Green and progressive tax proposals for the Netherlands

Catalogue with fiscal policies to cut carbon emission and promote social equity

CE Delft

Committed to the Environment

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This report was written by:
Martijn Blom, Sjoerd Boerdijk, Ward van Santen and Mona Khalif

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Further information on this study can be obtained from the contact person Martijn Blom (CE Delft)

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Introduction

The fiscal policy package in the Netherlands falls short in addressing climate change

In 2024, the Dutch Environmental Assessment Agency (PBL) noted that the Netherlands is at risk of missing its 2030 climate targets. The agency stressed the urgent need for additional policies that can deliver rapid and meaningful impact (PBL, 2024).

Despite this urgency, the current fiscal policy package in the Netherlands falls short. Instead of supporting the green transition, it continues to fuel climate change. Major industrial polluters benefit from generous tax exemptions, while capital linked to high carbon emissions remains largely untaxed. At the same time, oil and gas companies have been allowed to earn record profits from high energy prices — profits that flow to shareholders, while a growing number of households struggle with rising energy bills and fall into energy poverty (TNO, 2023).

This study assesses a package of six green and progressive fiscal policies

There is a growing urgency for green and progressive fiscal policies in the Netherlands. Such policies are needed to make polluters pay, ease the tax burden on low- and middle-income households, make green investments more attractive, and raise revenues to support the green transition both nationally and internationally. In response to this need, Oxfam Novib and Milieudefensie commissioned CE Delft to conduct an exploratory study assessing six green and progressive fiscal policies. The six policies are presented in Table 1.

In this study we show that the fiscal policy package generates annual revenues of € 84 billion and reduces annual GHG emission by at least 8.3 Mton, equivalent to 5.7% of total GHG emissions in the Netherlands. These taxes serve several policy purposes: environmental correction (CO_2 component), addressing market power (excess or abnormal profits), long-term decarbonisation of capital (Carbon Wealth Tax) and redistribution/fairness (progressive elements in all taxes).

Table 1 - Overview of the Catalogue with green and progressive fiscal policies for the Netherlands

Fiscal policy	Description	Annual revenues	Annual GHG emission reduction	Fairness (tax burden)
Carbon Wealth Tax[1]	Tax on the net value of investments and firm ownership held by the top 1% wealthiest individuals, with higher tax rates applied to assets associated with greater carbon intensity, aiming to steer capital away from high-emission activities.	€ 48.9 billion	4,839 Kton	Tax applies exclusively to individuals in top 1% of wealth distribution.
Excess Profit Tax	Tax on excessive profits of large corporation with higher tax rates for firms with higher CO_2 emissions, aiming to reduce profitability from polluting activities and incentivise emission reduction.	€ 26.2 billion	No estimate	Tax applies to large (polluting) firms with high profit margins.
Phasing out fossil subsidies in the Dutch Industry	Phasing out fossil subsidies in the Dutch industry involves removing financial support for fossil fuel use, aiming to reduce market distortions and level the playing field for firms transitioning to higher energy efficiency.	€ 3.6 billion	120 kton	Potentially affects low- and middle income households if increased costs passed on to consumers.
Shipping fuel tax	A shipping fuel tax is a levy on marine fuel use, aiming to reduce emissions from the shipping sector and encourage a shift toward sustainable shipping fuels.	€ 2.8 billion	1,650 kton	Potentially affects low- and middle income households if tax passed on to consumers.
Progressive aviation ticket tax	A progressive aviation ticket tax increases with flight distance and travel frequency, aiming to reduce emissions while shifting the tax burden to high-income individuals who, on average, fly more often and over longer distances.	€ 2.3 billion	1,700 kton	Tax burden falls on high-income households.
Heavy Vehicle tax	A heavy vehicle tax discourages the purchase of SUVs and other heavy vehicles and hence promoting lighter vehicles. This reduces fuel use, CO_2 emissions, and material demand in production.	€ 0.5 billion	0 kton	Tax burden falls on high-income households.

The fiscal policies are evaluated based on their revenue generating potential, climate impact, and fairness

Each fiscal proposal has been assessed with regards to:
- **Revenue:** How much revenue each tax measure generates.
- **Climate impact:** How the measure contributes to reducing GHG emissions.
- **Fairness:** Evaluating the socioeconomic implications, how it aligns with the Polluter Pays Principle, and what its effects are on consumer prices.

[1] In this study, the Carbon Wealth Tax refers to a combination of the Carbon Wealth Tax and a General Net Wealth Tax. Unless otherwise stated, such as in Section 2.2 where both taxes are analysed separately, references to the Carbon Wealth Tax should be understood as this combined measure.

Outcomes – climate impact

The fiscal package reduces greenhouse gas (GHG) emissions by at least 8.3 Mton a year, equivalent to 5.7% of total GHG emissions in the Netherlands in 2023

The Carbon Wealth Tax delivers the largest share of this reduction, accounting for 4.8 Mton. This is a conservative estimate that reflects only direct emission reductions resulting from curbing carbon-intensive investments by the wealthiest households. The estimate does not include any additional behavioral effects, such as shifting capital toward low-carbon assets.

Other measures, such as the Progressive Aviation Ticket and the Shipping Fuel Tax, also demonstrate strong climate benefits (both 1.7 Mton). In contrast, Phasing out fossil subsidies in the Dutch industry yields relatively limited emission reductions. This is because even without subsidies the current (more polluting) technologies are still cheaper than their greener alternatives. Nevertheless, removing fossil subsidies brings the price disadvantage of greener alternatives much closer to replacing the polluting technologies, contributing to a more level playing field with industrial firms making efforts to become greener.

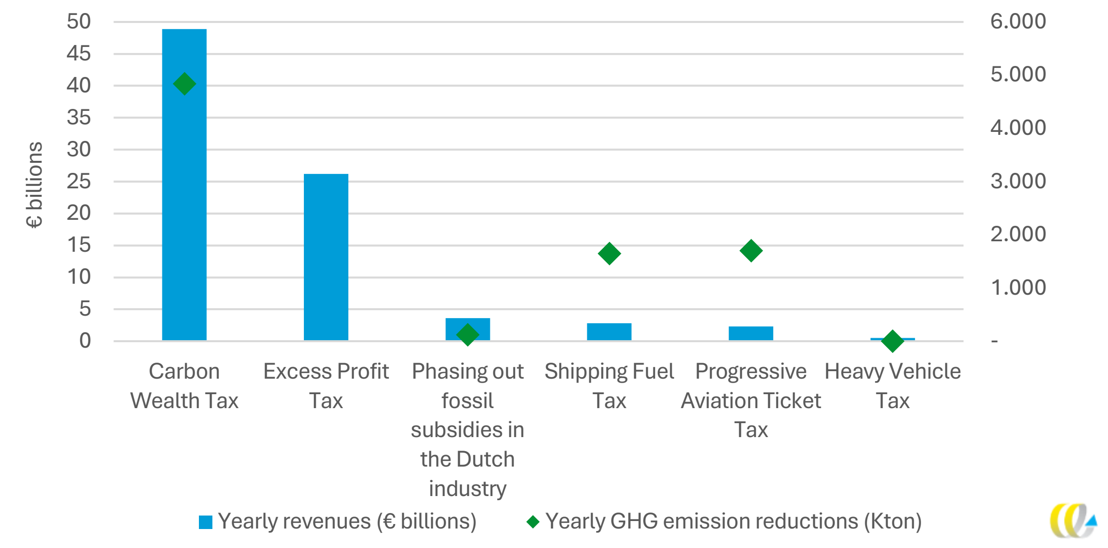
The Heavy Vehicle Tax shows minimal climate impact. This is due to its limited tax base and the low price sensitivity of SUV buyers, meaning that even higher prices do not significantly reduce demand. Lastly, the GHG emission reduction potential of the Excess Profit Tax stems from companies adjusting their behaviour to lower CO_2 emissions and, in turn, reduce taxes. This behavioural response could not be quantified within the scope of this analysis. As a result, the total GHG emission reduction of the fiscal policy package presented in this study should be considered a conservative estimate.

Outcomes - revenues

The proposed fiscal package generates approximately € 84 billion in annual tax revenue

Figure 1 shows revenues and the climate impact of the fiscal package. It raises about € 84 billion annually, with 89% coming from the Carbon Wealth Tax and the Excess Profit Tax.
The Carbon Wealth Tax yields high revenues due to the large wealth base, € 1.1 trillion in wealth held by the top 1%, making even low rates highly effective. The Excess Profit Tax's strong contribution come from a € 48 billion tax base and steep progressive tax rates (12–90%). Our assessment of the Excess Profit Tax is limited to the 35 most polluting companies in the Netherlands, making our revenue estimate a very conservative indication of the tax's potential yield.

Figure 1 - Summary of yearly revenues and yearly GHG emission reductions of the proposed fiscal package[2]



Phasing out fossil subsidies in the Dutch industry, the Shipping Fuel Tax and the Progressive Aviation Ticket Tax show steady revenues of in between € 2-4 billion a year. The Heavy Vehicle Tax shows lowest revenues, due to the small tax base. Only 4% of households buy a new car annually, and of that group only a fraction buys a heavy vehicle for which the tax applies.

Outcomes – fairness

The majority of the tax burden falls on a small group of high-wealth individuals and large corporations

The fiscal policy package targets higher-income households, while leaving low- and middle-income households largely unaffected by the tax burden. The Carbon Wealth Tax, Excess Profit Tax, Heavy Vehicle Tax, and Aviation Ticket Tax are inherently progressive, as they primarily target higher-income individuals or, in the case of the Excess Profit Tax, large corporations with substantial profit margins.

The phasing out of fossil subsidies in Dutch industry and the Shipping Fuel Tax may have more ambiguous distributional effects, especially if cost increases are passed on to consumers, potentially impacting low- and middle-income households. To a smaller extent this risk applies to the Excess Profit Tax: if large corporations possess significant market power, they may offset the tax by raising prices, thereby preserving their profit margins and shifting the burden onto consumers. On the other hand, putting a high tax on corporations' excess profits reduces their incentive to exploit market power positions to charge excessive profit margins and increase competition from SMEs.

[2] The CO_2 emission reduction potential of the Excess Profit Tax could not be quantified within this study.

Potential increases in consumer prices should not be viewed as major obstacles to phasing out fossil subsidies or introducing a Shipping Fuel Tax. These measures generate substantial revenues, part of which can be used to offset any negative impacts — especially for low-income households.

Table 2 - Qualitative assessment of the fairness of the six fiscal policies

Policy instrument	Progressiveness	Polluter Pays Principle	Effect on consumer prices
Carbon Wealth Tax	Highly progressive; only affects top 1% wealth holders	Individuals pay for GHG emissions caused by their carbon investments	Indirect and limited effect, as the tax targets individuals rather than firms
Excess Profit Tax	Progressive; affects large firms with high profit margins	Firms pay for excessive profits made from polluting activities	Firms may pass the tax on to consumers, but effect expected to be low
Phasing out fossil subsidies in the Dutch Industry	Potentially regressive if tax is passed on to consumers	Corrects current under taxation of industrial fossil fuel use	Firms may pass the tax on to consumers, potentially raising consumer prices
Shipping fuel tax	Potentially regressive if tax is passed on to consumers	Corrects current under taxation of international maritime transport	Higher shipping costs lead to increased import prices
Progressive aviation ticket tax	Progressive; tax burden falls on high-income households	Frequent and long-distance flyers pay more, reflecting their higher emissions	Costs increase for high-income households; low-middle-income households are largely unaffected
Heavy Vehicle tax	Progressive; tax burden falls on high-income households	Buyers of more polluting cars pay higher taxes	Costs increase for high-income households; low-middle-income households are largely unaffected

1 Introduction

1.1 Background

The climate crisis is accelerating

Every year, new temperature records are being broken (Lindsey & Dahlman, 2025). Europe experienced record-breaking warmth in 2024. In 2022 alone, heat stress claimed 61,000 lives across Europe (Niranjan, 2023). People living in the Global South are much more likely to experience negative effects from climate change than those in the wealthy Global North (A.I. Almulhim et al., 2024).

The current policy package in the Netherlands supports polluting activities

In the Netherlands, the current climate policy package is proving insufficient as the decline in CO_2 emissions has stagnated. According to PBL, the 2030 climate targets are increasingly out of reach, and additional policies with rapid impact are urgently needed (PBL, 2024).

At the same time, in recent years we have seen polluting companies, particularly in the oil and gas sector, earning excessive profits at the expensive of regular households. In 2022, Shell recorded a record profit of € 38 billion, most of which went to shareholders (AD, 2023). Meanwhile, between 2020 and 2022, an estimated 90,000 households slipped into energy poverty despite compensatory measures, driven largely by rising energy bills (TNO, 2023).

Rather than penalizing polluting activities, the Dutch government continues to reward them through fossil fuel subsidies, financed by Dutch taxpayers. These subsidies distort competition, creating an uneven playing field for businesses that are actively working toward sustainability.

Green and progressive fiscal policy fosters the green transition while the burden on low- and middle-income households is reduced

The growing urgency of the climate crisis has placed innovative fiscal policies at the center of the policy agenda, policies that not only support the green transition and mobilise financial resources, but also promote fairness and equity. In this context, Oxfam Novib and Milieudefensie commissioned this study to critically assess green and progressive fiscal measures. The initiative forms part of the broader ‘Make Polluters Pay’ campaign and aims to identify policy solutions that strengthen the Netherlands’ contribution to global climate finance.

1.2 Scope of study

Our study consists of an assessment of six green and progressive fiscal proposals

Table 3 presents the six green and progressive fiscal proposals analysed in this study.

Table 3 - Overview of the Catalogue of green and progressive fiscal policies for the Netherlands

Green and progressive fiscal proposals	Description
Carbon Wealth Tax[3]	A tax on the ownership of carbon-intensive assets held by individuals in the top 1% of the wealth distribution.
Carbon Differentiated Excess Profit Tax	A tax on highly profitable firms that derive their excessive earnings from polluting activities.
Phasing out fossil subsidies in the Dutch industry	Phasing out financial benefits in energy taxation in the food- and beverage, chemical and base metal industry.
Shipping Fuel Tax	A tax on bunker fuels sold to freight vessels engaged in maritime shipping at Dutch ports.
Progressive aviation ticket Tax	An aviation ticket tax that increases with flight frequency and flight distance.
Heavy vehicle Tax	A higher surcharge to the sale of new heavy cars, weighing 1,350 kg or more.

The Heavy Vehicle Tax and the Progressive Aviation Ticket Tax were not assessed as part of this study, but are based on (yet unpublished) factsheets developed by another CE Delft team for Milieudefensie. Since both measures align well with the goals of our proposed catalogue of fiscal policy options, their assessment results have been included in this report.

Together, our proposed green and progressive tax catalogue ensures that:
- the financial burden on low- and middle-income households is reduced, contributing to a greater public support for climate policy;
- green investments become more financially attractive;
- the polluter pays;
- revenues are generated to support the green transition both in the Netherlands and internationally.

For each tax measure we assess the revenue raising potential, climate impact and contribution to fairness

Each fiscal proposal has been assessed with regards to:
- **Revenue:** How much revenue each tax measure generates.
- **Climate impact:** How the measure contributes to reducing GHG emissions.
- **Fairness:** Evaluating the socioeconomic implications, how it aligns with the Polluter Pays Principle, and what its effects are on consumer prices.

[3] In this study, the Carbon Wealth Tax refers to a combination of the Carbon Wealth Tax and a General Net Wealth Tax. Unless otherwise stated, such as in Section 2.2 where both taxes are analysed separately, references to the Carbon Wealth Tax should be understood as this combined measure.

For the Carbon Wealth Tax and the Excess Profit Tax, particular attention has been given to the design of the tax, as these are relatively new concepts. We have proposed ways in which these taxes could be structured and have also examined the practical feasibility of implementing them.

A critical assumption in our study is that countries worldwide adopt similar tax policies

A key assumption in our study is that countries worldwide adopt similar tax policies, avoiding competitiveness losses, tax avoidance, and carbon leakage. Unilateral action by the Netherlands could limit climate and revenue outcomes, as businesses or capital might relocate. However, carbon leakage concerns often lead to deadlock in international negotiations, with the outcome that no action is taken by any country. By assuming global alignment, the analysis assesses the potential of Dutch green taxes within a harmonised framework and without the distracting arguments of making the business climate less attractive and spurring tax evasion. While international coordination is complex, the OECD’s success in corporate tax reform demonstrates that progress is possible (OECD, 2021).

The fiscal policies can be complementary to existing carbon taxes

Some may argue that a Carbon Wealth Tax and/or an Excess Profit Tax amount to double taxation when combined with current carbon taxes. This oversimplifies the purposes and structure of the different tax forms. This can be sees as follows:

- **CO_2 taxes** target *emissions*, they price pollution to internalise environmental externalities.
- **Carbon Wealth Taxes** would target accumulated assets or holdings that are carbon-intensive, such as fossil fuel reserves or high-carbon infrastructure.
- **Excess Profit Taxes** focus on *abnormal profits*, often arising from windfalls due to external shocks (e.g., energy crises), not from routine operations.

Table 4 - Objectives of a Carbon Wealth Tax and Excess Profit Tax versus a regular Carbon Tax

Tax	Target	Purpose	Tax base
Carbon tax	CO_2 emissions from consumption	Internalise environmental costs	CO_2 emissions
Carbon Wealth tax	Carbon-intensive assets	Discourage (private) investments in fossil assets	CO_2 intensity of assets
Excess Profit Tax	Windfall profits	Address inequitable profits during external crises	Profits exceeding threshold

These taxes address different aspects of the economy and serve distinct purposes, making them complementary rather than redundant.

2 Carbon Wealth Tax

2.1 Instrument design

This section outlines the design of a Carbon Wealth Tax, including its definition, underlying rationale, technical structure, and key considerations regarding its practical implementation.

Throughout this study, the Carbon Wealth Tax refers to a combination of the Carbon Wealth Tax and a General Net Wealth Tax. Unless otherwise stated, such as in Section 2.2 where both taxes are analysed separately, references to the Carbon Wealth Tax should be understood as this combined measure. A description of the General Net Wealth Tax is provided in Text box 2 at the end of this chapter.

The richest 1% of the population emit more than 20 times as much carbon per person as the poorest 50%

Although differences in consumption patterns contribute to this disparity, research by Rehm (2021) and Greenpeace (2024) indicates that the majority of emissions linked to high-wealth individuals originate from investment emissions. These emissions are associated with ownership of capital stock — such as real estate, corporate equity, and financial investments — which drive carbon-intensive production activities.

If emissions from firms were allocated to their ultimate owners, the carbon footprint of high-wealth individuals would rise considerably. This would reveal an even starker degree of emission inequality than consumption-based analyses suggest, as high-net-worth individuals typically possess significantly more emission-generating capital assets than those in the bottom half of the wealth distribution (Rehm, 2021).

What is a Carbon Wealth Tax?

A Carbon Wealth Tax directly links the wealth of the richest individuals to their environmental footprint by targeting the emissions associated with their ownership of carbon-intensive capital. Under this approach, individuals would pay a fixed fee per ton of GHG emissions attributed to the capital assets they *own*. The core aim is to discourage investments in polluting industries and to incentivise investors to promote sustainability within the companies they hold stakes in. At the same time, the tax would generate significant public revenue that could be used to finance climate action and support sustainable development.

Why introduce a Carbon Wealth Tax?

A carbon tax that targets emissions from investments rests on the principle that those who own and control capital also bear responsibility for the emissions that capital produces. Investors can thus help to promote divestment from fossil fuels and supporting a faster transition to a low-carbon economy. Investors entail financial institutions and asset managers, but ultimately also the high-wealth individuals that owns the capital and act as private investors. Unlike consumption-based taxes, which can disproportionately affect lower-income households and risk regressive outcomes, a tax on wealth-related emissions aligns environmental responsibility with economic power. High-wealth individuals, like investors, have significant influence over corporate strategies, capital allocation, and technological choices — meaning they can actively shape the carbon intensity of production. By attributing emissions to capital owners rather than end consumers, such a tax more accurately reflects who drives and profits from carbon-intensive activity.

How does a Carbon Wealth Tax stimulate sustainability and fairness?

