relative relief for high-income household than for low-income ones – it thus has a progressive effect. The black line represents the net effect of the burden and relief. All private households are grouped into ten groups for the analysis and ranked according to their income (income deciles). There would even be a net relief on average for households with the lowest incomes (first to fourth income decile), the climate dividend would thus clearly overcompensate for the burden by the BEHG in relation to household income. The middle-income decile would be placed in roughly the same position as if there were no CO<sub>2</sub> pricing. High-income households, however, would be moderately burdened – the relative net burden is less than 0.1% in relation to their household income for the 10% households with the highest income. Having a CO<sub>2</sub> price of currently 30 euros per tonne in 2022, the climate dividend would have to be 70 euros per person and then rise with the CO<sub>2</sub> price in the coming years. In total, a climate dividend in the corresponding amount would be revenue-neutral for private households. The burdens from the BEHG and the relief from the climate dividend would therefore balance each other out completely for private households as a whole (see black line for households as a whole). I.e. a fairly moderate burden on upper incomes in relation to their household income enables a significant relative relief for the lower-income groups. The total expenditure of the state for full compensation of BEHG burdens via the climate dividend for the private household sector would be around 5.8 billion euros in 2022.

**Figure 2: Burden and relief for private households through national emissions trading with a 70-euro climate dividend per person as a percentage of household net income<sup>1)</sup>**



1) Including VAT. Consumption 2015. Income extrapolated to 2022.

2) Equivalence weighted with the new OECD scale, related to the population in private households

For total: Box plot: 25% to 75% percentile. Whisker plot: 2.5% to 97.5% percentile. +: Median, 50% percentile.

Source: see footnote 10

A central plus point of the climate dividend is that it guarantees basic social security even at very high CO<sub>2</sub> prices – and this is in principle automatic if the climate dividend is linked to the CO<sub>2</sub> price. This is because higher CO<sub>2</sub> prices also increase the state's revenues and thus the leeway for compensation payments to prevent social hardship. The climate dividend could thus largely resolve the (apparent) dilemma between ambitious emissions trading in the transport and building sectors based on sectoral climate protection targets, and a socially balanced design.

However, a climate dividend cannot sufficiently compensate hardship cases and vulnerable households so further instruments are required to prevent social hardship for this group. This finding is of great importance to aid the design of the climate dividend. If the size of a climate

dividend ensures revenue-neutrality for all households, the state's fiscal leeway based on the BEHG is entirely exhausted. However further financing is still needed for the above-mentioned measures specifically tailored to hardship cases and vulnerable groups. This would encourage paying a reduced climate dividend, i.e. less than 70 euros related to 2022, which would still allow for an (albeit lower) average net relief for the lower income deciles. In addition, fiscal leeway would be created to reduce fossil energy consumption and specifically relieve the vulnerable groups (cf. Chapter 5). This differentiated use of funds would be advantageous from a social and climate protection view and also important with regard to the expected requirements for the (not yet adopted) European Social Climate Fund.

It would also be conceivable to not grant the climate dividend as a per capita lump sum but staggering it according to the income level. In this case, a significantly smaller share of the revenue would be required to financially compensate low-income households. This would establish an additional financial leeway for support programmes aimed at saving energy cost for vulnerable groups or other purposes within the Climate and Transformation Fund (KTF). Although such a solution would be more targeted from a social point of view, it would be more difficult to implement and would involve significantly higher administrative burdens. This argues in favour of introducing the climate dividend as a uniform per-capita payment, but income tax should be included in the assessment. Low-income households would pay none or only very moderate tax on the climate dividend due to the progressive tax scale, and high-income earners would obtain significantly lower after-tax climate dividend. Thus, the climate dividend would have a noticeably more targeted effect from a social point of view and the additional tax revenues would make it more fiscally efficient at the national level.

A climate dividend could in principle be introduced and implemented without great effort by linking it to existing payment channels. The tax IDs may be used as central registration figures: the Federal Central Tax Office (BZSt) stores them centrally for the entire population. Only a climate dividend register would have to be set up to prevent double payments and enable linking the tax ID with the account data of the entitled persons. The government's draft of the Annual Tax Act 2022 (JStG 2022) provides for the "creation of a relevant legal basis for the establishment of a direct payment channel for public services using the tax identification number", which would enable the implementation of a climate dividend. Linking the climate dividend to existing procedures and largely dispensing with the need to submit an application could enable relatively low administrative costs caused by the climate dividend. Färber and Wieland (2022) estimate the one-off administrative costs of the climate dividend to be in the single-digit millions for the establishment of the register and annual costs of less than one million for its maintenance and updating.<sup>14</sup>

The climate dividend should be paid to citizens at the beginning of the year for the following 12 months because a subsequent refund would require households to pay in advance, which would be particularly problematic for low-income households. Moreover, an upstream payment is likely to additionally increase the acceptance of CO<sub>2</sub> pricing. For reasons of acceptance, a high visibility of the relief is also important.