The Carbon Wealth Tax actively encourages sustainable investment decisions by both individual investors and companies. Private individuals with shares in high-emission industries, such as fossil fuel companies, will face a significantly higher Carbon Wealth Tax than those invested in green sectors like renewable energy. This creates a strong financial incentive for investors to shift their capital away from polluting businesses to more sustainable alternatives. Additionally, the tax motivates shareholders to push companies toward greener practices. Since every ton of GHG emitted directly by the company is subject to taxation, even relatively low-emission companies are incentivised to further reduce their carbon footprint and move toward net-zero emissions.

Who will be obligated to pay the Carbon Wealth Tax?

The proposed Carbon Wealth Tax is designed to apply exclusively to the wealthiest 1% of individuals in the Netherlands, affecting approximately 150,000 individuals. The key advantage of a limited scope is that it enhances the administrative feasibility of implementing and enforcing the tax.

What is the tax base?

The tax base defines what is being taxed. In this proposal, the tax base consists of the total GHG emissions from firms owned by an individual. Firm ownerships in both domestic and foreign companies are subject to taxation. Since not all GHGs are CO_2, non-CO_2 emissions such as methane or nitrous oxide — are converted into CO_2-equivalents (CO_2-eq.) to allow for uniform measurement.

To ensure consistency and avoid double-counting within the sectors, the tax focuses exclusively on Scope 1 emissions — the direct emissions produced by firms. This means each ton of CO_2-eq. is counted only once in the system. For example, if a steel factory emits 100 tons of CO_2-eq. while producing steel, this is recorded as its Scope 1 emissions. If a car manufacturer then buys this steel to build vehicles, that same 100 tons could also appear as Scope 3 emissions in the car company's footprint. Including both would result in double-counting, and thus taxation of, the same emissions. Limiting the tax base to Scope 1 emissions avoids such overlaps and preserves a clear connection between emissions and ownership. Additionally, Scope 1 emissions are already reported by firms, whereas especially Scope 3 emissions are often missing from current reporting frameworks.

How will carbon wealth be taxed?

We propose to tax investment emissions based on a CO_2 price. This means that individuals will pay a fixed tax for each ton of CO_2-eq. emitted by the companies in which they hold ownership. The total tax liability is determined using the following formula:

$$Carbon\ wealth\ tax = \sum Company\ Scope\ 1\ emissions\ (CO2\_eq)\ *\ share\ of\ company\ owned * CO2\_price$$

This means that stock-ownership in companies with positive emissions is subject to taxation and zero-emissions stock-ownership is exempted. However, the tax will be much higher for individuals that invest in companies with high emissions. The Carbon Wealth Tax primary targets (ownership of) assets such as:
- shares and equity holdings in sectors such as fossil fuels, energy-intensive industries, and other high-emission companies;
- direct ownership of physical assets, such as oil fields, mining operations, or other carbon-intensive production facilities;
- indirect holdings through investment funds or portfolios with significant stakes in carbon-intensive industries.

What is the height of the Carbon Wealth Tax?

The proposed tax rate equals € 180 per ton of CO_2 in 2025. The CO_2 prices increases over time up to € 437 in 2050 to reflect the increased mitigation efforts to sustain net-zero in 2050 globally. The proposed tax rate aligns with the efficient CO_2 price consistent with the 1.5 °C pathways by IPCC, adjusted for inflation. It represents the abatement costs of the reduction path compatible with a 1.5 °C temperature rise (with limited overshoot) by the end of this century.

Text box 1 - CO_2 price reported in IPCC 1.5 degrees scenario's (CE Delft, 2024a)

> The CO_2 price reported in IPCC 1.5 °C scenario's (IPCC, 2018) represents the marginal abatement cost required to achieve climate targets. It reflects the carbon price that would need to be in place — globally and across sectors — to ensure that total emissions are reduced in line with a pathway consistent with limiting global warming to 1.5 °C above pre-industrial levels.

How feasible is a Carbon Wealth Tax?

To implement and enforce a Carbon Wealth Tax, tax authorities need accurate data on the emissions profile of investments by high-wealth individuals. This in turn means that data on company GHG emissions need to be disclosed. More specifically the following monitoring data needs to be covered:
- investments by private individuals at company-level;
- company Scope 1 GHG emissions.

Private individuals are required to report their investments to the tax authorities during the annual tax declaration. However, the extent to which this provides insight into investments at the individual company level depends on the type of investment.

- *Substantial Interest Ownership (> 5%)*
  If private individuals own shares with a substantial interest (more than 5% of a company's shares), they must report these holdings separately under Box 2 of the tax declaration. This allows tax authorities to obtain company-level investment data.
- *Non-Substantial Interest Ownership (< 5%)*
  Ownership of company shares below the 5% threshold is declared under Box 3. In this case, taxpayers are only required to report the total value of their investments, without specifying individual stocks. As a result, tax authorities can only access aggregate-level ownership data rather than detailed company-level information.

Additionally, financial institutions in the Netherlands — such as banks, brokers, and investment funds, are legally required to provide certain financial information to the Dutch Tax Administration. However, this reporting is done at the account level, meaning it does not directly reveal details about individual company assets and investments.

CSRD reporting can be used to disclose company-level GHG emissions

The Corporate Sustainability Reporting Directive (CSRD) provides a standardised framework for companies to disclose their GHG emissions at the company level. Under the CSRD, companies are required to include sustainability-related disclosures in their annual reports, including their annual GHG emissions. Companies must report their GHG emissions in accordance with the GHG Protocol.

The latest CSRD compliance timeline is as follows (Spinaci, 2025)[4]:
- **Fiscal year 2024**: Largest companies already required to report under the Non-Financial Reporting Directive.
- **Fiscal year 2027**: Large companies (1,000+ employees, turnover > € 50 million, and/or assets > € 25 million).
- **Fiscal year 2028**: Small and medium enterprises (SMEs) (10+ employees, turnover > € 0.90 million, assets > € 0.45 million).

Additional feasibility considerations

- Many private individuals do not invest in individual company stocks but in investment funds (active strategy) and index funds like ETFs (passive strategy), which consist of multiple shares and bonds. This makes it more challenging to calculate the carbon footprint of these investments.
- High-wealth individuals often hold equity in holding companies, asset management firms, and investment companies. If these entities are not subject to CSRD, it might become more difficult to determine the carbon footprint of their investments.
  As described further below, tax authorities would need to define a default carbon intensity to address this challenge.
- Assigning company emissions to individual shareholders based on their shareholdings would be a complex task for tax authorities, requiring substantial administrative resources and implementation capacity.

[4] The timeline includes the adoption of the first sustainability-related Omnibus package, known as the 'Stop the Clock' proposal, which has delayed the CSRD implementation for both large companies and SMEs by two years. It should be noted that the current CSRD timeline may still be subject to further changes.

Are there any risks or side effects associated with a Carbon Wealth Tax?

Several potential risks related to tax avoidance should be considered:

- **Relocation of taxpayers:** If the Carbon Wealth Tax applies only to Dutch residents, high-net-worth individuals may choose to move abroad to avoid taxation. This challenge can be mitigated (at least short and medium term) by imposing exit taxes.
- **Tax evasion:** Private individuals may shift their financial assets to offshore jurisdictions and choose not to inform Dutch tax authorities about this.
- **Offshoring activities and scope shifting:** Companies may reduce their reported Scope 1 emissions by outsourcing carbon-intensive activities to firms abroad, effectively increasing Scope 3 emissions that are not subject to taxation. As the Carbon Wealth Tax in our proposal only applies to Dutch taxpayers, foreign owned companies are not subject to the Carbon Wealth Tax. This practice can lead to a misleading reduction in direct emissions while overall emissions remain unchanged or even increase. To address this risk of carbon leakage, it is important that the Carbon Wealth Tax finds global coverage, ensuring that emissions are accounted for regardless of where they occur in the value chain.
- **Investment in exempt Instruments:** If funds, ETFs, or other investment vehicles that bundle multiple stocks are excluded from taxation due to difficulties in calculating their carbon footprint, this could incentivise investors to shift their capital into these instruments to avoid the tax.

Shifting the burden of proof to individual investors and setting a default tax rate eases practical implementation

To facilitate practical implementation of the Carbon Wealth Tax, the burden of proof could be shifted from the tax authorities to individual investors. Under this approach, rather than requiring tax authorities to collect and verify all relevant data to calculate each individual's Carbon Wealth Tax liability, individuals would instead be responsible for reporting their investments and the associated GHG emissions linked to those investments.

This shift would simplify implementation, as tax authorities take on a supervisory rather than executive role. Their primary task would be to verify the accuracy of the submitted data, rather than collecting it themselves.

In cases where individuals fail or refuse to report their investment portfolio and corresponding GHG emissions, a default tax rate would apply. This default rate should incentivise households to disclose their actual investments and emissions. One option is to set the default equal to the average effective Carbon Wealth Tax rate calculated in our impact assessment (see Section 2.2), which amounts to an effective tax rate of 1.9%, or even higher.

Text box 2 - General Net Wealth Tax

> In this study, we propose a Carbon Wealth Tax in combination with a General Net Wealth Tax. For the General Net Wealth Tax, we follow the tax design as proposed by (Oxfam Novib, 2023).
>
> **Who is targeted?**
> The General Net Wealth Tax applies to individuals exceeding specific wealth thresholds.

What assets are taxed?
The tax targets total net wealth of individuals, defined as the value of all assets minus liabilities. Assets include financial investments (stocks, bonds, bank deposits, etc.), real estate, tangible assets like luxury goods and art, and wealth held offshore in tax havens. Pensions are excluded from wealth taxation, as is the case in the current Dutch fiscal system.[5]

What is the height of the tax?
The proposed framework by Oxfam Novib for a General Net Wealth Tax is as follows:
- an annual wealth tax of 2% on wealth above 2.3 million euros;
- an annual wealth tax of 3% on wealth above 50 million euros;
- an annual wealth tax of 5% on wealth above 1 billion euros.

2.2 Impact assessment

Data and methodology

In this section, we assess the potential impacts of the Carbon Wealth Tax in combination with a General Net Wealth Tax in terms of revenue generation, climate effectiveness, and fairness.

Due to data limitations, the methodology used in this impact assessment differs from the approach proposed in the instrument design. While the design aims to link individual shareholders directly to the emissions of the companies they own, such granular ownership data is not publicly accessible. Instead, we estimate the impact of the Carbon Wealth Tax using average investment-related emissions by wealth group, based on the methodology of Rehm (2021). This way we will only assess first-order impacts.

We use wealth distribution data from CPB to define average wealth per wealth bracket

Centraal Planbureau (CPB) published the wealth development of households in 2022 (CPB, 2024). The average wealth per household, differentiated per income group is outlined in Table 5. Only the wealth of the top 10% of households is published. The wealth includes liquid assets (savings and investments), accumulated equity in owner-occupied housing and other real estate, and private wealth in a business (the entrepreneur’s own business capital for self-employed income tax entrepreneurs or substantial interest capital), minus debts (including remaining mortgage debt).

Pension assets are not included as they are largely not immediately claimable or transferable. Approximately half of all wealth in the Netherlands consists of pension assets. However, at the top of the wealth distribution, pension assets make up only a small portion of total wealth (CPB, 2024). As a result, including or excluding pension assets is unlikely to significantly affect the outcomes of this study.

[5] Pension savings represent deferred income that is taxed as income upon disbursement during retirement. Excluding pensions aligns with the existing fiscal perspective, recognizing these savings as income rather than net wealth. This exemption should apply equally to collective and individual pension schemes, ensuring fair treatment regardless of the structure of pension accumulation. Additionally, given the regulatory limits on pension contributions and accumulation, there is minimal risk of abuse through excessive pension savings being shielded from taxation.

We include Quote 500 data to estimate wealth of the absolute most high-wealth individuals in the Netherlands

In the proposal for a General Net Wealth Tax by Oxfam Novib (2023), the proposal is to set a 5% tax rate on wealth that exceeds € 1 billion (see Text box 2). The wealth categorisation by CPB does not allow for such a calculation, as the upper wealth bracket equals € 90 million. We use Quote 500 data to add two additional wealth groups: Individuals in the Quote 500 that are not billionaires (448 individuals with an average wealth of € 294 million) and Quote 500 billionaires (52 individuals with an average wealth of € 2.3 billion). Including these two wealth groups better matches the General Net Wealth Tax proposal by Oxfam Novib (2023).

The last column in Table 5 shows the tax rate that we apply to each wealth bracket in our calculations. Due to limitations in the available data, the wealth brackets do not exactly match the Oxfam Novib (2023) proposal.

Table 5 - Number of adults and average wealth per wealth group in 2022, derived from CPB (2024)

Wealth group	Data source	Number of adults	Average wealth (€)	Tax rate General Net Wealth Tax
Bottom 90%	CPB	13,500,000	160,100	-
Top 10% (excl. top 1%)	CPB	1,350,000	1,100,000	-
Top 1% (excl. top 0.1%)	CPB	135,000	4,600,000	2%
Top 0.1% (excl. top 0.01%)	CPB	13,500	18,300,000	3%
Quote 500 (excl. billionaires)	Quote 500	448	294,000,000	3%
Quote 500 billionaires	Quote 500	52	2,332,000,000	5%

Following Rehm (2021), we assign average GHG emissions from investments to wealth brackets

Rehm (2021) presents the annual emissions attributed to different net wealth groups in Germany, related to investments. These emissions are calculated by assigning Scope 1 emissions to German individuals based on their ownership of productive capital (predominantly company assets and corporate equity) in both domestic and foreign companies. High-wealth individuals typically own shares in these firms, either directly or through investment funds, and are therefore seen as indirectly responsible for the emissions from the production processes those firms carry out.

The fourth column of Table 6 presents GHG emissions per € 1,000 of wealth. Emissions rise across wealth brackets because they are based solely on emissions related to investment. Since individuals in the bottom 90% do not invest or invests only a small portion of their wealth, their associated emissions remain low. In contrast, as wealth increases, individuals allocate a larger proportion of their wealth to investments, leading to higher emissions linked to those investments.

Rehm (2021) does not report emissions for wealth beyond the top 0.1%. To estimate annual GHG emissions for the Quote 500, we conservatively assume that the increase in emission intensity of wealth stops at the top 0.1% wealth bracket, so that the investments of Quote 500 individuals are assumed to emit 0.11 tons of CO_2 per € 1,000, matching the emission intensity of the individuals in the bracket just below. i.e. of the top 0.1% wealth bracket.

Following our tax proposal from Section 2.1, we apply a tax of € 180 per ton of CO_2 on the top 1% high-wealth individuals.

Table 6 - Annual average GHG emissions related to investments, derived from Rehm (2021)

Wealth group	Annual average GHG investment emissions (ton CO_2-eq.)	Average wealth (€)	GHG emissions (ton CO_2-eq.) per € 1,000 of wealth	Tax rate Carbon Wealth Tax (€/ton CO_2)
Bottom 90%	1.2	160,100	0.01	-
Top 10% (excl. top 1%)	18	1,100,000	0.02	-
Top 1% (excl. top 0.1%)	410	4,600,000	0.09	€ 180
Top 0.1% (excl. top 0.01%)	1,900	18,300,000	0.11	€ 180
Quote 500 (excl. billionaires	31,000	294,000,000	0.11	€ 180
Quote 500 billionaires	246,000	2,332,000,000	0.11	€ 180

Emission impacts are based on reduced wealth and associated investments reductions

The fourth column of Table 6 shows the amount of GHG emissions associated with every € 1,000 of wealth. This enables us to estimate the potential emission reduction resulting from a decrease in wealth due to taxation. Since both the Carbon Wealth Tax and the General Net Wealth Tax primarily target the wealthiest households, this metric provides an approximation of total emission reductions — assuming a direct, proportional link between wealth and investment levels.

We also model a scenario in which wealth is redistributed from the top 1% to the bottom 90%. Because the bottom 90% have much lower investment-related emissions per person, this redistribution leads to an overall reduction in emissions.

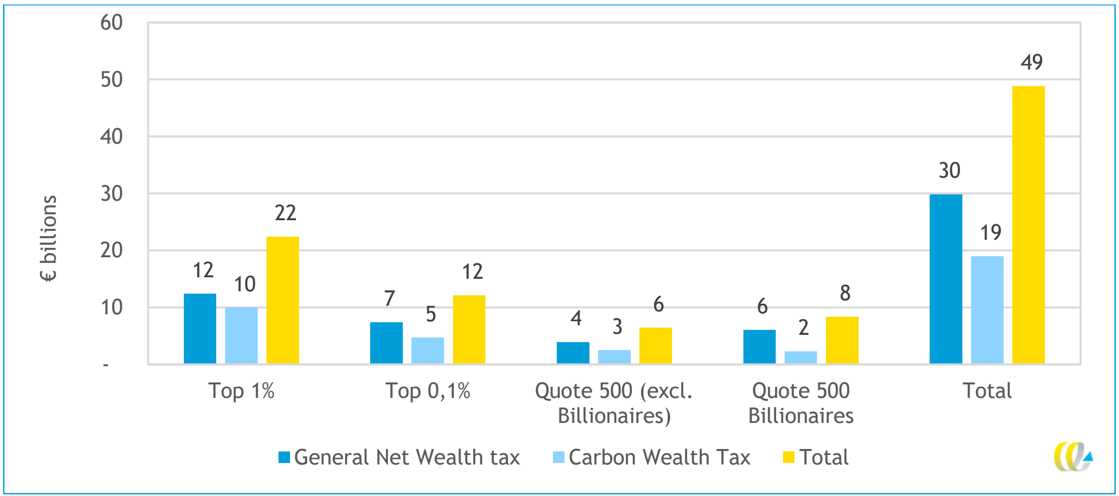
Due to data limitations, our analysis does not capture potential behavioural responses to the Carbon Wealth Tax, such as investors shifting away from carbon-intensive assets to lower their tax liability (second-order impacts). Therefore, the actual climate impact of the policy may be greater than our estimates suggest.

Outcomes - Revenues

A Carbon Wealth Tax in combination with a General Net Wealth Tax could raise € 49 billion annually

Figure 2 shows the estimated revenue-generating potential of a Carbon Wealth Tax, in combination with a General Net Wealth Tax. The figure provides several insights. First, the General Net Wealth Tax raises significantly more revenue — around € 30 billion — compared to € 19 billion from the Carbon Wealth Tax. Implementing both taxes together would therefore substantially boost total revenues. Second, the largest share of revenues comes from the top 1% and top 0.1% wealth brackets rather than the Quote 500. This is because these broader brackets include far more individuals than the limited number of ultra-wealthy listed in the Quote 500. Note that the bottom 99% of the Dutch population is fully exempt under both taxes.

Figure 2 - Annual revenues for the Carbon Wealth Tax and General Net Wealth Tax for different wealth brackets



Both in absolute and relative terms, individuals in the higher wealth brackets contribute most to revenues

Figure 3 presents the annual per-person contributions in absolute terms (in € millions). Individuals listed in the Quote 500, particularly those with wealth exceeding € 1 billion, contribute substantially more per person than those in lower wealth brackets. This pattern holds for both the Carbon Wealth Tax and the General Net Wealth Tax.

Figure 4 displays the contributions as a percentage of wealth. Under the Carbon Wealth Tax, relative contributions are fairly uniform across wealth brackets. This is due to two main factors: the uniform levy rate (€ 180 per ton of CO_2) across all brackets, and the conservative assumption that individuals in the Quote 500 emit as much CO_2 per euro of wealth as those in the top 0.1%. This leads to an effective tax rate for the Carbon Wealth Tax that is similar across wealth brackets.

In contrast, the General Net Wealth Tax shows more variation in relative contributions between wealth brackets, reflecting differences in the levy rate applied.

Figure 3 - Annual contributions per person (€ millions)

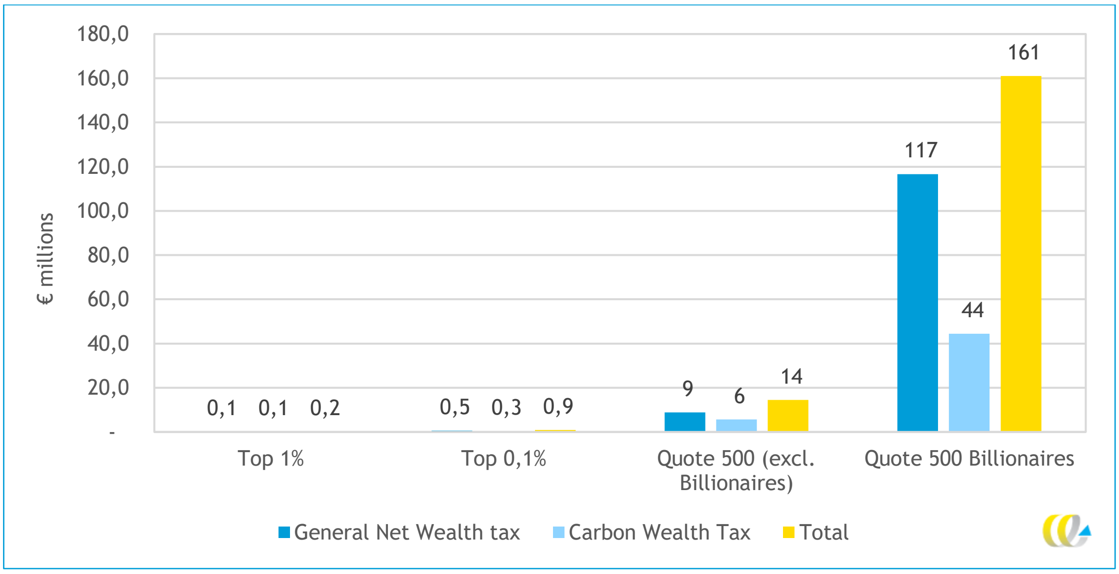
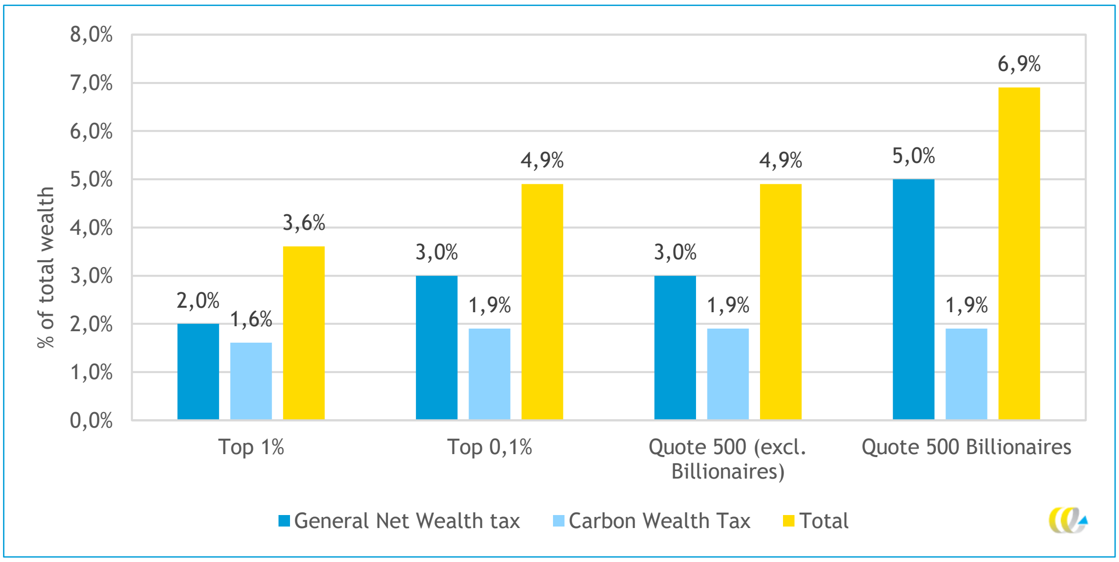


Figure 4 - Annual contributions per person (% of total wealth)



Outcomes - Climate impact

In a scenario without wealth redistribution, a Carbon Wealth Tax in combination with a General Net Wealth Tax reduces annual GHG emissions by at least 4.8 Mton

The estimated emission reductions stem from reduced capital availability for investments in carbon-intensive assets. The estimates exclude any behavioural responses to the tax, such as individuals shifting investments away from carbon-intensive assets to minimise their tax burden. Thus, these impacts can be seen as a conservative first-order effect of a tax on investing in carbon-intensive assets.

Table 7 presents GHG emission reductions by wealth bracket. Since the top 1% and top 0.1% contribute the largest share of total tax revenues, these groups also account for the greatest total GHG reductions. As a group, the total emissions reduction from individuals in the Quote 500 is smaller, while their per capita GHG emissions reductions are significantly higher.

Table 7 - Climate impact potential of a Carbon Wealth Tax (in combination with a General Net Wealth Tax) without redistribution of wealth

Wealth brackets	Yearly revenues (billions)	Emissions in ktons per € 1 billion of wealth	GHG emission reduction (Kton CO_2-eq.)
Top 1% (excl. top 0.1%)	22	89	1,996
Top 0.1% (excl. top 0.01%)	12	105	1,278
Quote 500 (excl. billionaires)	6	105	682
Quote 500 billionaires	8	105	883
Total	**49**	**105**	**4,839**

If wealth is redistributed, GHG emissions are 7.8% higher compared to no redistribution of wealth

Redistributing total tax revenues to individuals in the bottom 90% of the wealth distribution results in an annual GHG emission increase of 377 kton of CO_2-eq., representing a 7.8% increase compared to the scenario without redistribution. The net GHG emission reduction of the Carbon Wealth Tax in the scenario that wealth is redistributed equals 4.5 Mton.

Although this redistribution increases the wealth of the bottom 90%, potentially enabling more investments and associated emissions, the net impact on total emissions remains modest. This is due to the significantly lower carbon intensity of wealth, defined as GHG emissions per euro invested, among the bottom 90% compared to the top 1% and higher wealth brackets.

It is worth remembering that the tax will generate revenues that can expectably be spent by the Dutch state. If part of these revenues is spent on the green transition, the positive climate impact can be higher compared to the above estimates.

Outcomes - Fairness

The Carbon Wealth Tax only affects the top 1% of the wealth distribution

The Carbon Wealth Tax proposed in this study is highly progressive by design, as it applies exclusively to individuals in the top 1% of the wealth distribution in the Netherlands. Allother households are exempt from the tax, meaning the vast majority of Dutch citizens — 99% — are not subject to any additional tax burden under this scheme.

The Carbon Wealth Tax is also progressive within the group of taxpayers it targets. Individuals with higher levels of wealth — especially billionaires — contribute the most, both in absolute terms and relative to their wealth. This design ensures that those with the greatest financial capacity shoulder a proportionally larger share of the total tax burden.

By focussing on emissions from investments, this study adds a new element to the Polluter Pays Principle

Discussions about making households accountable for their emissions typically focus on emissions resulting from household consumption. However, emissions linked to investments by households receive far less attention, despite being substantially greater than emissions from consumption in higher wealth brackets. By shifting the focus to emissions generated through the use of wealth for investment purposes, this study introduces a new dimension to the Polluter Pays Principle. Holding firm ownership accountable for emissions provides a more accurate reflection of who ultimately drives and profits from carbon-intensive corporate activities.

The effect of a Carbon Wealth Tax on consumer prices is expected to be low

The effect of a Carbon Wealth Tax on companies, and ultimately on consumer prices, is uncertain. As the tax is levied on individuals rather than firms, companies are not directly subject to it. However, companies are expected to be affected by the Carbon Wealth Tax in a more indirect way. To minimise tax liability, investors are expected to reallocate capital away from carbon-intensive firms toward greener alternatives. This shift could result in declining stock prices for carbon-intensive firms and rising valuations for greener firms.

A lower stock valuation may affect a firm’s ability to raise capital, as issuing new shares becomes a less powerful way to raise capital. It may also negatively affect the firm’s perceived financial stability, leading to a higher risk profile and potentially higher borrowing costs. Conversely, greener firms might benefit from improved access to capital and reduced financing costs under such a shift.

Whether these developments would ultimately affect consumer prices, through rising capital costs for polluting companies and declining costs for green companies, both of which may be partially passed on to end users, is uncertain and falls outside the scope of this study. If such effects do occur, they are likely to be limited due to their indirect nature.

3 Excess Profit Tax

3.1 Instrument design

Large polluting companies benefit from fossil fuel subsidies and market concentration

The Carbon Differentiated Corporate Excess Profit Tax is a tax imposed on excessively high profits of companies that derive their earnings from polluting activities and often benefit from fossil fuel subsidies and market concentration. 'Excessive profits' arise, for example, in the oil and gas industry, caused by imbalances between supply and demand (Oxfam Novib, 2022). For instance, market concentration and oil cartels like OPEC have the power to influence oil prices. Moreover, external shocks such as the COVID-19 pandemic and the Russia-Ukraine war can boost the earnings of fossil fuel companies. Hence, these companies experience disproportionate economic benefits from market failures, geopolitical events, and/or restricting supplies (e.g. energy supplies) rather than from their own business innovations or competitive advantages (Stewart et al., 2020). The purpose of the Excess Profit Tax is to curb such excessive profitability beyond a certain threshold.(Stewart et al., 2020). The purpose of the Excess Profit Tax is to curb such excessive profitability beyond a certain threshold of polluting companies.

What is an Excess Profit Tax?

The Excess Profit Tax relates the environmental impact of large corporations to their profits. Under this proposal, the more polluting the activities of these companies are, the higher the tax rate would be on excess profits. This tax acts as a surtax, supplementing existing corporate income taxes rather than replacing them. The tax focusses, similar to the Carbon Wealth Tax, on Scope 1 emissions to facilitate environmental behavioural change both within and between sectors.

How does the Excess Profit Tax stimulate sustainability and fairness?

By raising higher taxes on more polluting companies with excess profits, the Excess Profit Tax acts as a highly progressive tax that encourages companies to adopt greener practices to remain profitable. At the same time the tax will skim off excess profits.
Moreover, the Excess Profit Tax can be seen as a punitive tax against strong market concentrations of large corporations that, specifically due to their strong market position, make excess profits at the expense of end-consumers.

Who is targeted?

The Excess Profit Tax targets large companies covered by the CRSD (see discussion in Section 2.1) generating excess profits (profits that exceed a standard rate of return, see hereafter).

What is the tax base?

In order to define excess profits, we build on Heck et al. (2024) who defines excess profits as returns exceeding a standard 10% return on assets (ROA)[6]. This benchmark is relatively high compared to alternative financial securities, such as the 5% average rate of return on Foreign Direct Investment in the EU (Eurostat, 2024), current yields on government bonds in the Eurozone, and the approximately 7% cost of capital as outlined by Barkai (2020)[7].
The tax base for the Excess Profit Tax is excess profits. In order to define excess profits, we build on Heck et al. (2024) who defines excess profits as returns exceeding a standard 10% return on total assets (ROTA)[8]. This benchmark is relatively high compared to alternative financial securities, such as the 5% average rate of return on Foreign Direct Investment in the EU (Eurostat, 2024), current yields on government bonds in the Eurozone, and the approximately 7% cost of capital as outlined by Barkai (2020)[9].

What is the height of the tax?

Oxfam Novib (2022) has advocated for taxing pandemic windfall profits at rates ranging from 50 to 90%. Heck et al. (2024) propose a progressive approach, with an additional 20% tax on a ROA of 10-15%, and a 40% tax on a ROA exceeding 15%. In this study, we also propose a progressive tax structure, with higher rates applied to firms that exceed specific ROA thresholds and additional increases based on their GHG emissions. The proposed rates are detailed in Table 8 in Section 3.2.

What emissions are subject to taxation?

For the Excess Profit Tax we focus solely on Scope 1 emissions, for the same reasons outlined in the case of the Carbon Wealth Tax. Including Scope 2 and Scope 3 emissions would result in overlapping claims of responsibility for the same emissions. By restricting the tax base to Scope 1, we ensure that each tonne of CO_2 is accounted for only once. An additional advantage is that Scope 1 data is more readily available and verifiable.

While this study restricts the tax to Scope 1 emissions, we acknowledge that some sectors, particularly those with limited direct emissions but high overall environmental impact, may be better captured by also considering Scope 2 and Scope 3 emissions. Exploring ways to integrate these broader emission categories into future tax frameworks is therefore a relevant topic, but requires further methodological refinement. As such, a deeper analysis of Scope 2 and 3 inclusion lies outside the scope of this study, though we view it as a key area for future research and policy development.

[6] Heck et al. (2024) defines operating Profit (Loss)/Earnings Before Interest and Taxes (EBIT) as the profit variable.

[7] The excess profit returns mentioned Heck et al. (2024), Eurostat (2024) and Barkai (2020) include risk premiums.

[8] Heck et al. (2024) defines operating Profit (Loss)/Earnings Before Interest and Taxes (EBIT) as the profit variable.

[9] The excess profit returns mentioned by Heck et al. (2024), Eurostat (2024) and Barkai (2020) include risk premiums.

How feasible is the tax?

The implementation of the carbon differentiated excess profit tax can build on existing CSRD reporting requirements on carbon emissions as well as information that corporations already publish in the annual reports (income statement and balance) on profits and assets. Both CSRD and annual reports are already subjected to third party audits. The Dutch existing tax infrastructure would need upgrades to accommodate these complexities.

This policy demands data infrastructure for reporting and verification. Companies would need systems capable of tracking emissions data and linking it to financial performance, while tax authorities would require tools to audit these reports effectively. Collaboration with entities like the EU (CSRD) and the Dutch Emission Authority (Nea) can streamline data collection.

To assess the feasibility of implementing an Excess Profit Tax, one of the most critical factors is data availability, specifically on emissions, revenue, and assets and the frameworks that govern how this data is reported. These elements are foundational for determining excess profits and carbon intensity.

GHG emission data can be derived from CSRD reporting. Companies' corporate income data is publicly available in company financial statements and also submitted to tax authorities. Asset data is essential for calculating the ROA. While companies do report total assets in financial statements, segment-level asset data (e.g., Dutch-based assets) is often missing. This complicates accurate attribution for national tax purposes. To address this, the authorities could require companies to report on segment-level assets or apply proxies (e.g., allocating global assets based on Dutch share of revenues or employees).

Are there any risks or side effects associated with the Excess Profit Tax?

To assess the feasibility and broader implications of implementing an Excess Profit Tax, we shortly discuss the risks of tax avoidance and potential negative economic side effects.

One potential risk of the Excess Profit Tax is that companies may engage in legal strategies to reduce their tax liability, which could weaken the tax's intended environmental impact. Such tax avoidance could occur through the following methods:
- Companies could actively manage their corporate income to remain just under the taxable threshold. This might include shifting costs or profits between fiscal years or across entities in different jurisdictions.
- Firms may relocate activities or set up mailbox operations in countries where no such tax is implemented, avoiding their Excess Profit Tax liabilities all together. This is a classic example of profit shifting, which also reduces national revenues.

Mitigating tax avoidance by applying the tax at the installation level

The Excess Profit Tax could be designed similarly to the EU Emissions Trading System (ETS), where the responsibility to comply is placed on individual installations, such as factories or power plants, instead of the company as a whole (ICAP, 2021). This approach helps to prevent companies from avoiding the tax by shifting profits to subsidiaries or offices in other countries, because the tax obligation stays with the specific installation that generates the emissions. As a result, the environmental effectiveness of the tax is better protected, since it cannot easily be undermined through corporate restructuring or international profit shifting.

3.2 Instrument assessment

Data and methodology

For this analysis, we gathered both financial and emissions data for the most polluting companies in the Netherlands as well as the AEX listed businesses. We used their (publicly available) financial reports to collect data on their Scope 1 emissions, the total assets, revenue, and Earnings Before Interest and Taxes (EBIT)[10]. Ultimately, this resulted in a dataset containing 35 companies for which all the data points were available.

Following Heck et al. (2024), we calculate the **excess profit** as follows:

$$Excess\ profit = EBIT - ROA\ threshold * Total\ assets$$

We distinguish between 'excess profits' (ROA threshold of 7%, following Barkai (2020)) and 'super excess profits' (ROA threshold of 10%, following Heck et al. (2024)).

The **tax revenues** for the Excess Profit Tax can be calculated as follows:

$$Tax\ revenue\ EPT = Excess\ profit * base\ tax\ rate * CO2\ intensity\ factor$$

where the base tax rate and the CO_2 intensity factor together constitute the 'effective tax rate'. In the design we differentiate the base tax rate based on the definition of 'excess profits' and 'super excess profits'. We set the base tax rate such that the effective rate for the largest polluters with excess profits is 60% (meaning that 60% of their excess profits is paid in tax) and for the largest polluters with super excess profits 90%. Note that a company with super excess profits pays the higher effective tax only over its 'super excess profits' (ROA over 10%); over its 'remaining' excess profits (below 10% but over 7%) the lower effective tax rate is paid.

For the CO_2 intensity factor[11], we designed both relative measures (GHG emissions related to financial measures) and an absolute measure (total GHG emissions). In Section A.1 we discuss pros and cons of relative and absolute measures. In this chapter we present the results based on the absolute CO_2 intensity factor.

We defined five categories that relate the carbon intensity of a company to the effective tax rate under the Excess Profit Tax. Table 8 shows the result: the higher the total GHG emissions and the excess profits, the higher the effective tax rate. Companies with excess profits will pay a minimum of 12% and a maximum of 60% tax on their excess profits; companies with super excess profits a minimum of 18% and maximum of 90%.

Here are two examples illustrating how the tax rate is calculated. Company A emits 30 kilotons of GHG annually and has a ROA of 8%. This results in a CO_2 intensity factor of 0.5 and a base tax rate of 24%, leading to an effective tax rate of 12%. Company B emits 1,000 kilotons of GHG annually and has a ROA of 12%. With a CO_2 intensity factor of 1.5 and a base tax rate of 36%, the effective tax rate comes to 54%.

[10] EBIT is a common indicator used in the financial sector to show a company's profitability from business activities.

[11] Although it is referred to as a CO_2 intensity factor, the study also includes non-CO_2 GHG within its scope.

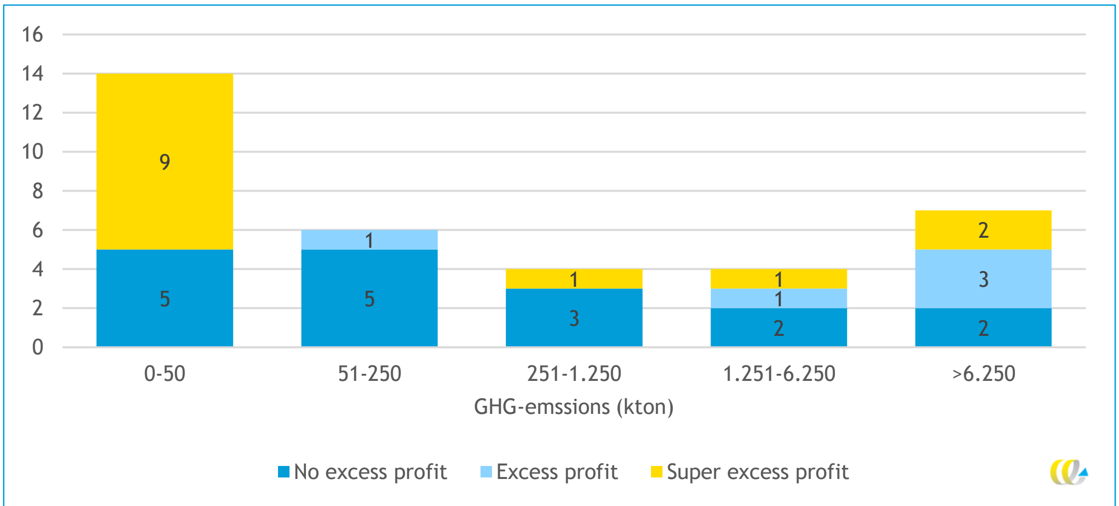
Table 8 - CO_2 intensity factor and related tax rates

GHG emissions (kton CO_2-eq.)	CO_2 intensity factor	Excess Profits tax rates (ROA threshold of 7%)*		Effective tax rate of Super Excess Profits (ROA threshold 10%)*	
		Base tax rate	Effective tax rate	Base tax rate	Effective tax rate
0-50	0.5	24%	12%	36%	18%
51-250	1	24%	24%	36%	36%
251-1,250	1.5	24%	36%	36%	54%
1,251-6,250	2	24%	48%	36%	72%
> 6,250	2.5	24%	60%	36%	90%

* The effective tax rate is calculated by multiplying the respective CO_2 intensity factor with the base tax rate (in case of excess profit 24% and in case of super excess profits 36%).