### **The climate dividend needs a secure funding basis**

To ensure that the amount of the climate dividend can be adjusted each year to the anticipated increase in revenue from CO<sub>2</sub> pricing, the Federal Government should enshrine this in law. Currently, the revenues from the BEHG are to a large extent tied up for other expenditure purposes under the KTF – including the refinancing of the EEG (Renewable Energy Act) surcharge. The introduction of a climate dividend thus has implications for the current financing

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<sup>14</sup> Rechtliche und verwaltungsorganisatorische Möglichkeiten der Umsetzung einer Klimaprämie. Deutsche Universität für Verwaltungswissenschaften Speyer, Gutachten, Februar 2022.

system in the KTF and would require additional federal subsidies if all existing expenditure purposes were maintained unchanged. The existing expenditure purposes should therefore be critically reviewed. A prominent example is the state aid for electric vehicles (e-vehicles) through the purchase premium in the form of the environmental bonus and partly supplemented by the innovation bonus. This also includes plug-in hybrid vehicles and is therefore critical from an ecological perspective. At the same time, it tends to favour upper income groups. Financing from the KTF is thus difficult to justify. In future, the promotion of e-vehicles could take place in a revenue-neutral manner via a bonus-malus system in the motor vehicle tax. This measure alone would provide significant leeway for the introduction of the climate dividend – the KTF was burdened with about 3.1 billion euros through the promotion of e-vehicles in 2021.

Another central expenditure item in the KTF is the refinancing of the EEG surcharge. However, it is difficult to forecast how high the costs of EEG surcharge refinancing will be in the future. It is thus unclear how high the proportionate financing requirement from the BEHG for the EEG surcharge will be under the current KTF framework conditions. For this reason alone, a coupling of CO<sub>2</sub> price revenues and EEG surcharge financing is not compatible with the goal of creating a reliable and sufficient financing basis for the climate dividend. A proportional earmarking of CO<sub>2</sub> price revenues for the climate dividend, however, would ensure this.

Moreover, the promotion of renewable energies is a task for the state as a whole, which should be financed independently of the CO<sub>2</sub> price revenues. This is also supported by the fact that, in contrast to the climate dividend, the EEG surcharge financing has no direct connection to the CO<sub>2</sub> price. Social and distribution policy reasons also speak against using the financing of the EEG surcharge to correct the negative distribution effects of the CO<sub>2</sub> price. For example, the climate dividend can prevent socially problematic burdens from the CO<sub>2</sub> price in a much more targeted way.

#### **Income-related instruments could prevent social hardship for vulnerable households**

In the housing sector, there are proven social-policy-instruments that can prevent social hardship through financial aid. The takeover of the costs of housing and heating (KdU) according to Social Code (SGB II, XII) and Asylum-Seekers' Benefits Act (AsylbLG) as well as the CO<sub>2</sub> component in the housing allowance ensure that a considerable proportion of low income and vulnerable households are not burdened by the CO<sub>2</sub> price in the building sector.

However, many households fail to apply for the relevant social benefits above, although they would be entitled to them. The climate dividend can at least partially close this gap since all households receive it. Insofar as recipients of housing benefit and KdU would also benefit from the climate dividend, it must be checked from an administrative and social point of view whether and in what way offsetting these benefits is practicable and reasonable.

The mobility sector offers several options to compensate for or prevent financial burdens due to CO<sub>2</sub> pricing. A further increase in the mileage allowance is not practical as this would have negative distribution and climate effects. Moreover, important population groups would not be relieved at all, e.g. pensioners or students, because they do not have jobs subject to income tax. A distance-related mobility allowance is also suggested which would be granted regardless of the means of transport and deducted from the tax liability. As model calculations show, the mobility allowance would have significantly better distribution effects than the mileage allowance. However, it would continue to encourage the trend towards long-distance journeys to work and would only benefit population groups that pay income tax. It would make sense from an environmental point of view to only grant the mobility allowance in full for car use if public transport use is not reasonable, as is already the case in Austria, for example.



In addition, there is the option of relieving private households by making public transport cheaper, for example by exempting public transport from VAT, introducing social tickets nationwide and reducing bureaucracy and a follow-up regulation for the 9-euro ticket. These measures are positive from a social and climate protection point of view. However, they hardly relieve vulnerable households in rural areas with poor public transport connections. Therefore, complementary instruments are needed to close this gap.