Based on our dataset of 35 companies, Figure 5 shows the distribution of their total GHG emission levels.

Figure 5 - Distribution of the number of companies in the GHG emission-categories (based on our dataset of 35 companies)



Outcomes - Revenues

We have estimated the revenue raising potential for the group of 35 companies in our dataset to be € 28 billion per year

This is based on a ROA threshold of 7% for 'baseline' excess profits (base tax rate 24%) and 10% for 'high' excess profits (base tax rate 36%) and the carbon-intensity categories as defined in Table 8.

As the choice for the threshold for excess profits and the base tax rate highly affect the companies that are targeted and the magnitude of the impact, respectively, we illustrate the effect of these parameters by two sensitivity analyses (see Table 9 and Table 10).

Table 9 - Excess Profit Tax: sensitivity analysis ROA thresholds for determining the excess profit

ROA threshold (excess profit & super excess profit	3%/6%	5%/8%	7%/10%	9%/12%	11/%14%
Tax revenue	€ 69 billion	€ 48 billion	**€ 28 billion**	€ 13 billion	€ 3 billion

Table 10 - Excess Profit Tax: sensitivity analysis base tax rate

Base tax rate (excess profit / super excess profit	4%/16%	14%/26%	24%/36%	34%/46%*	44%/56%*
Tax revenue	€ 13 billion	€ 20 billion	**€ 28 billion**	€ 36 billion	€ 44 billion

* Note that we set the maximum *effective tax rate* at 100%.

Climate impact

The climate impact of the Excess Profit Tax is assessed qualitatively

The climate impact of the Excess Profit Tax arises from companies altering their behaviour to reduce CO_2 emissions and thereby lower their effective tax rate. As this behavioural response could not be quantified within the scope of this analysis, the climate impact is assessed qualitatively.

The Excess Profit Tax encourages companies to reduce GHG emissions

In alignment with the net zero objectives, the Excess Profit Tax is a highly progressive tax that encourages companies to adopt greener practices to remain profitable. Given the inelastic demand for energy, companies would be incentivised to invest more on solutions like cleaner technologies to minimise profit losses without significantly raising prices. A key climate impact of the Excess Profit Tax is its role in aligning corporate emissions with scenarios that limit global warming. By imposing higher tax rates on excess profits from carbon-intensive sectors, the Excess Profit Tax discourages unsustainable business models and encourages companies to shift towards low-carbon production and cleaner technologies.

Introducing tax exemptions for companies meeting sustainability targets could further incentivise green production

Under the Excess Profit Tax, tax exemptions could be designed to encourage investment in renewable energy and energy efficiency improvements. By offering lower tax rates for companies that meet specific emission reduction benchmarks, the policy would accelerate the transition to a low-carbon economy while ensuring that polluting firms bear the cost of environmental damage.

Fairness

The Excess Profit Tax ensures a more equitable distribution of environmental costs

As the Excess Profit Tax targets large, polluting corporations with excess profits, it helps in ensuring that the burden is not disproportionately placed on smaller enterprises or low-and middle-income groups. Additionally, the Excess Profit Tax is also a punitive tax against strong market concentrations of large corporations that, specifically due to their strong market position, profit from raising consumer prices.

The Excess Profit Tax aligns with the 'Polluter Pays' Principle

The Excess Profit Tax aligns with the 'polluter pays'-principle as it links GHG emissions to corporate taxation. By focusing on emissions, it ensures that companies profiting from polluting activities are held financially responsible. This contributes to climate justice by acknowledging the role of corporations in driving climate change and distributing the financial burden accordingly. In the current design, the tax is based solely on Scope 1 emissions to prevent double counting. However, if in the future Scope 2 and 3 emissions can be incorporated under a framework that avoids double counting across the value chain, the tax's alignment with the Polluter Pays Principle would be further strengthened, as it would more comprehensively reflect a company's full carbon footprint.

The Excess Profit Tax might lead to an increase of consumer prices for goods and services

There is a risk that firms may pass on the Excess Profit Tax to consumers, resulting in higher prices. This is particularly likely if shareholders demand a minimum return on investment that can only be achieved through price increases, especially in markets where a few firms hold significant market power and demand is relatively inelastic. However, this risk is likely to be limited. The Excess Profit Tax discourages firms from generating large profits by imposing high, and progressively increasing, tax rates on excess profitability, thereby reducing the incentive to raise prices.

4 Ending fossil subsidies in the Dutch industry

4.1 Instrument design

Due to fossil subsidies, the largest industrial polluters in the Netherlands pay the lowest price for their GHG emissions

According to CBS, the Dutch industry, accounting for 39% of total emissions in the Netherlands, paid € 16 per ton of CO_2 in 2023. In contrast, households, responsible for approximately 15% of total emissions, paid an average of € 219 per ton of CO_2 over the same period. This disparity is primarily driven by the allocation of fossil subsidies. Phasing out these subsidies provides three key benefits: It generates significant government savings, it discourages fossil energy use and thereby accelerates the green transition of the Dutch industry, and it reinforces the Polluter Pays Principle.

Table 11 - Effective Carbon Rate and GHG-emissions (excl. agricultural and land-use sector)

	Effective Carbon Rate (2023) € per ton CO_2-eq.	% of GHG-emissions (2023)
Households	€ 219	15%
Road transport	€ 140	26%
Energy supply	€ 76	20%
Industry	€ 16	39%

Source: CE Delft based on (CBS, 2023) and (CBS, 2025a).

Why are fossil subsidies provided by the Dutch government?

The Dutch government provides fossil subsidies to companies primarily for reasons of international competitiveness. Many of these subsidies arise from tax schemes and exemptions that support energy-intensive sectors, such as chemicals, steel, and refining, in maintaining a competitive edge in the global market. By offering these tax advantages, the government aims to retain such industries within the Netherlands and prevent the relocation of production to countries with lower energy prices and more lenient environmental regulations.

However, the disadvantages of fossil subsidies have increasingly become the subject of public debate, with growing calls for their phase-out due to their role in encouraging fossil fuel use and placing a significant strain on public finances, effectively resulting in Dutch taxpayers subsidizing pollution. In April 2023, the Dutch House of Representatives (Tweede Kamer) adopted a motion calling on the government to produce a comprehensive and transparent inventory of fossil subsidies. This reflected rising political and societal concern about the scale and persistence of fossil-related tax benefits. While the former Ministry of Economic Affairs and Climate estimated fossil subsidies at € 4.5 billion in 2020 (Ministerie van EZK, 2020), the publication of the 2023 Budget Memorandum

(Miljoenennota) in September revealed a much higher figure, ranging between € 39.7 and € 46.4 billion (Rijksoverheid, 2023).

What fossil subsidies are being analysed?

This study focuses on the phasing-out of fossil subsidies in the Dutch industry. This sector was chosen because it currently pays the least for its GHG emissions and, given its significant contribution to total emissions (see Table 12), offers potential for progress toward a net-zero emission economy by 2050.

Within the industry, the analysis specifically examines the food and beverage industry, the chemical industry, and the base metal industry. Together, these three sectors accounted for 85% of industrial energy consumption in 2022 (CBS, 2024c).[12]

This study focuses on the phasing out of two fossil subsidies that lead to higher energy taxation:
1. **Degressive tariff structure of the energy tax on natural gas and electricity.**
2. **The use of coal products that is not taxed in blast furnaces and coking plants.**

These two fossil subsidies are part of a broader package of subsidies provided to the industrial sector. Due to the limited scope of this study, we did not assess all fossil subsidies. Instead, we focused on the phasing out of the degressive energy tax structure, given its substantial size. As the subsidy 'Use of coal products not taxed in blast furnaces and coke plants' can be assessed using a similar method, it is included in the analysis as well.

Degressive tariff structure of the energy tax on natural gas and electricity

The energy tax for both electricity and gas is structured into four tiers, with rates decreasing as energy consumption increases. As shown in Table 12, the majority of industrial energy consumption is taxed at the fourth tier, which has the lowest rate. In contrast, the energy consumption of an average household is taxed at the first tier, which carries the highest rate. In our study, eliminating the degressivity of the energy tax means that all energy consumption would be taxed at the first-tier rate.[13]

Table 12 - Energy tax and energy usage in the industry (total)[14]

	Energy tax Electricity (€/kWh) in 2025	Usage fossil Electricity (kWh x million) in 2022	Energy tax Natural gas (€/m^3) in 2025	Usage Natural gas (m^3 x million) in 2022
Tier 1	0.1015	203	0.5782	525
Tier 2	0.0694	613	0.3157	537
Tier 3	0.0387	5,880	0.2035	1,544
Tier 4	0.0032	11,687	0.0539	2,285

[12] According to CBS, total energy usage by the food and beverage industry, chemical industry and base metal industry in 2022 was equal to 805 PJ. Total energy usage by the total industry was 950 PJ.

[13] There are currently several exemptions within the energy tax system for the base metal industry (and other sectors within the metallurgical and mineralogical industry). These exemptions apply to electricity and natural gas consumption in specific industrial activities. For simplification purposes, this study assumes that in the reference scenario, this energy is taxed at tier 4, and after the removal of fossil fuel subsidies, it is taxed at tier 1. This assumption does not affect the study's outcomes.

[14] 2022 is the most recent year for which data on energy use by industry category and tier is available.

The use of coal products that is not taxed in blast furnaces and coking plants

The use of coal in various steel production processes generates coke oven gas and blast furnace gas as byproducts. These gases are reused in coke plants and blast furnaces but are currently not subject to taxation. In this study, phasing out this fossil subsidy means that coke oven gas and blast furnace gas is taxed at the first-tier energy tax rate for natural gas. This fossil subsidy applies exclusively to the steel industry.

How does ending fossil fuel subsidies stimulate sustainability and fairness?

Applying the same energy tax rate to industry as to households ensures a fair taxation system in which polluters pay a proportional price for their emissions. The removal of these subsidies in the Netherlands also aims to align economic incentives with climate and environmental objectives. These subsidies currently benefit sectors with high fossil fuel dependency, such as energy-intensive industries and transport. Phasing them out could encourage shifts toward renewable energy, energy efficiency, and more sustainable practices. While this may lead to cost increases for some sectors, it also creates opportunities for businesses and technologies focused on low-carbon solutions. This policy change is expected to contribute to the Netherlands' broader climate and energy transition goals (CE Delft, 2024d).

What is the feasibility of phasing out fossil subsidies?

The technical and practical feasibility of phasing out fossil subsidies does not pose a significant obstacle. Energy taxation is already applied to electricity and natural gas; the main change for phasing out the degressivity of energy taxation would be that industrial users are taxed at the rate of the first tier. This does not require any changes to physical infrastructure.

The use of coal products in blast furnaces and coking plants is currently exempt from taxation. However, these inputs are already monitored and recorded, for example under the EU ETS. Since the volumes are known, taxing these coal products would not present any major implementation challenges.

4.2 Instrument assessment

Data and methodology

We calculate the revenue generating potential from phasing out fossil subsidies using the inventory approach

We analyse the size of the two fossil subsidies using CBS data on industrial energy consumption, categorised by consumption per tax bracket (CBS, 2025b). We first calculate tax revenues without phasing out fossil subsidies. For subsidy one, this is done by multiplying energy consumption per tax bracket by the corresponding energy tax rate. Next, we determine the tax revenues after phasing out fossil subsidies. This is done by multiplying the total energy consumption by the first-tier energy tax rate that applies to households. The difference between these two calculations represents the size of the fossil subsidy. This method, in which the fossil benefit is calculated by determining the difference between the regular tax rate and the reduced rate or tax exemption, is also known as the inventory approach.

For subsidy two, we estimate its size by multiplying the consumption of blast furnace gas and coke oven gas by the first-tier energy tax rate for natural gas. This approach aligns with the calculation method used by (CPB & PBL, 2023). Blast furnace gas and coke oven gas are primarily used in steel production.

It is important to note that in calculating the size of fossil subsidies, we do not account for behavioural effects, such as reduced electricity and natural gas consumption due to higher taxes. As a result, the actual size of the fossil subsidies may be somewhat lower than the estimated in this study.

We calculate the climate impact of phasing out fossil subsidies using a MACC analysis

The climate impact of phasing out the two fossil subsidies is estimated using a marginal abatement cost curve (MACC) analysis. The MACC illustrates additional decarbonisation measures that become economically viable at a given CO_2 price. The higher the CO_2 price, the more sustainability measures become economically viable. We performed a MACC analysis by using data from the MIDDEN database (PBL, 2021).

Two key components go into a MACC analysis:
- The current price paid by industries for every ton of CO_2 they emit. This is also known as the effective carbon rate (ECR). Data on the ECR for different industrial sectors is available at CBS (CBS, 2024b).
- The price paid by industries for every ton of CO_2 they emit, after the two fossil subsidies are phased out.

Using the MACC, we identify which decarbonisation measures become cost-effective when companies face a higher CO_2 price due to the removal of fossil subsidies. As an additional scenario, we also assess which decarbonisation measures become viable when the CO_2 price aligns with the effective CO_2 price in the IPCC 1.5-degree scenario (€ 180 per ton CO_2).

Carbon capture and storage (CCS) is excluded from the decarbonisation measures, as it does not make production processes themselves more sustainable. However, Annex A presents a sensitivity analysis in which CCS is included as a decarbonisation option.

Table 13 - Key inputs for the MACC analysis

	Food and beverages	Chemical industry	Base metal industry
Current Effective Carbon Rate (Reference scenario)	€ 58.1	€ 20.7	€ -89.8[15]
Effective Carbon Rate after phasing out fossil subsidies	€ 173	€ 63	€ 31
CO_2 price corresponding to IPCC 1.5 degrees Celsius (IPCC CO_2 price)	€ 180	€ 180	€ 180

[15] The ECR of the Dutch Base metal industry is negative but there is reason for this outcome. The largest producer in this industry outsources the transformation of residual gases to another producer where it is used to generate

Revenue raising potential

The phase-out of the degressive energy tax in the industry generates € 3.5 billion per year for the Dutch government

We estimate the fossil subsidy for the industry resulting from the degressive energy tax rates on natural gas and electricity at approximately € 3.5 billion per year. This total consists of € 1.9 billion in subsidies for natural gas and € 1.5 billion for electricity generated from fossil fuels.

In recent years, several studies have assessed the magnitude of fossil subsidies. These studies also estimated the potential revenue from phasing out the degressive structure of the energy tax. However, they considered the degressivity of the energy tax across all sectors of the Dutch economy, not just within the industrial sector.

When we extrapolate our findings for the Dutch industry to the entire Dutch economy, we estimate that phasing out the degressive structure of the energy tax in the entire Dutch economy yields € 5.5 billion annually. As shown in Table 14, this estimate is roughly in line with the range of outcomes found in other recent studies.

Table 14 - Fossil subsidy size of degressive energy tax on natural gas and fossil electricity (€ millions)

	Scope	Natural gas	Fossil electricity	Total
CE Delft (2025)*	Industry	€ 1,918	€ 1,538	€ 3,456
CE Delft (2025) extrapolated	Total economic activity	€ 2,295	€ 3,166	€ 5,461
Rijksoverheid (2023)	Total economic activity	€ 2,387	€ 3,582	€ 5,969
Somo et al. (2024)	Total economic activity	€ 2,142	€ 4,202	€ 6,344
PBL and CPB (2023)	Total economic activity	€ 1,940	€ 3,420	€ 5,360
Metten (2021)	Total economic activity	€ 2,193	€ 1,493	€ 3,686

* CE Delft (2025) refers to this study.

Phasing out the use of coal products that is not taxed in blast furnaces and coking plants generates an estimated € 122 million per year

In 2022, the use of coke oven gas and blast furnace gas in the Dutch industry amounted to 12.6 Petajoule (PJ). Based on the tier 1 rate of the energy tax on natural gas, we calculate that the total value of the fossil subsidy is € 122 million per year. This is only a fraction of the fossil subsidy for natural gas and fossil electricity. The reason is that the use of coke oven gas and blast furnace gas is much lower and is limited to the base metal industry.

electricity. This transformation also generates CO_2 emissions. The allocation mechanism of free allowances is based on a 'standard' steel manufacturing installation in which the residual gases are processed onsite. The statistical implication of this arrangement is that while all free allowances are assigned to the basis metals manufacturing industry, the corresponding CO_2 emissions are partly assigned to this industry and for the remainder, those related to the transformation of residual gases, to the electricity supply industry.

Climate impact

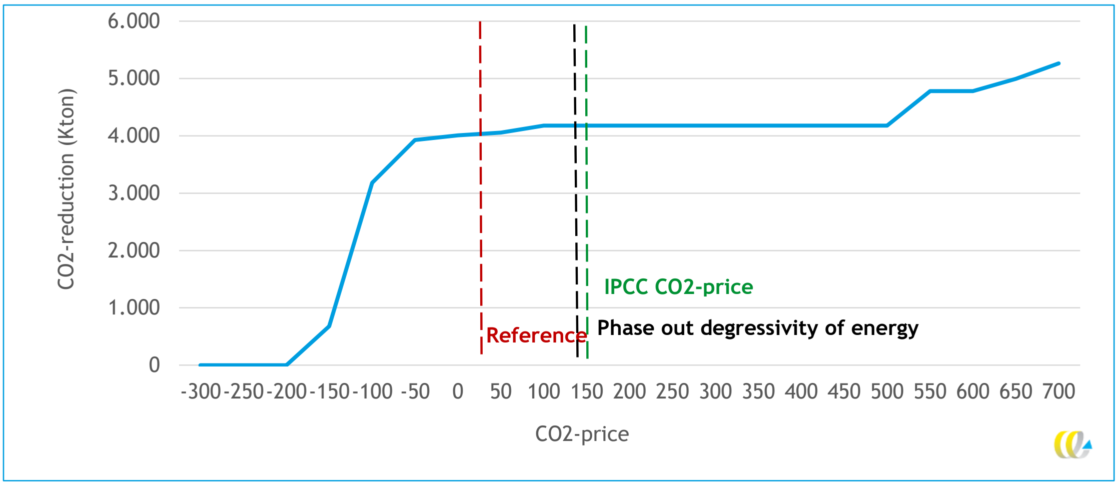
Phasing out the degressivity of the energy tax is expected to result in an emission reduction of approximately 120 kton per year in the food and beverage industry

Figure 6 illustrates the MACC and the CO_2 emission costs incurred by the food and beverage industry. Eliminating the degressivity of the energy tax leads to an estimated emission reduction of 120 kton per year, equivalent to approximately 5% of total emissions.
The measures that become economically viable due to the removal of fossil subsidies include the purchase of an hydrogen boiler (€ 67 per ton of CO_2) and a natural gas boiler (€ 78 per ton of CO_2).[16] The MACC indicates that further increasing the CO_2 price does not result in additional emission reductions within the food and beverage industry. Only at a CO_2 price of € 517 do new reduction measures become economically viable.

Table 15 - Outcomes MACC analysis Food and Beverage industry

	Reference	Phase out degressivity energy tax	IPCC CO_2 price
CO_2 price (€/ton CO_2)	€ 58	€ 173	€ 180
Emission reduction (kton)	0	120	120
% reduction total emissions	N/A	5%	5%

Figure 6 - MACC Food and Beverage Industry without CCS



Phasing out the degressivity of energy taxation for the chemical industry does not lead to significant emission reduction

The MACC of the chemical industry differs from that of the food and beverage industry. Phasing out the degressivity of energy taxation leads to an increase of the effective CO_2 price from € 21 to € 63 per ton of CO_2. This increase does not lead to new emission reduction measures to become economically viable. Increasing the effective CO_2 price to € 180 per ton makes two smaller measures economically viable: A base and biomass boiler for the inorganic basic chemicals sector, and a hydrogen furnace for the plastics and rubber

[16] The costs of a hydrogen boiler and a natual gas boiler, expressed in euros per ton of CO_2, is not the same for every subindustry within the food and beverages industry. The costs mentioned in the text apply specifically to subindustry 108: Other Food Manufacturing.

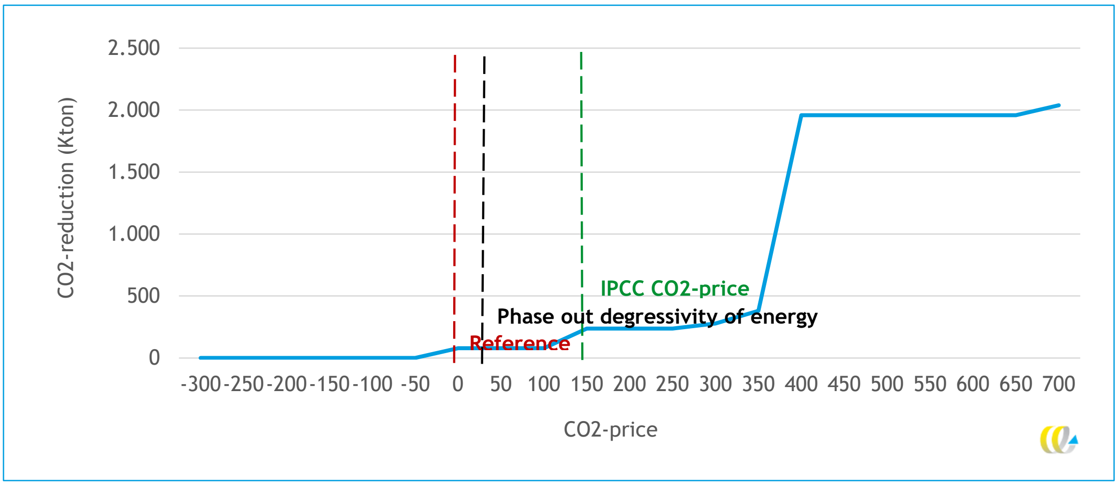
industry. This results in a total emission reduction of 158 kton per year, equivalent to a 1% reduction in total emissions. Significant decarbonisation is realised at a CO_2 price of € 350-400 per ton of CO_2.

Various measures become cost-effective when CCS is included as a measure. This is described in a sensitivity analysis in Annex A.

Table 16 - Outcomes MACC analysis chemical industry

	Reference	Phase out degressivity energy tax	IPCC CO_2 price
CO_2 price (€/ton CO_2)	€ 21	€ 63	€ 180
Emission reduction (kton)	0	0	158
% reduction total emissions	N/A	0%	1%

Figure 7 - MACC Chemical Industry without CCS



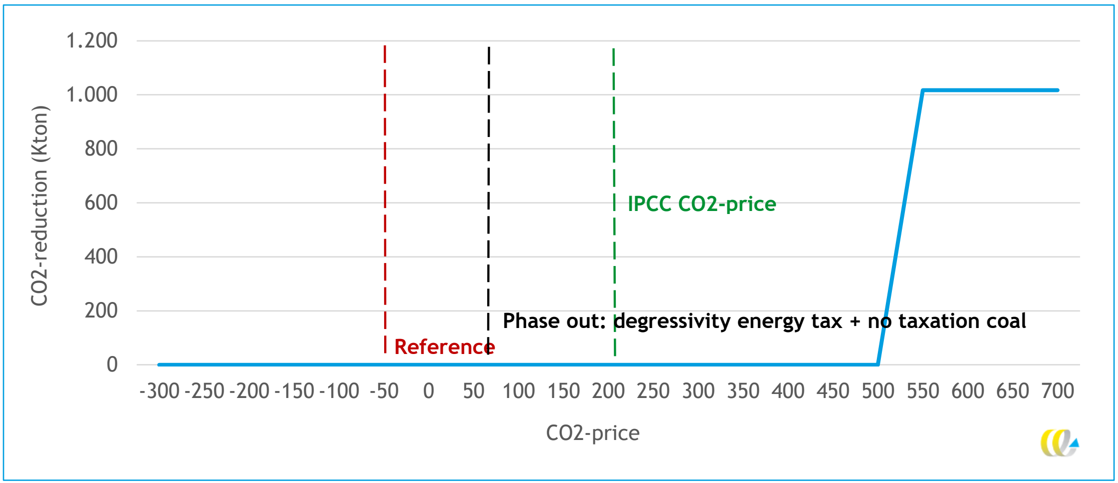
For the base metal industry, phasing out fossil subsidies does not lead to additional emission reduction

Figure 8 presents the MACC of the base metal industry. Phasing out the degressivity of the energy tax and taxing carbon products does not make any new decarbonisation measures economically viable. Significant CO_2 emission reduction is realised at a CO_2 price of around € 500 per ton of CO_2.

Table 17 - Outcomes MACC analysis base metal industry

	Reference	Phase out degressive energy tax	Phase out degressivity energy + tax on coal products	IPCC CO_2 price
CO_2 price (€/ton CO_2)	€ -90	€ -46	€ 31	€ 180
Emission reduction (kton)	0	0	0	0
% reduction total emissions	n.a.	0%	0%	0%

Figure 8 - MACC Base Metal industry without CCS



Fairness

Phasing out fossil subsidies ensures that the industry pays a fairer price for its emissions

The price that different sectors pay for energy consumption is unevenly distributed. At the beginning of this chapter, we demonstrated that the industry pays a significantly lower price for its emissions compared to the average household, despite being the largest energy consumer. Phasing out fossil subsidies increases the cost of fossil energy use for the industry, thereby narrowing the gap between the ECR of the industry and other sectors. From a fairness perspective, this provides a strong justification for reducing fossil subsidies.

Phasing out fossil subsidies is in line with the Polluter Pays Principle

Currently, fossil subsidies are funded by the government, meaning that all taxpayers indirectly contribute to the support of fossil energy use. Phasing out these subsidies helps to shift the financial responsibility to those responsible for emissions, thereby aligning with the Polluter Pays Principle.

However, higher energy costs for industries resulting from the removal of subsidies may be passed on to consumers, depending on the extent to which companies along the value chain are able to transfer these costs. If costs are (fully) passed on, the financial burden ultimately falls on end-consumers. Even in that case, the costs are borne by consumers or firms using carbon-intensive products, which is still consistent with the Polluter Pays Principle.

5 Shipping fuel tax

5.1 Instrument design

Fuel used for international maritime shipping is currently exempt from taxation

The international shipping industry is highly carbon-intensive, accounting for approximately 3% of global greenhouse gas emissions. At current growth rates, shipping could contribute around 10% of global greenhouse gas emissions by 2050 (Transport & Environment, n.d.). Despite the maritime shipping sector's significant impact on climate change, fuels supplied for use in international shipping are currently exempt from taxation under the Energy Taxation Directive (ETD). In theory, EU Member States could tax fuel used in intra-EU shipping if two Member States agreed to do so bilaterally. However, in practice, no EU country currently implements such a tax (EC, 2021). The under-taxation of international shipping fuels hinders the sector's transition to sustainability and results in substantial lost tax revenues for the Dutch government.

With 9.9 million tons of bunker fuel sold in 2023, Rotterdam is the largest bunker port in Europe (Port of Rotterdam, n.d.). Due to the high amount of bunker fuel sold, a levy on the use of shipping fuels in the international shipping industry has significant potential for both climate change mitigation and revenue generation in the Netherlands.

Text box 3 - International cooperation is important for a shipping fuel tax to be effective

> An important assumption in our analysis is that countries worldwide adopt similar environmental policies, and hence there are no carbon leakage effects. Carbon leakage effects are particularly relevant for the maritime sector, as potential leakage effects are a significant concern and contribute to the challenges of reducing emissions in this sector. Previous research by CE Delft (2021) has demonstrated that the choice of bunkering locations is highly sensitive to price differences, with shipping companies opting for the most cost-effective options. If a shipping fuel tax is implemented only in the Netherlands or Europe, bunker activities are likely to shift to other ports to avoid the tax. This would result in no reduction in greenhouse gas emissions and no tax revenues (CE Delft, 2021).

What is a shipping fuel levy?

A shipping fuel levy is a financial instrument designed to reduce GHG emissions from the maritime sector. It imposes a charge on ships based on the carbon content of the fuel they consume. The levy is typically set as a fixed price per ton of CO_2 emitted or per ton of bunker fuel used.

How does a shipping fuel levy stimulate sustainability and fairness?

The levy helps reduce carbon emissions by making it more expensive to use fossil shipping fuels. When fuel prices go up, shipping companies have a reason to use less fuel or switch to cleaner options like hydrogen. They may also try to save fuel by traveling at lower speeds, choosing more efficient routes, or investing in newer, greener ships. Over time, these changes would make global shipping much cleaner.

A fuel levy enhances fairness by addressing the current exemption of international shipping fuels from taxation. At present, the shipping industry does not directly pay for the pollution it generates. Introducing a levy would shift this by making the industry accountable for its emissions, in line with the polluter pays principle, the concept that those responsible for pollution should contribute to the costs of mitigating its effects.

Who ultimately bears the cost of the tax depends on whether shipping companies absorb the additional expenses or pass them on. If they absorb the costs, it could result in lower profits for the industry. If the costs are passed on, it may lead to higher prices for transported goods, potentially affecting businesses and consumers worldwide.

In practice, the outcome will likely be a combination of both. Some costs may be transferred to importers and exporters, making certain goods slightly more expensive. However, shipping companies may also respond by optimizing operations to reduce fuel consumption and minimise costs. Since fuel already represents a significant portion of shipping expenses, companies have a strong incentive to improve efficiency rather than simply passing on the costs. In a previous study, CE Delft showed that a 1% increase in fuel prices leads to a 0.26% improvement in the technical energy efficiency of new ships six years later (CE Delft, 2024c).

What is the scope of the shipping fuel levy?

Our tax proposal focuses on bunker fuels sold in ports in the Netherlands. Also, we focus on maritime shipping (freight vessels) rather than inland or river shipping, as the majority of fuel consumption and greenhouse gas emissions originate from maritime shipping.

What shipping fuels are taxed?

The tax base for the shipping fuel tax is primarily based on the physical quantity of fuel, i.e. the number of liters/tons sold. This differs for example from aviation ticket taxes, where charges are often distance-based or involve a fixed amount per ticket. The tax applies to conventional fossil fuels and bio-blended fuels. This includes Ultra-Low Sulphur Fuel Oil (ULSFO), Very-Low Sulphur Fuel Oil (VLSFO), High Sulphur Fuel Oil (HSFO), Marine Gas Oil (MGO), Marine Diesel Oil (MDO), Methanol and Liquified Natural Gas (LNG). Biofuels are included in the tax base as according to Transport & Environment (2022), most biofuels do not contribute to a transition to sustainable transport.

What is the height of the tax?

Recently there have been different proposals for a fuel tax on international shipping. The European Commission's revision of the ETD proposes a minimum tax rate of € 10.75 per GJ (+- € 140 per metric ton CO_2) for conventional fossil fuels such as gas oil, petrol and non-sustainable biofuels, which is the same rate as for petrol used in road transport.

The rate will be gradually implemented over a period of 10 years (EC, 2021). This proposal is still under discussion within the EU.[17]

In December 2024, 47 other countries, including all EU Member States, submitted a joint proposal to the International Maritime Organization (IMO) for the introduction of a global CO_2 levy in the shipping sector. Suggested rates range between $ 18.75 and $ 150 per ton of CO_2 emissions which should enter into force globally in early 2027. The variation of the levy reflects the diverse positions of the participating countries and stakeholders (IMO, 2023). The proposal has the backing of countries accounting for 66% of global shipping capacity. Countries like the United States and China have not yet endorsed the proposal.

In its 2023 IMO GHG Strategy, the IMO committed to achieving net-zero GHG emissions by 2050 (IMO, 2023). In this study, we align the levy with the net-zero pathway policy scenario outlined by Black et al. (2024). Their proposal includes a carbon tax that increases linearly, starting at $ 20 per metric ton of CO_2 in 2028, rising to $170 in 2035, and reaching $ 500 per metric ton of CO_2 by 2050.

Text box 4 – Emission Reduction Measures for International Shipping Approved (IMO, 2025)

During the course of this research, the IMO reached an agreement on reducing GHG emissions from international shipping. At its 83rd session (MEPC 83), held from 7–11 April 2025, the Marine Environment Protection Committee approved a package of measures including a new global fuel standard and an international emissions pricing mechanism. These measures are scheduled for formal adoption in October 2025 and will enter into force in 2027. The new rules will apply to large ocean-going vessels over 5,000 gross tonnage, which together account for approximately 85% of international shipping's total CO_2 emissions.

Under the draft regulations, ships will be required to comply with:
- **Global Fuel Standard:** Ships must gradually reduce the greenhouse gas intensity of the fuels they use each year.
- **Global Economic Measure:** Ships that exceed emission thresholds will need to purchase compensation units to offset their excess emissions, while ships using zero or near-zero GHG fuels and technologies will be financially rewarded.

Revenues, estimated to reach tens of billions of USD per year, will be directed to an IMO-managed fund rather than national treasuries. This fund will be used to promote the uptake, production, and development of zero or near-zero GHG fuels and technologies, and to support the energy transition in developing countries.

What is the feasibility of introducing a shipping levy in the Netherlands?

From a technical and administrative standpoint, the introduction of a shipping fuel levy in the Netherlands is feasible and can relatively easily be aligned with fuel excise and customs infrastructure. Although the political feasibility of this measure is outside the scope of this analysis, international developments cannot be ignored, especially in the maritime sector. In April 2025, the IMO's Marine Environment Protection Committee (MEPC 83) agreed on a package of global emission reduction measures for the maritime sector (see Text box 4).

[17] EU countries have delayed proposals for EU-wide taxes on aviation and maritime fuels. This potential postponement reflects ongoing negotiations and concerns about potential leakage effects and the availability of sustainable alternative fuels (Reuters, 2024).

Although we recognise the value of this multilateral agreement, particularly as it marks the first time the IMO will establish a framework that generates, albeit limited, revenues for decarbonisation, Transport & Environment (T&E) has pointed out that the agreement still falls short of meeting the IMO's own emission reduction targets (T&E, 2025).

Given the recent adoption of the IMO agreement, it makes sense to wait for further details on how the measures will be elaborated and implemented in practice before introducing a national shipping fuel levy. Aligning with international rules could enhance the effectiveness and coherence of such a measure.

5.2 Instrument assessment

Data and Methodology

We assess the shipping levy using key assumptions from Black et al. (2024) and data on bunker fuel sales and prices from the Port of Rotterdam

For the shipping levy, we provide rough estimates of the revenue-raising potential, climate impact and effects on consumer prices. The tax rate for shipping levy aligns with the net-zero pathway policy scenario outlined by Black et al. (2024). Their proposal includes a carbon tax that increases linearly, starting at $ 20 (€ 18) per metric ton of CO_2 in 2028, rising to $ 170 (€ 160) in 2035, and reaching $ 500 (€ 462) by 2050.

Using the proposed carbon tax by Black et al. (2024), emissions from maritime shipping are expected to reduce by 18% in 2030, 63% in 2040

Following Black et al. (2024), we assume the net-zero pathway reduces emissions linearly by 18% below baseline levels by 2030 and 63% by 2040. Black et al. (2024) emphasises that maritime emissions are unlikely to be fully eliminated by 2050 due to the high abatement costs of zero-emission fuels and technological limitations in fully replacing fossil fuels. To simplify the model and align with the IMO's GHG Strategy of achieving zero emissions by 2050, we assume a linear reduction in emissions from 63% in 2040 to 100% in 2050, without incorporating residual emissions.

We assume that baseline bunker fuel sales increase by 1% a year and that sales prices of conventional shipping fuels remain constant over time

- Baseline GHG emissions are projected to increase by 29% above 2022 levels by 2050, representing an annual growth rate of approximately 1%. This 1% growth rate consists of a +2.2% annual growth rate due to higher bunker fuel demand and a -1.2% annual growth rate due to improved energy efficiency and lower emission intensity (Black et al., 2024).
- GHG emission reductions are assumed to perfectly align with reductions in conventional fossil fuel sales, meaning a 1% decrease in conventional bunker fuel sales directly translates to a 1% reduction in greenhouse gas emissions from maritime shipping.
- Sales prices of conventional shipping fuels between 2028 and 2050 are assumed to remain constant over time (Black et al., 2024)[18].

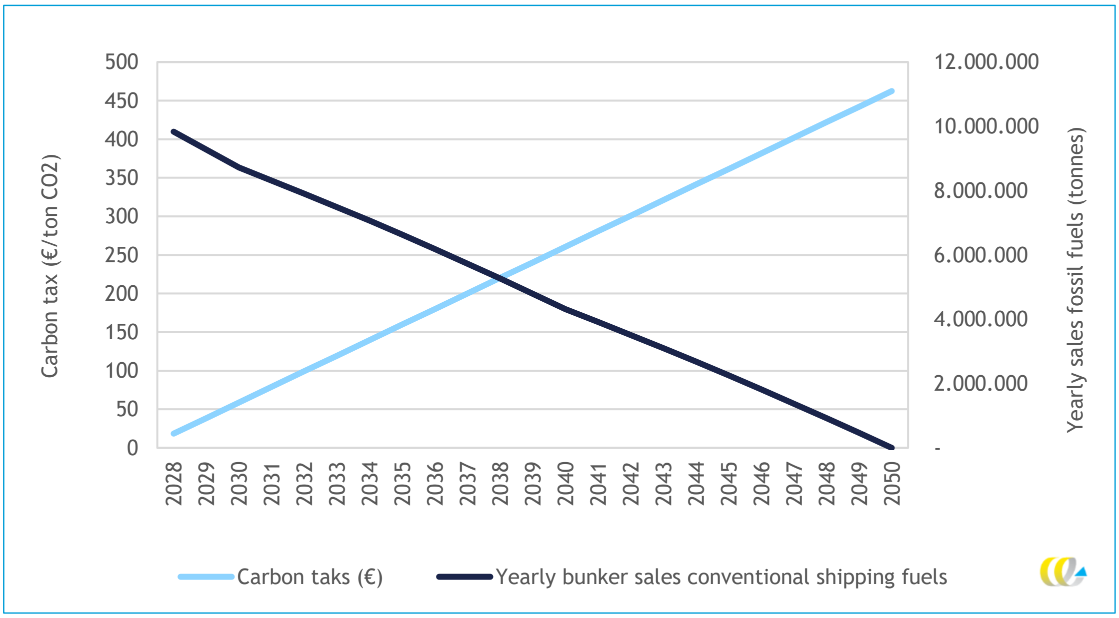
[18] Black et al. (2024) Annex Figure 4.3.

We calculate revenue generating potential using bunker sales data from the Port of Rotterdam

Tax revenues from a carbon tax on conventional bunker fuels in the Netherlands are estimated by multiplying the carbon tax rate by the annual bunker sales. Bunker sales in the Netherlands are derived from 2023 data on bunker fuel sales from the Port of Rotterdam.

As the carbon tax increases over time, annual bunker fuel sales decline. The overall increased rate will incur a magnified behavioral effect and narrow the tax base. As this process gains momentum, at some point the shipping levy as a tax base will grind to a halt. The specific implications of carbon taxes for tax revenue stability will thus need to be carefully monitored and evaluated.

Figure 9 - Carbon tax and the yearly expected bunker sales of conventional fuels in the Netherlands



The assumptions from Black et al. (2024) enable an estimate of the impact of a shipping levy on consumer prices

- The increase in bunker fuel sales prices due to the carbon tax is calculated using the average bunker fuel prices in the Port of Rotterdam in 2023 and the well-to-wake (WTW) CO_2 emissions factor (tons of CO_2 per ton of fuel). The emissions factor is based on a weighted average of the types of bunker fuels sold in Rotterdam, derived from Ship & Bunker (2025), and WTW emission factors derived from ICCT (2021).
- Assuming fuel costs account for 50% of total shipping costs (Black et al., 2024), the increase in bunker fuel prices is converted to an increase in shipping costs resulting from the carbon tax.
- Based on the assumptions that 90% of global trade volume is transported by ships, shipping costs represent 6% of landed import prices, and there is a 95% cost pass-through rate Black et al. (2024), the increase in consumer prices due to the carbon tax is calculated.