### **Specific support programmes for vulnerable groups should complement the climate dividend**

In addition to the climate dividend, the state should use a part of the CO<sub>2</sub> price revenue to support programmes that help vulnerable households to reduce their energy costs. Such programmes directly enable synergies between social goals and climate protection. Moreover, they tend to have a dampening effect on CO<sub>2</sub> prices as they tend to reduce the demand for fossil energies and thus also for CO<sub>2</sub> certificates. The following support measures are particularly suitable from the UBA's point of view:

- ▶ expansion of energy counselling for low-income households to increase low-threshold savings potential,
- ▶ targeted financial aids for vulnerable owners of buildings in need of energetic renovation,
- ▶ support to energetic renovation in vulnerable areas,
- ▶ prioritisation of the most inefficient buildings in energetic renovation funding,
- ▶ targeted measures to promote sustainable mobility for vulnerable households, for example by supporting the switch to purely electric vehicles.

The above-mentioned measures and instruments can make an important contribution to permanently relieving vulnerable groups and increasing their resilience to market-driven energy price increases. Their positive social effects thus go far beyond the goal of providing relief from the costs of CO<sub>2</sub> pricing. Financing could also be provided by focusing existing support programmes more strongly on vulnerable groups and a proportionate financing could be generated from BEHG revenues.

### **Charging CO<sub>2</sub> and heating costs in the building sector according to the polluter-pays principle increases social compatibility and improves the incentive effect of CO<sub>2</sub> pricing**

The support programmes should be supplemented by a polluter-pays system for CO<sub>2</sub> and heating costs in the building sector. Both from a social point of view and in view of the limited possibilities for tenants to reduce their energy consumption in the face of rising CO<sub>2</sub> prices, it makes sense for landlords to bear part of the CO<sub>2</sub> costs. The planned regulations sharing of the CO<sub>2</sub> costs due to the BEHG is therefore welcomed. In addition, further reforms in the direction of a partial warm rent model, which not only splits the CO<sub>2</sub> costs but also the entire heating costs between tenants and landlords, are sensible. This increases the economic incentive for landlords to undertake investment measures to reduce the consumption of fossil fuels, strengthens the ecological steering effect of the CO<sub>2</sub> prices and contributes to efficiently achieving the climate protection goals.

### **Climate dividend and support programmes must be flanked by appropriate framework conditions and a sector-specific mixed policy**

The measures and instruments proposed so far are directly related to CO<sub>2</sub> pricing. They ensure even an ambitious CO<sub>2</sub> pricing is socially acceptable and helps create synergies between climate protection and social goals. However, not least in view of the skyrocketing energy prices, further

measures are useful to help citizens reduce their energy costs using climate protection measures. The following points are particularly important:

1. **Building sustainable infrastructure:** Well-developed and attractively priced public transport is an important prerequisite for low-income families and commuters to be able to adapt to rising CO<sub>2</sub> prices. Central to this issue is an increase in investment in public transport, good public transport connections and attractive tariff models – including rural areas and the surrounding areas of cities. This promotes both climate protection and the social compatibility of a climate policy. Another important field of action is the nationwide expansion of charging infrastructure as this facilitates the switch to e-mobility. Fast and stable internet is also important to enable more people to access teleworking and save on travel costs to work.
2. **Instruments to raise energy saving potentials and to prevent lock-in effects:** Numerous studies show that there are a large number of measures for saving fossil energies in the transport and building sectors that, on balance, enable a significant reduction in the energy costs of private households. In order for them to be implemented on a broad scale, government measures are often needed, be it in the form of support programmes for energy-efficient building renovation, the installation of heat pumps, or regulatory legal instruments such as speed limits or CO<sub>2</sub> fleet limits for cars. Whether and to what extent such instruments are used will largely determine how high the energy costs of private households will be in the coming years.

Such an integrated strategy offers advantages that go far beyond the relief of costs due to CO<sub>2</sub> pricing. This is because it permanently reduces the vulnerability of citizens to large price increases in fossil energy sources, defuses the danger that a rapid increase in fossil energy prices will lead to social upheaval, and at the same time reduces greenhouse gas emissions in the transport and building sectors. At the same time, such a strategy has various positive economic effects because it removes long-term obstacles and thereby mobilises particularly cost-effective potentials to save fossil energies and strengthens the ecological steering effect of CO<sub>2</sub> pricing.

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Umweltbundesamt  
Wörlitzer Platz 1  
06844 Dessau-Roßlau  
Tel: +49 340-2103-0  
Fax: +49 340-2103-2285  
[buergerservice@uba.de](mailto:buergerservice@uba.de)  
Internet: [www.umweltbundesamt.de](http://www.umweltbundesamt.de)  
 [/umweltbundesamt.de](https://www.facebook.com/umweltbundesamt.de)  
 [/umweltbundesamt](https://twitter.com/umweltbundesamt)

### Authors, Institutions

Andreas Burger, Benjamin Lünenbürger,  
Kerstin Tews, Jan Weiß and Hans  
Zschüttig  
with the assistance of: Kilian Frey,  
Manuel Hendzlik, Christoph Kühleis,  
Martin Lange, Jens Schuberth, Joscha  
Steinbrenner, Björn Verse

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