To estimate the effect on consumer prices, we first calculated the increase in bunker fuel prices at the Port of Rotterdam due to the carbon tax. The subsequent effect on consumer prices was determined using assumptions from Black et al. (2024) including the share of fuel costs in total shipping costs, the proportion of global trade transported by ships, the share of shipping costs in landed import prices, and the pass-through rate. These values are presented in Table 18. It is important to note that these figures represent sector-wide averages and do not account for industry-specific variations. Additionally, this analysis assumes that the carbon tax is implemented globally, meaning that the price of shipped goods increase globally.

Table 18 - Assumptions from Black et al. (2024) for calculating the effect of a carbon tax on consumer prices

Assumption	Numbers from Black et al. (2024)
Fuel costs as % of total shipping costs	50%
% of global trade volume transported by ships	90%
Shipping costs as % of landed import prices	6%
Cost pass-through rate	95%

Calculations provide only a rough estimate of the impact of a shipping levy in the Netherlands

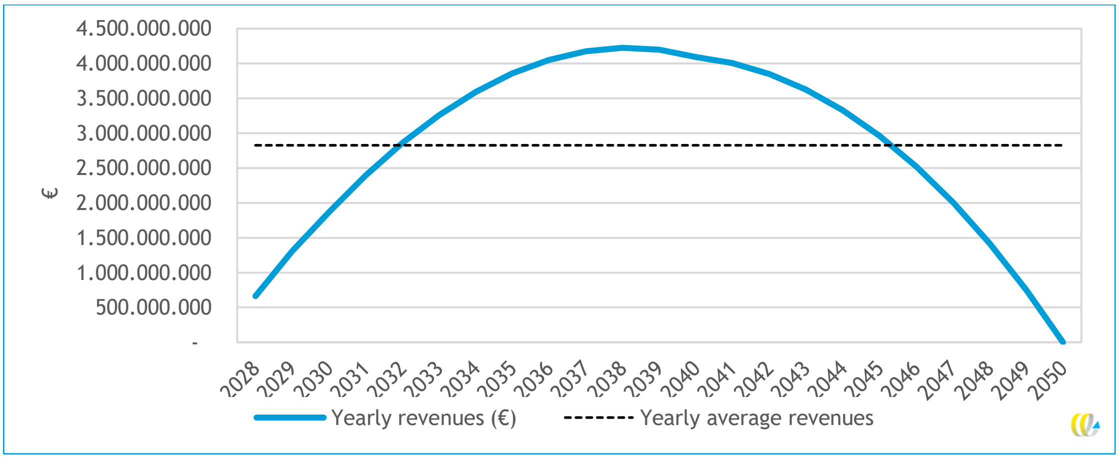
Important to mention is that the calculations for the shipping levy in this study have an aggregate character and are solely meant to provide rough estimates of the revenue-raising potential and socio-economic impact of a carbon tax in the maritime sector in the Netherlands.

Revenue raising potential

A shipping levy generates an estimated € 2.8 billion a year on average

Figure 10 presents the annual revenues from a shipping levy in the Netherlands. As the tax rate increases and sales of conventional fuels decline, tax revenues follow a parabolic trend: rising from € 1.9 billion in 2030 to € 4.1 billion in 2040, before decreasing to zero by 2050 as conventional fuels are phased out. On average, annual tax revenues amount to € 2.8 billion.

Figure 10 - Yearly revenues from a carbon tax on conventional shipping fuels in the Netherlands

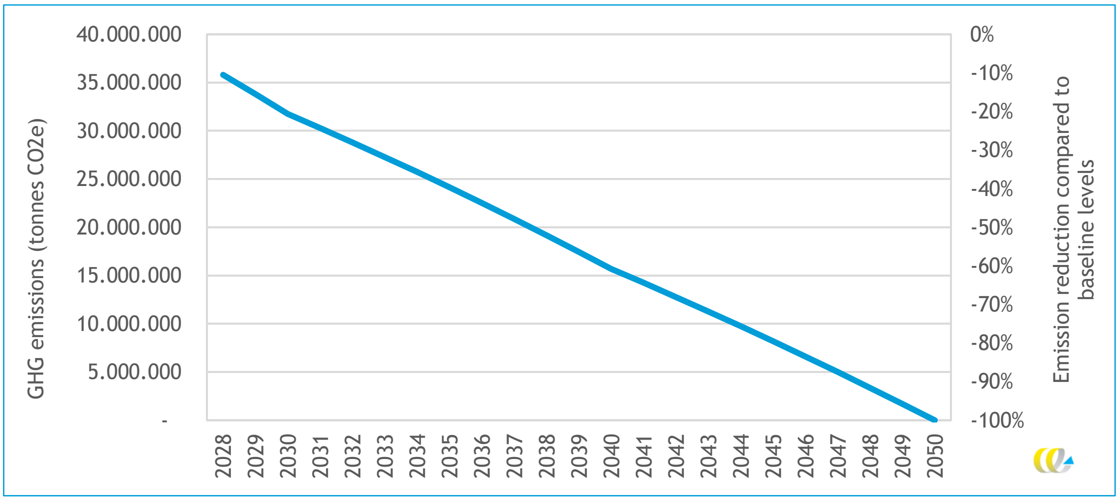


Climate impact

Emissions from conventional shipping decrease by an average of 1.6 Mton a year

Figure 11 shows the GHG emission reduction path over time as a result of the carbon tax. The carbon tax is set in such a way that emissions from conventional shipping decrease by 18% in 2030, 63% in 2040 and 100% (net-zero) in 2050.

Figure 11 - GHG emissions from conventional bunker fuel sales in the Netherlands



Fairness

The shipping levy increases prices of imported goods by 1% in 2030, 4% in 2040 and 8% in 2050

Figure 12 shows the impact of a maritime shipping carbon tax on prices of imported goods in the Netherlands. Based on the parameters in Table 18, we calculated an increase in shipping costs of 19.0% in 2030, 85% in 2040 and 151% in 2050. This results in a price increase of imported goods of 1.0% in 2030, 4.4% in 2040 and 7.7% in 2050.

Higher shipping costs can impact international trade patterns. When the prices of imported goods rise, products that are not transported by sea, such as those produced within Europe, gain a competitive edge in the European market. At the same time, goods made in Europe become less competitive in markets outside of Europe due to higher export shipping costs.

Figure 12 - Shipping costs and increase in price of imported goods

6 Progressive aviation ticket tax

6.1 Introduction

The analysis and results of the progressive aviation ticket levy presented in this chapter are based on findings from not yet published factsheets produced by CE Delft on behalf of Milieudefensie. As this policy measure aligns well with the objectives of the other fiscal policies presented in this paper, the results have also been included in this report.

Introducing a progressive aviation ticket levy makes the aviation ticket tax more reflective of the environmental impact

The current Dutch aviation tax is a flat levy: passengers pay the same amount per ticket — € 29.40 — regardless of their destination, flight distance, or how often they fly (Belastingdienst, 2025).

The policy measure presented in this chapter proposes a progressive aviation ticket levy, differentiated by both distance and flight frequency. Under this scheme, passengers who fly more frequently would pay a higher tax for each subsequent flight. Additionally, flights over longer distances would incur a higher levy than short-haul flights.

Introducing a distance-based component makes the tax more reflective of environmental impact. Longer flights result in significantly higher CO_2 emissions compared to short flights. For instance, in 2019, the longest 25% of departing flights from the Netherlands — those covering more than 2,000 kilometers — were responsible for over 80% of aviation-related CO_2 emissions (NLR, 2024).

Flight frequency increases with income-levels

There is also a significant disparity in the number of flights taken per person in the Netherlands. Data from (KiM, 2024) shows that half of Dutch residents aged 18 to 80 take one or more flights annually. This implies that the other 50% did not take any flights during the same period. Moreover, it appears that 13% of the population accounts for half of all flights. This same 13% can be classified as frequent flyers, defined as individuals who take three or more flights per year.

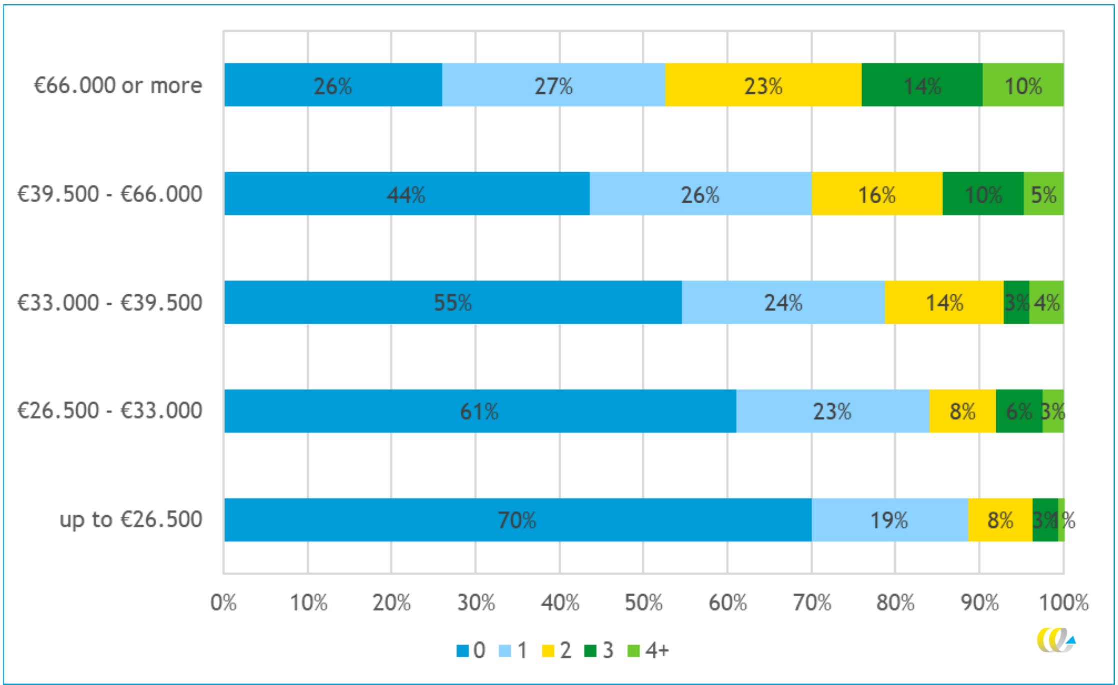
Flight frequency also varies considerably by income level. Individuals with lower incomes tend to fly significantly less often than those with middle or high incomes. Among people with a very high gross income, 26% fly three times or more per year. In contrast, this figure is 6% for those with low incomes, 8% for those with average incomes, and 12% for those with high incomes.

An aviation tax based on frequency and distance is modelled using UK data on flight frequency distribution by income group

There is no data available on the number of individuals and flights per year by income group in the Netherlands. However, CE Delft (2024b) provides insights into flight frequency by income group based on data from the United Kingdom. This data was used as a basis and scaled to align with the five income groups included in this factsheet, following the classification used in De Vliegende Hollander (KiM, 2024).

This study finds that the lowest income group flies an average of 0.7 times per year, while the highest income group averages 2.9 flights per year. Data from KiM (2024) and CE Delft (2024b) support this finding: Figure 13 also shows that higher income groups fly more frequently than lower income groups.

Figure 13 - Flight frequency per yearly household income-level (based on KiM (2024) and CE Delft (2024b))



The charge is dependent on both flight frequency and distance. The tax structure is designed to generate total gross revenues equal to the estimated tax loss from the kerosene exemption and the VAT exemption on tickets (€ 2.3 billion). As a result, a levy of € 26 is applied to the first flight, on top of the ticket price. Table 19 shows the charge per flight frequency. The levy doubles for the second flight, quadruples for the third, and increases eightfold from the fourth flight onward.[19]

[19] This concerns departing flights from the Netherlands, and not return flights.

Table 19 - Levy per flight frequency and distance (departing flights from the Netherlands)

Flight frequency	Frequent Flyer Levy	Long distance surcharge > 4,000 km
1	€ 26	€ 100
2	€ 52	€ 100
3	€ 104	€ 100
4+	€ 208	€ 100

No data is available on average flight distance by income group. Based on De Vliegende Hollander (KiM, 2024), it is estimated that 75% of flights cover distances up to 4,000 km, and 25% exceed 4,000 km, using 2024 survey data. This distribution is assumed to apply equally across all five income groups. An additional charge of € 100 per ticket is applied to flights over 4,000 km.

6.2 Outcomes

The Progressive Ticket Tax raises € 2.3 billion a year

The tax rate is set to roughly match the revenue lost due to the kerosene tax exemption and foregone VAT, amounting to approximately € 2.3 billion (CE Delft, 2020), taking into account reduced demand caused by the tax. The implementation costs are negligible compared to the generated revenues.

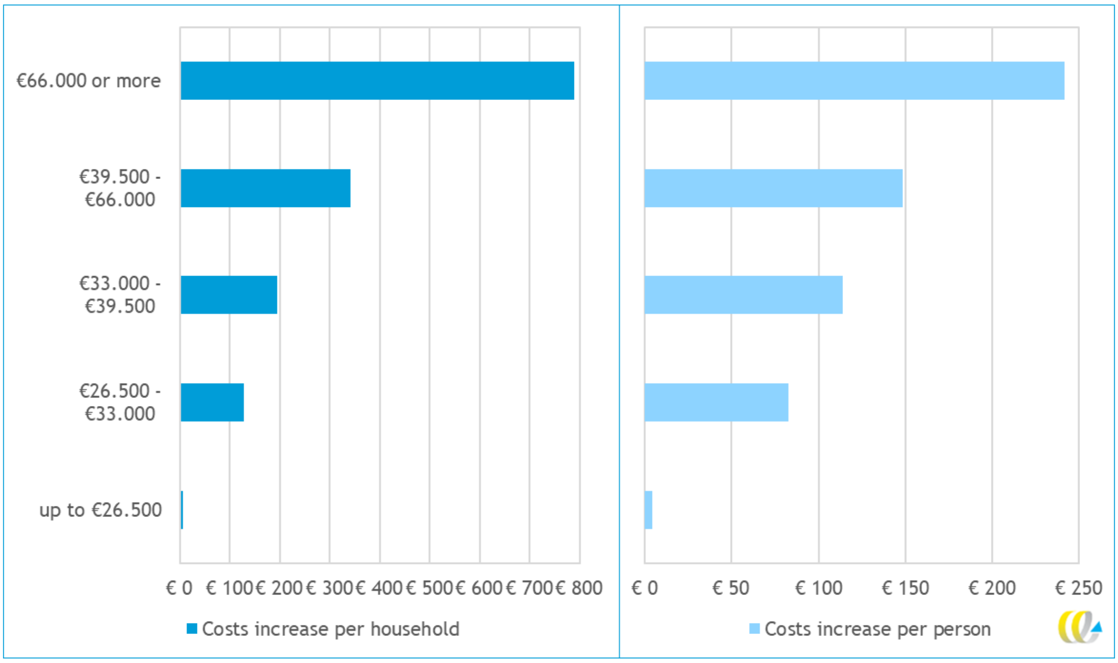
A progressive ticket tax reduces CO_2 emissions by 1.7 megatons

The total CO_2 emission reduction at Dutch airports in 2030 amounts to 1.7 megatons and results from a decrease in the number of passengers, — and consequently flights, due to higher ticket prices caused by the tax.

Average air **passenger** costs increase with household income-levels

Figure 13 shows the yearly costs increase per household and per person across the five income groups. The figure illustrates that the yearly cost increase rises with income-levels. This is due to the higher flight frequency among higher income groups (see Figure 13), which leads to higher taxes per ticket. The cost increase also includes the distance-based surcharge applied to 25% of flights. Additionally, a larger share of households in lower income groups do not fly at all. Household size has also been factored into the calculation, as it tends to increase with income.

Figure 13 - Average annual costs increase per household and per person



A progressive ticket levy contributes to a fairer and more equitable taxation system by placing a greater burden on those who fly more frequently

Households that fly frequently within a year will pay more under a progressive ticket tax than they would with a flat tax. In contrast, households that fly rarely or not at all will be less affected or not impacted by the measure. Individuals who take one flight per year within Europe may even pay slightly less (Belastingdienst, 2025). Higher-income households tend to fly more often and will therefore be more affected by the progressive tax. However, this group is generally less sensitive to price changes and is therefore less likely to alter its behaviour.

7 Heavy vehicle tax

7.1 Introduction

The analysis and results of the heavy vehicle tax presented in this chapter are based on findings from not yet published factsheets produced by CE Delft on behalf of Milieudefensie. As this policy measure aligns well with the objectives of the other fiscal policies presented in this study, the results have also been included in this report.

The Dutch vehicle fleet has become heavier in recent years

In recent years, the Dutch vehicle fleet has become heavier: in 2015, heavy cars (>1,380 kg) made up 25% of the fleet, rising to over 31% by 2022 (CBS, 2024a). Between 2020 and 2023, newly sold cars became 140 kg heavier on average. This increase is due to the growing share of electric vehicles and a shift toward larger models and higher market segments (RVO & Revnext, 2024). Heavier cars tend to consume more energy and emit more CO_2 and air pollutants than lighter vehicles. Their production also requires more energy and materials. Additionally, their larger size takes up more space on the road. While heavier cars offer better protection to their own drivers in collisions, they pose a higher fatality risk to occupants of lighter vehicles (Vias institute, 2022).

A heavy vehicle tax will apply to newly sold cars, paid at the point of sale

A higher surcharge will apply to the sale of new heavy cars, with the dealer paying an additional fee of:
- € 8,000 for fossil-fuel passenger cars weighing 1,350 kg or more;
- € 8,000 for plug-in hybrid passenger cars weighing 1,850 kg or more;
- € 4,000 for electric passenger cars weighing 1,850 kg or more.

The 1,850 kg threshold aligns with the limit proposed by Oxfam Novib for taxing heavy vehicles. However, in that proposal, the threshold for fossil-fuel cars was set lower, at 1,450 kg (Oxfam Novib, 2024). Additionally, their policy focused on adjusting the recurring vehicle tax (MRB), rather than a purchase surcharge.

In the Netherlands, heavier vehicles are already subject to higher road tax (MRB), which generally scales proportionally with vehicle weight. For electric vehicles, this rate is reduced by 25% until 2029, while plug-in hybrids received a similar 25% reduction until 2025. The key difference between the MRB and the measure outlined here is that the MRB is a recurring tax, whereas the heavy vehicle tax is a one-time charge at the point of sale. Unlike the standard purchase tax, which is based on CO_2 emissions, the heavy vehicle tax is applied specifically at the time of sale and is based on vehicle weight.

The purchase of heavy vehicles is discouraged through targeted taxation

The higher sales tax affects private individuals purchasing or leasing a new heavy vehicle through a leasing company. It also impacts the pricing of company cars, which in turn influences the taxable benefit for employees.

Private buyers of new cars — rather than used ones — generally have above-average incomes. In 2023, 81% of car owners had purchased their vehicle second-hand. Company cars accounted for 11% of the market, while 3% of vehicles were privately leased (RVO & Revnext, 2024).

7.2 Outcomes

The heavy vehicle tax generates € 0.5 billion and reduces CO_2 by 0.4 kiloton a year

The heavy vehicle tax generates approximately € 541 million a year, with € 15 million in lost revenue, resulting in a net annual gain of € 0.5 billion a year for the government.

As a result of this measure, newly sold cars become smaller on average, leading to lower CO_2 emissions per kilometre. By 2030, the estimated CO_2 reduction is 0.4 kilotons CO_2-eq. Over time, the impact grows as the vehicle fleet gradually consists of fewer heavy cars. These longer-term effects have not been quantified in this factsheet.

Lighter battery vehicles (both electric and plug-in hybrids) typically require smaller batteries, resulting in reduced use of critical materials such as lithium, cobalt, and graphite. In general, smaller cars use fewer materials overall, leading to lower resource demand and reduced CO_2 emissions during production compared to larger vehicles.

The tax mainly affects higher-income households buying new heavy cars, while most households remain unaffected

It is assumed that the seller fully passes the additional tax on to the consumers. This measure only has financial consequences for motorists purchasing a new vehicle. In such cases, two outcomes are possible: in the first scenario, the buyer proceeds with the purchase of the heavy vehicle despite the added tax. The cost impact then equals the tax amount — unless the seller absorbs part of it. In the second scenario, the buyer opts for a smaller vehicle in response to the tax incentive. Smaller cars are generally cheaper, resulting in estimated savings of € 11,000 to € 14,000 on the purchase price (RVO, 2024), along with additional fuel savings due to better efficiency. Over a six-year ownership period, these fuel savings are estimated at € 1,200 to € 2,800 for petrol, diesel, and plug-in hybrid cars.

It's important to note that this tax only applies to new vehicle sales. Model data shows that 4% of households purchase a new car annually — 1% in the lowest income group and 5% in the highest.[20] On average, 18% of households do not own a car at all, with this share rising to 36% in the lowest income group. As a result, this measure has no impact on most households, as they either do not own a car or typically purchase used vehicles.

[20] For this calculation, the Dynamic Automobile Market Model (DYNAMO) was applied.

Figure 14 - Age of cars per income-level in 2030[21]

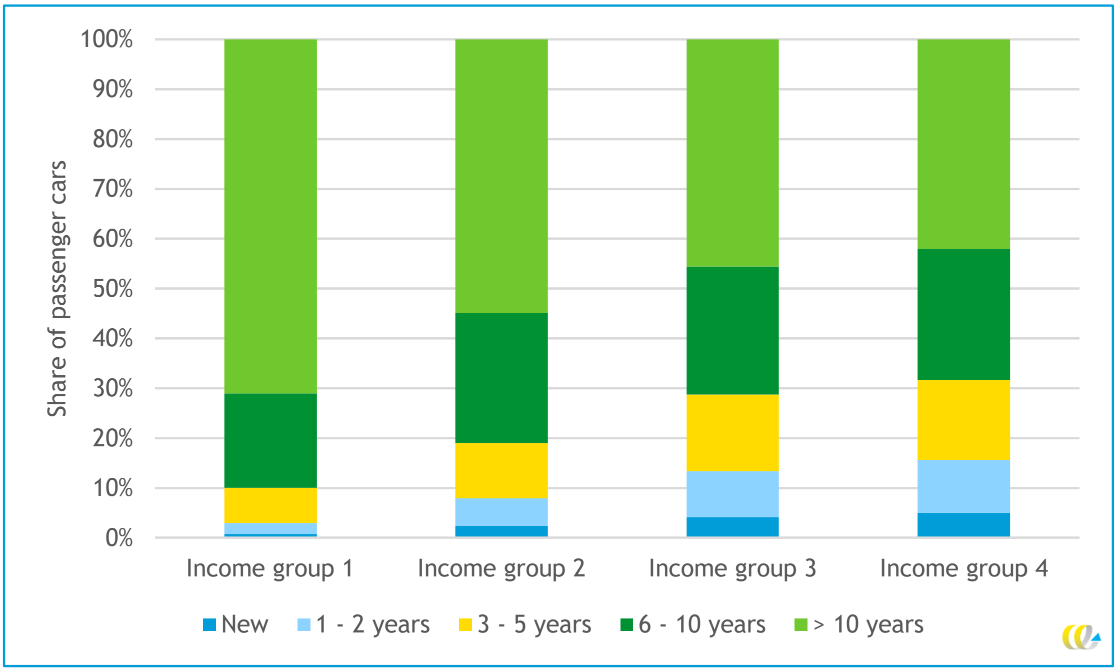


Figure 15 and Figure 16 show the number of households expected to purchase a new car in 2030. A total of about 352,000 new cars will be bought, with approximately 100,000 exceeding the threshold and falling under the measure. The figures indicate that the majority of new cars are purchased by the highest income group, while only 0.4% of households in income group 1 are buying a new car. Nearly 12% of the highest income group is expected to buy a new car in 2030.

Of the heavy vehicle cars, an estimated 64% will be bought by the highest income group, with only 1% bought by the lowest income group. In short, the measure primarily impacts the highest income group. However, if they choose to purchase a smaller car due to the tax, they will be able to circumvent the heavy vehicle tax.

[21] Income groups by annual disposable income are as follows: Income group 1 includes households with an income of less than € 20,000 (1.4 million households); Income group 2 consists of households earning between € 20,000 and € 45,000 (4 million households); Income group 3 includes households with an income between € 45,000 and € 60,000 (1.4 million households); and Income group 4 includes households with an income greater than € 60,000 (1.9 million households).

Figure 15 - Expected distribution of vehicle weight classes by income group in 2030 (business as usual)

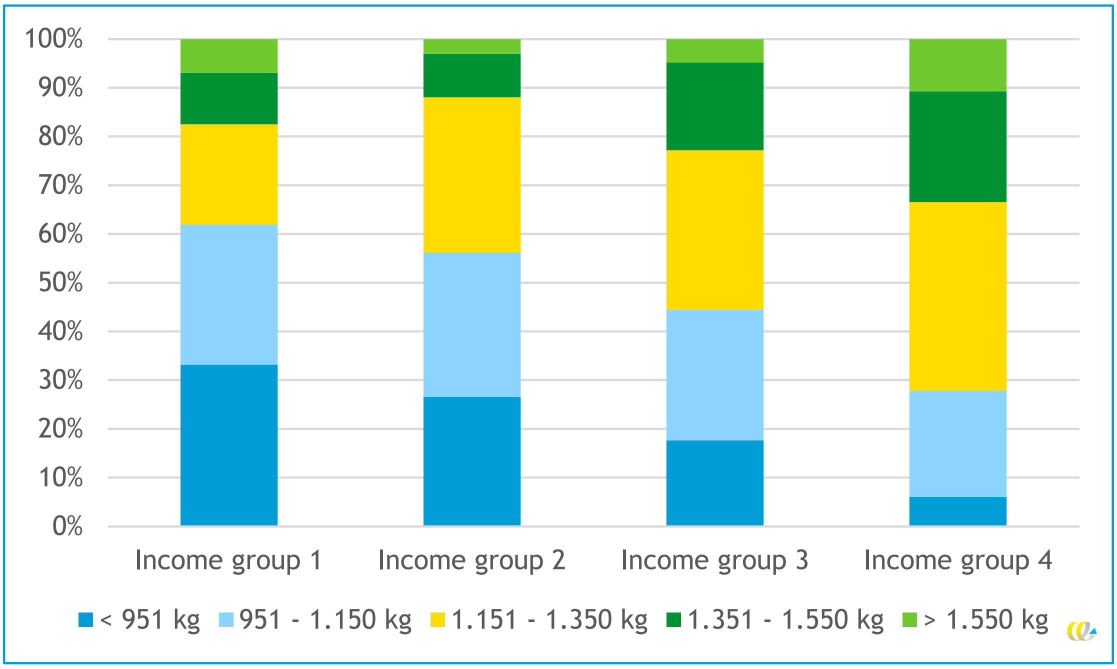
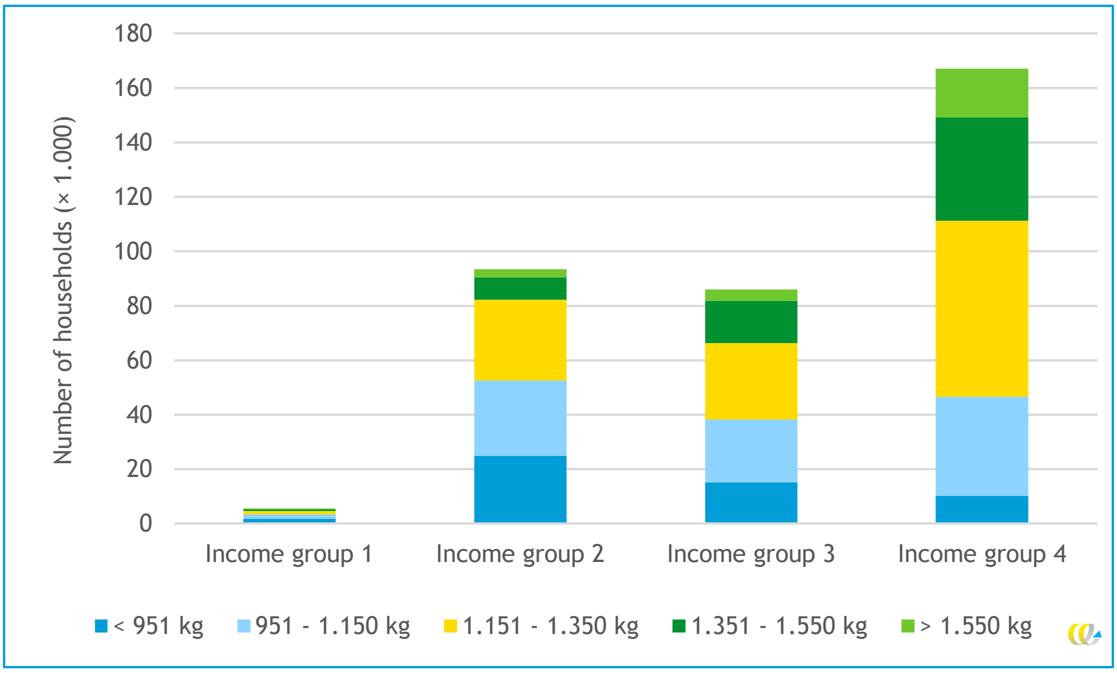


Figure 16 - The number of households purchasing a new car in 2030 under the business-as-usual scenario, by income group



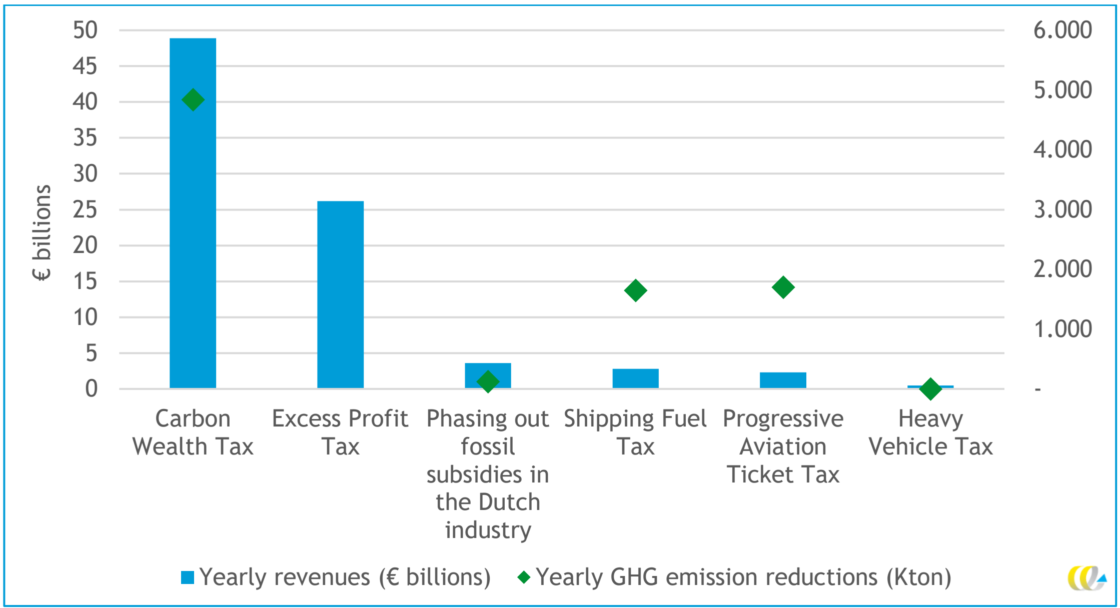
8 Conclusions and recommendations

8.1 Conclusions

The proposed fiscal package generates approximately € 84 billion in annual revenue

Figure 17 presents the key findings of our assessment. In total, the proposed fiscal package generates approximately **€ 84 billion in annual revenue**. Notably, 89% of this total is raised by just two measures: the Carbon Wealth Tax and the Excess Profit Tax.[22]

Figure 17 - Summary of yearly revenues and yearly GHG emission reductions of the fiscal package



The Carbon Wealth Tax generates substantial revenue due to its broad tax base. According to our calculations, the top 1% of the wealth distribution in the Netherlands collectively hold around € 1.1 trillion in net wealth. This means that even modest tax rates of in between 2-5% for the Carbon Wealth Tax can yield significant fiscal returns.

[22] It requires further examination whether the Carbon Wealth Tax and the Excess Profit Tax can be implemented simultaneously, as this may lead to double-counting issues — with emissions potentially being taxed under both measures.

For the Excess Profit Tax, both the significant volume of the tax base and the relatively high rates explain the high revenue potential. Due to the inherent volatile character of excess profits, *revenues in time* might fluctuate substantially. With a total tax base of € 48 billion and progressive tax rates ranging from 12 to 90%, the Excess Profit Tax alone contributes significantly to the overall revenue. Our assessment of the Excess Profit Tax is limited to the 35 most polluting companies in the Netherlands, making the estimated revenue in this report a very conservative indication of the tax's potential if it were applied to all a large set of Dutch companies that fall under the CSRD.

The remaining measures — phasing out fossil subsidies in Dutch industry, introducing a tax on shipping fuels, and implementing a progressive aviation ticket tax — each generate steady annual revenues of approximately € 2 to 4 billion.

The Heavy Vehicle Tax yields the lowest revenue. This is due to its narrow base: only 4% of households purchase a new car annually, and within that group, only a small share opts for a heavy vehicle subject to this tax.

Estimated total GHG emission reduction is at least 8.3 Mton a year, equivalent to 5.7% of total GHG emissions in the Netherlands

Overall, the proposed policy package results in a substantial annual GHG emissions reduction of at least 8.3 Mton, equivalent to 5.7% of total GHG emissions in the Netherlands in 2023.

The Carbon Wealth Tax delivers the largest share of this reduction, accounting for 4.8 Mton. This estimate reflects direct emission reductions resulting from curbing carbon-intensive investments by the wealthiest households and does not include any additional behavioural effects, such as shifting capital toward low-carbon assets.

Other measures, such as the Progressive Aviation Ticket Tax and the Shipping Fuel Tax, also demonstrate strong climate benefits (both 1.7 Mton). In contrast, phasing out two specific fossil subsidies in the Dutch industry yields relatively limited emission reductions. This is because removing these subsidies do not make new emission-reducing technologies financially viable. The reason is that, even without subsidies, the current (more polluting) technologies in practice are still cheaper than most of their greener alternatives. For such technologies to become cost-effective, the carbon price would need to rise significantly — with feasibility thresholds varying by sector. For instance, in the chemical industry, new abatement measures become viable at € 350 per ton of CO_2, while in the base metal industry, this threshold is closer to € 500 per ton. Nevertheless, it still makes sense to remove fossil subsidies as it generates revenues and it brings the price disadvantage of greener alternatives much closer to replacing the polluting technologies, contributing to a more level playing field.

The Heavy Vehicle Tax shows minimal climate impact. This is likely due to its limited tax base and the low-price sensitivity of SUV buyers — meaning that even higher prices do not significantly reduce demand. Lastly, the emission reduction potential of the Excess Profit Tax could not be quantified within the scope of this analysis.

All proposed fiscal policies contribute to a more progressive tax system, with the majority of the tax burden falling on large companies and high-wealth households

The fiscal policies do so by primarily targeting higher-income households, while leaving low- and middle-income households largely unaffected by the tax burden. This design enhances the fairness of climate policy and helps build broader political support, particularly in response to concerns that green measures often disproportionately impact those with lower incomes.

The Carbon Wealth Tax, Excess Profit Tax, Heavy Vehicle Tax, and Aviation Ticket Tax are inherently progressive, as they primarily target higher-income individuals or, in the case of the Excess Profit Tax, large corporations with substantial profit margins.

The removal of fossil subsidies in industry and the shipping fuel tax may have more ambiguous distributional effects, particularly if cost increases are passed on to consumers. A similar risk applies to the Excess Profit Tax: if large corporations possess significant market power, they may offset the tax by raising prices, thereby preserving their profit margins and shifting the burden onto consumers. Nonetheless, these risks should not be seen as significant obstacles to introducing the taxes. Given that all three measures generate substantial revenues, a portion of these funds can be used to compensate for potential adverse effects — particularly for low-income households.

8.2 Recommendations

International cooperation is key and feasible

In this study, we deliberately chose not to focus extensively on the potential risks of reduced competitiveness and carbon leakage that could result from the proposed taxes in the Netherlands. Our intention was to illustrate what the Dutch government could achieve in terms of revenue generation and climate impact — assuming coordinated international implementation of these tax measures.

We recognise, however, that the Netherlands' strong integration in global trade means that its green tax policies are highly sensitive to international trade dynamics. Small changes in tax rates or bases can lead to significant revenue fluctuations, due to the high elasticity of tax bases in our open economy. This is especially relevant for instruments such as wealth taxes, profit-based levies, shipping taxes, and taxes on cross-border investments.

Despite the political and technical challenges involved in reaching international agreements on harmonised environmental taxation, recent developments offer grounds for optimism. The OECD's success in securing a global agreement on a minimum corporate tax for multinationals (see Text box 5) demonstrates that with sustained political will and institutional backing, progress toward a globally coordinated tax system is achievable.

Text box 5 - OECD/G20 agreement on a global minimum tax rate of 15% for multinational enterprises (OECD, 2021)

> In 2021, members of the OECD/G20 Inclusive Framework on Base Erosion and Profit Shifting endorsed the Statement on the Two-Pillar Solution to Address the Tax Challenges Arising from the Digitalization of the Economy. This agreement aims to tackle the problem of profit shifting by multinational enterprises (MNEs) to low-tax jurisdictions and to ensure that these companies pay a fair share of tax on their global profits.
> A key element of this framework is the Global Minimum Tax, set at 15%, which applies to all MNEs with an annual turnover exceeding € 750 million. The objective is to reallocate a portion of the profits of the world's largest and most profitable MNEs to countries worldwide, thereby promoting a more balanced and equitable international tax system and creating a level playing field.

Further analysis is needed to evaluate feasibility and optimise design

This research was exploratory in nature, aiming to propose potential tax designs and assess the indicative impacts of the measures. A comprehensive analysis of the practical and legal feasibility of these taxes was beyond the scope of this study.

Given that the Carbon Wealth Tax and Excess Profit Tax are relatively novel policy instruments, their detailed design and implementation feasibility merit further research. It is important to emphasize that the design proposals presented for the Carbon Wealth Tax and Excess Profit Tax are not definitive. While we put forward one possible structure, these taxes can be configured in multiple ways. For instance, the tax rates and CO_2 emission brackets shown in Table 8 were selected somewhat arbitrarily, yet they significantly influence the outcomes of the analysis.

A more in-depth analysis of the Excess Profit Tax and Carbon Wealth Tax could explore the effects of alternative tax design options to determine which configurations yield the most desirable economic, environmental, and distributional outcomes. Part of that further research should also be how to design a tax that includes Scope 2 and 3 emissions but avoiding the issue of double counting.

Revenue recycling could boost acceptance within sectors affected by the taxes

The € 84 billion in revenues can be allocated in various ways — from advancing the green transition in the Netherlands to supporting climate action in the Global South. To increase political acceptability, the funds could be used to boost innovation, accelerating the development and deployment of clean technologies in key industries. This approach not only strengthens climate policy but also enhances competitiveness and ensures a just transition for Dutch industry. However, it should be noted that current budgetary planning does not permit a direct earmarking of revenues.

A Sensitivity analyses

A.1 Excess Profit Tax: Relative- and absolute CO_2 intensity factors

For the CO_2 intensity factor, we designed relative measures (CO_2 emissions related to financial measures) and an absolute measure (total CO_2 emissions). Table 20 shows the pros and cons of relative and absolute measures.

Table 20 - Pros and cons of a relative and absolute CO_2 intensity factor

CO_2 intensity factor	Pros	Cons
Absolute (total CO_2 emissions)	– Focus on biggest polluters – Only way to reduce carbon intensity is by lowering CO_2 emissions	– Smaller but relatively carbon-intensive companies out of scope – Limited stimulation to reduce emissions for big polluting companies if substantially above threshold
Relative (e.g. total CO_2 emissions/revenue)	– CO_2 intensity matters, not size of company – Bigger incentive for polluting companies to reduce emissions	– Companies with low revenues and high profit margins might be disproportionally affected

Relative CO_2 intensity factor

In order to define the effective tax rate for large companies with excessive profits, a relative CO_2 intensity factor helps to relate a company's emissions to its economic contribution. We tested with three different types of relative CO_2 intensity factors: based on total revenues, total assets, and EBIT. Table 21 gives an overview of these factor and the pros and cons.

In the following paragraph we show how each of the companies rank (related to the other companies) on each of the CO_2 intensity factors. It shows that, generally, the different CO_2 intensity factors entail similar results (i.e. companies that score high on a specific factor, typically also score high on the other two factors; and similarly for the low-scoring companies).

Table 21 - Pros and cons of different relative CO_2 intensity factors

Options for relative threshold	Pros	Cons
Total CO_2 emissions/total revenues	– Common way to calculate carbon intensity of an industry/sector (CO_2/GDP) – Incentivises generation of low-carbon revenues	– Companies with low revenues and high profit margins might be disproportionally affected
Total CO_2 emissions/total assets	– Assets might be best proxy for size of a company	– Capital intensive industries with high assets would not be taxed heavily

Options for relative threshold	Pros	Cons
Total CO_2 emissions/EBIT	– Direct link with Excess Profit Tax	– Companies with low corporate income disproportionally affected – Strong fluctuations year on year

Based on the pros and cons related to each of these factors, we decided to demonstrate the results for the CO_2 intensity factor based on revenues. We defined five categories that relate the carbon intensity of a company to the effective tax rate under the Excess Profit Tax. Table 22 shows the result: the higher the amount of CO_2 emissions per euro of revenue, the higher the effective tax rate. Companies will therefore pay a minimum of 18% and a maximum of 90% tax on their excess profits.

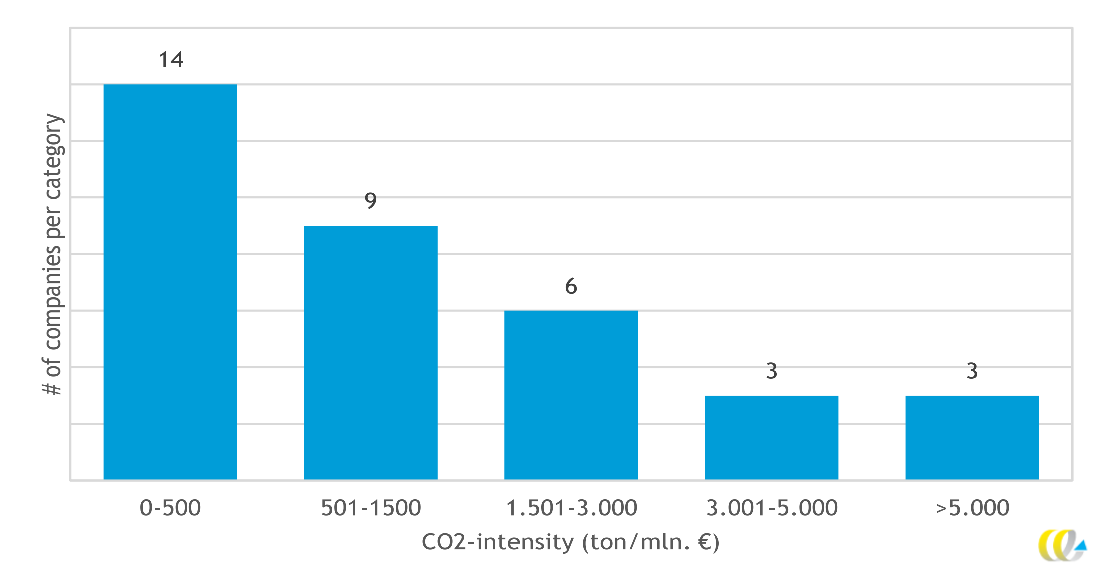
Table 22 - CO_2 intensity factor (emissions/revenue) and related tax rates

CO_2 intensity (tCO_2/mln. €)	CO_2 intensity factor	Effective tax rate Excess Profit Tax*	Effective tax rate Super Excess Profit Tax
0-50	0.5	12%	18%
50-1,500	1	24%	36%
1,000-3,000	1.5	36%	54%
3,000-5,000	2	48%	72%
> 5,000	2.5	60%	90%

* The effective tax rate is calculated by multiplying the respective CO_2 intensity factor with the base tax rate (in this case 36%).

Based on our dataset of 35 companies, Figure 18 shows the distribution of the number of companies that fall in each of the CO_2 intensity tax brackets.

Figure 18 - Distribution of the number of companies in each the CO_2 intensity-categories (based on our dataset of 35 companies)



Phasing out Fossil Subsidies for the Dutch Industry: MACC-analysis results with and without CCS

Table 23 - Outcomes MACC analysis food and beverage industry without CCS

	Reference	Phase out degressivity energy tax	IPCC CO_2 price
CO_2 price (€/ton CO_2)	€ 58	€ 173	€ 180
With CCS			
Emission reduction (kton)	n.a.	120	120
% reduction total emissions	n.a.	5%	5%
Without CCS			
Emission reduction (kton)	n.a.	120	120
% reduction total emissions	n.a.	5%	5%

Figure 19 - Outcomes MACC analysis food and beverage industry with CCS

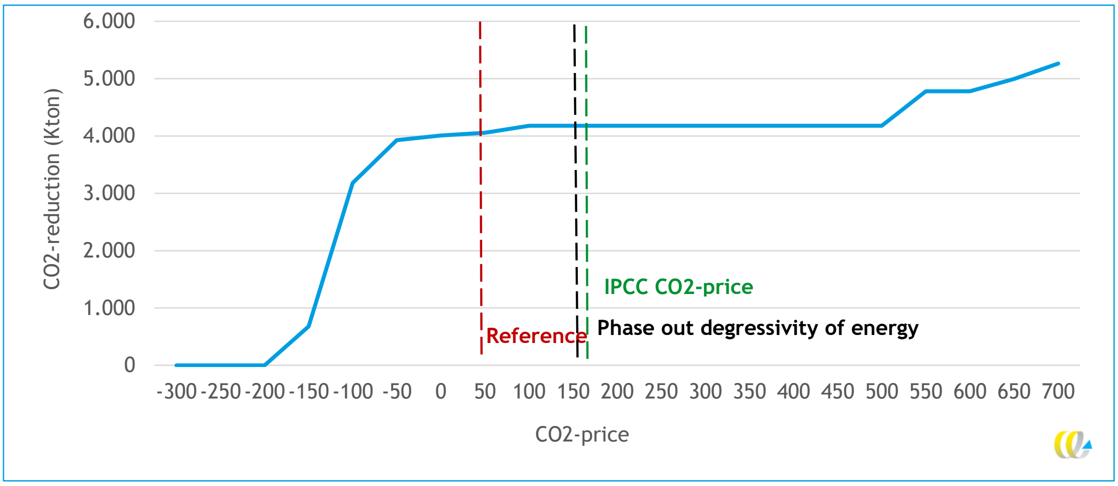


Table 24 - Outcomes MACC analysis chemical industry with CCS

	Reference	Phase out degressivity energy tax	IPCC CO_2 price
CO_2 price (€/ton CO_2)	€ 21	€ 63	€ 180
With CCS			
Emission reduction (kton)	n.a.	1,232	4,323
% reduction total emissions	n.a.	9%	30%
Without CCS			
Emission reduction (kton)	n.a.	0	158
% reduction total emissions	n.a.	0%	1%

Figure 20 - Outcomes MACC analysis chemical industry with CCS

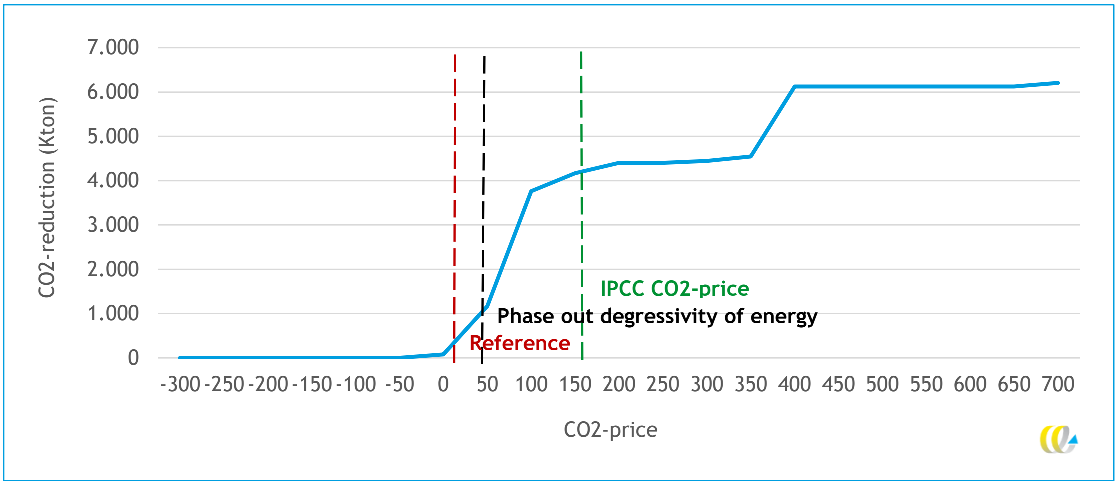
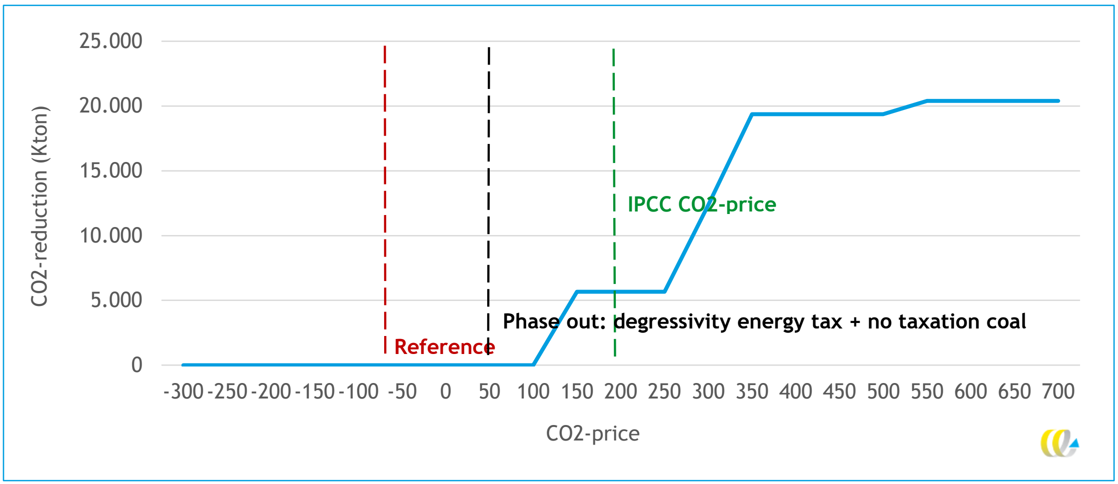


Table 25 - Outcomes MACC analysis base metal industry with CCS

	Reference	Phase out degressive energy tax	Phase out degressivity energy + tax on coal products	IPCC CO_2 price
CO_2 price (€/ton CO_2)	€ -90	€ -46	€ 31	€ 180
With CCS				
Emission reduction (kton)	n.a.	0	0	5,663
% reduction total emissions	n.a.	0%	0%	66%
Without CCS				
Emission reduction (kton)	n.a.	0	0	0
% reduction total emissions	n.a.	0%	0%	0%

Figure 21 - Outcomes MACC-analysis base metal industry with CCS



B Case studies

Carbon Wealth Tax: Case Study on Spain's Temporary Wealth Taks

(Archiles & Pons-Sorolla, 2023) (CostaLuz Lawyers, 2023)

Although we didn't uncover any examples of a carbon wealth tax akin to the one proposed in our design, we did identify a relevant policy example in Spain that illustrates how a progressive wealth tax can be implemented within a fiscal jurisdiction. Spain's Wealth Tax is a decentralised annual tax on an individual's net assets, with implementation varying by region. Regions like Madrid and Andalucía fully exempt residents, allowing high-net-worth individuals to avoid this tax.

To address this imbalance and ensure more equitable tax contributions nationwide, the Spanish government introduced the Temporary Solidarity Tax on High Net-Worth Individuals in 2022, aimed at individuals with net wealth exceeding € 3 million. The tax, which is temporary (for two years, 2022 and 2023), complements the existing regional Wealth Tax and was created in response to full exemptions granted in the regions Madrid and Andalucía. Although it is not based on environmental or carbon-related criteria, it demonstrates how national governments can impose progressive taxes on wealth, even in a decentralised fiscal system.

To prevent double taxation, any amount paid under the existing regional Wealth Tax rules is deductible from the Solidarity Tax liability. However, because Madrid and Andalucía no longer collect Wealth Tax, residents in these regions must pay the Solidarity Tax in full. This policy ensures that high-wealth individuals across all regions contribute fairly, even in areas where regional governments have chosen to forgo the standard Wealth Taks.

The tax applies to the net wealth of individuals exceeding € 3 million, after accounting for a general exemption of € 700,000 and an additional € 300,000 exemption for a primary residence. Spanish residents are taxed on their worldwide assets, including real estate, financial investments, and business holdings. In contrast, non-residents are only taxed on assets located within Spain and do not benefit from the standard exemptions, which results in a broader taxable base for them. The tax rates are progressive and mirror those of the Wealth Tax, topping out at 3.5% for wealth above € 10.7 million.

The Solidarity Tax is designed to target the wealthiest individuals in Spain, with the aim of ensuring a more equitable distribution of the tax burden, especially in regions that have opted for full Wealth Tax exemptions. It addresses regional disparities by standardising tax contributions among high-net-worth individuals, regardless of their region of residence. However, the exclusion of non-residents from key exemptions raises fairness concerns, particularly in the context of EU legal principles on non-discrimination and free movement of capital. Legal challenges have been raised on constitutional grounds, highlighting the tension between national equity goals and regional autonomy.

Spain's experience with the Solidarity Tax demonstrates how national governments can reassert fiscal equity through targeted taxation of high-net-worth individuals. For the design and implementation of a Carbon Wealth Tax, this case underlines several important lessons: such taxes can reinforce national equity goals, and it can help standardise contributions among wealthy individuals. However, it also highlights the need to coordinate with international partners, to avoid capital flight. In this research, we do assume that the Carbon Wealth Tax is implemented internationally to ensure both effectiveness and fairness across borders.

Excess Profit Tax: Case Study on Excess Profits Taxes on electricity produces imposed by the European Commission

This case study explores a recent example of excess profit regulation introduced by the European Commission in response to the 2022 energy crisis. While we did not identify any country that has implemented an Excess Profit Tax as we propose, specifically one that is carbon-differentiated, we did find a related case: The EU's temporary cap on windfall profits. This policy shares important design features with our proposed tax, particularly in targeting disproportionately high profits and the case offers valuable insights for the practical implementation of an Excess Profit Tax.

In response to the rise of energy prices in 2022, the European Commission decided on 6 October 2022 to temporarily impose a levy on the excess profits of electricity producers. This inframarginal levy targets profits made by energy producers that benefited from high electricity prices, while their production costs remained relatively low. The funds generated were used to lower energy bills for households and businesses across the EU. The levy was temporary and came into effect on the 1st of December 2022 and remained in place for seven months. It applied to producers with a generation capacity of at least 1 MW, which is equivalent to around 3,000 solar panels or one large wind turbine (Rijksoverheid, 2022).

The price cap was set at € 130 per MWh, causing electricity producers to not be able to demand a higher price. Excess Profit Taxes applied only to subsidy-supported projects, where the price cap depended on the subsidy level. Despite the price cap, the regulation still allowed for significant profit margins, as many producers made investment decisions when the average market price ranged from € 40 to 70 per MWh. There are differentiated caps depending on production type. For biomass plants, a higher cap of € 240 per MWh applied due to the higher costs of biomass. For coal plants, a flexible cap was is used. When coal and ETS prices are low, the price cap matches the price cap of electricity producers. When prices are high, the cap is raised to prevent coal plants from reducing production (Muller & Anthoni, 2024).

This case is highly relevant for the design of the Excess Profit Tax explained in this report, since it demonstrates how reducing excess profits can maintain fairness. Additionally, it highlights how tax revenues can be redirected to serve broader public interests, such as affordability or climate policy. For our proposal, this strengthens the argument that an Excess Profit Tax can not only enhance fairness but also fund broader carbon transition goals. In this case study there is political will to intervene in markets and confront powerful economic interests, like energy producers, when excess profits are perceived as socially unjust. The European Commission's decision to cap excess profits shows that, under the right circumstances, political leaders can reach consensus at the supranational level, and implement targeted fiscal measures, even in politically sensitive sectors like energy.

Phasing out fossil subsidies: Case Study on Canada’s efforts to phase out fossil subsidies

(Scarpaleggia, 2023)

Tax Reforms: Since 2007, Canada has removed or changed nine major tax benefits that favored fossil fuel companies. These included special deductions for oil sands projects and tax breaks that allowed companies to pass exploration costs to investors. The goal was to make the tax system fairer and reduce incentives for fossil fuel production.

Public financing: This shift impacts Canada’s public finance by reducing tax expenditures (i.e., foregone revenues from tax preferences). For instance, in 2021, the elimination of fossil fuel tax exemptions helped reclaim an estimated CAD 1.8 billion in foregone revenue. While oil and gas companies continue to contribute substantial tax and royalty revenues, removing subsidies aims to make the system more equitable and efficient.

Parallel to tax exemptions, the Canadian government provided support for the transition towards greener technologies. Through Export Development Canada (EDC), the Canadian government provided CAD 13.6 billion in support to carbon-intensive sectors in 2021. EDC has pledged a 45% reduction in this support by 2023, focusing instead on clean technology investments. Yet concerns remain, as some transition-related funding, such as for CCS, continues to benefit fossil fuel producers, raising questions about the effectiveness and opportunity cost of such investments.

Impacts: The impacts of Canada’s efforts to phase out fossil fuel subsidies are still unfolding. Some immediate effects include a reduction in government support for the fossil fuel sector, which may influence investment patterns and encourage a shift toward renewable energy sources. The extent to which these changes will affect consumer prices, employment in fossil fuel industries, and Canada's overall emissions trajectory remains to be seen.

Some stakeholders argued that phasing out fossil fuel subsidies poses risks to the profitability and financial stability of the fossil fuel sector. Industry representatives have stated that removing access to subsidies could negatively impact investments and the sector’s global competitiveness. For example, some stakeholders highlighted that limiting access to capital or government support may lead to reduced production or increased costs, especially for firms with relatively thin margins. However, several experts and the Canadian government emphasized that Canada’s fossil fuel sector is highly profitable, and that public funds could be more effectively allocated if it's used to support clean and just transition efforts.

Canada’s case shows that phasing out fossil fuel subsidies is both politically feasible and fiscally beneficial, having reclaimed CAD 1.8 billion in foregone revenues through tax reform. It demonstrates that subsidy removal can be paired with helping carbon-intensive industries shift towards less intensive alternatives. This case strengthens the argument that fossil fuel subsidies can be phased out if fairness, climate responsibility and public investment are prioritized.

Shipping fuel tax: Expanding Bunker Levy in California

(Los Angeles Times, 1992)

In 1991, California removed a partial sales tax exemption on marine bunker fuels making it the only U.S. state to fully tax this fuel used in interstate and international transport. As a result, ships refueling in California ports, particularly the Port of Los Angeles (LA), were hit with an 8.25% sales tax on each barrel, causing a significant increase in their costs.

The unintended consequence was a sharp drop in ship traffic and fuel sales: bunker sales in LA and Long Beach ports dropped from 3.8 million to about 2 million barrels per month. Many ships began skipping California ports altogether or refueled only enough to reach a cheaper port elsewhere. This behavioral shift triggered a chain reaction across the port economy, which affected tug operators, fuel suppliers, water taxis, and dock workers.

In response to these consequences, lawmakers proposed repealing the full tax and reinstating the previous partial exemption, following adverse economic impacts linked to carbon leakage. This case highlights the importance of carefully designing taxes and ensuring international coordination in maritime shipping taxation to reduce the risk of carbon leakage.

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