CLIMATE INEQUALITY REPORT 2025

Climate Change: A Capital Challenge

Why Climate Policy Must Tackle Ownership

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1. The views expressed in this publication are those of the authors and do not necessarily reflect those of the scientific partners or institutions involved. UNDP's collaboration is acknowledged in its capacity as a scientific partner.

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EXECUTIVE SUMMARY

This report brings together cutting-edge research and data to reveal how wealth drives the climate crisis, and proposes novel policy options to address it. It builds on the 2023 edition of the Climate Inequality Report and two years of pioneering research conducted by the World Inequality Lab and research institutions worldwide.

Climate change is advancing faster than ever. The remaining carbon budget for 1.5°C is nearly exhausted, with disastrous consequences for ecosystems and human livelihoods. At the same time, the world is marked by extreme wealth inequality, with the wealthiest 10% of the global population owning three quarters of all assets.

This report shows how the climate crisis and wealth inequality are deeply interconnected. Wealthy individuals not only generate disproportionate emissions through their consumption and the capital they control, but also have the financial, corporate, and political power to determine the trajectory of energy systems. Climate policies will therefore have profound consequences on wealth and power inequalities in the twenty-first century.

OUR KEY FINDINGS

Wealthy individuals fuel the climate crisis through their wealth even more than their consumption. Consumption explains some of rich individuals' emissions, but an even greater effect may come from their roles as shareholders in polluting industries. At the world level, emissions attributed to the wealthiest 1% based on their asset ownership are up to 2-3 times higher than estimates based on their consumption. The global top 1% represent 15% of all consumption-based emissions, while they account for 41% of global emissions associated with private capital ownership.

Those who invest today shape the world's future climate pathway. Despite the Paris Agreement's call to halt new fossil fuel projects, more than 200 new or expanded oil and gas projects and over 850 coal mines are currently under development or have received approval (Global Energy Monitor, 2025a, 2025c), backed by capital linked to institutional investors and wealthy individuals often (though not only) based in the Global North.

Climate change can deepen wealth inequality, while well-designed climate policies can help to reduce it. Warming, extreme weather events, and other shocks affect both physical and financial assets, while the design of climate policies will determine whether they reduce or exacerbate inequality. Our simple projections suggest that the share of wealth held by the global top 1% could increase from 38.4% today to 46% in 2050 if those individuals were to make and own all necessary climate investments in the next decades.

POLICY OPTIONS

To address the dual challenges of the climate crisis and wealth inequality, we explore three policy options :

1. **A global ban on new fossil fuel investments.** Such a measure would stop capital from flowing into new coal, oil, and gas projects. Countries need not wait for a global accord: they can begin implementing this policy today, beginning with restrictions on foreign investments. Stronger financial disclosure and reporting rules, allowing governments and regulators to trace and oversee fossil-fuel investments made abroad, would support this objective.

2. **A tax on the carbon content of assets.** While consumers increasingly face a carbon price signal, financial investors often do not. Introducing a tax on the carbon intensity of wealth could help to redirect capital flows away from high-carbon assets, especially in the absence of an outright ban on high-carbon investments. However, such a measure cannot be self-sufficient:

it should complement broader fiscal, regulatory, and public-investment tools.

3. **A public investment shock in low-carbon infrastructure is critical to a faster and "fair transition".** Deep decarbonisation requires a major overhaul of existing capital. Scaling up public investment is key to accelerating decarbonisation (in particular among low- and middle-income groups), and preventing a potential privatization of energy systems that could fuel a new wave of wealth concentration. There are also compelling arguments for shifting away from investor-state dispute settlement treaties that can pose a serious obstacle to phase-out efforts through financial liabilities, especially in the Global South.

While the operational design of our proposals remains to be developed, these instruments offer a promising avenue to better align wealth generation with climate and social justice objectives. They are intended to open, not close, the debate.

INTRODUCTION

The first target of the Paris Agreement has already slipped out of reach. While the Paris Agreement has been celebrated as an example of successful international cooperation, its goals are increasingly unattainable. Over the past decade, greenhouse gas (GHG) emissions were higher than at any previous point in human history (IPCC, 2022a), with the brief exception of the Covid-19 years. Projections suggest that the remaining global carbon budget for limiting warming to 1.5°C could be exhausted within three years (Forster et al., 2025). Maintaining global temperature increases below 2°C amounts to a tremendous challenge. The profound consequences of rising global temperatures, intensifying extreme weather events, and accelerating biodiversity loss are now more comprehensively documented—and more devastatingly evident—than ever before (IPCC, 2023).

Despite growing scientific consensus, recent years have seen a backlash against climate policies in many countries. Measures such as carbon pricing, green subsidies, and fossil fuel restrictions have faced opposition from industry lobbies and parts of the public affected by rising costs. This resistance has weakened or reversed key policies just as they began to take effect, delaying emissions reductions and eroding trust in the climate policies.

This backlash reveals that climate policies cannot be understood in isolation from underlying economic inequalities. The costs and benefits of the climate crisis as well as decarbonisation policies are unevenly distributed both across and within countries, shaping who resists and who supports climate action. Understanding these inequalities is therefore essential to explain both the social tensions around climate policy and the unequal impacts of climate change itself.

As shown in the Climate Inequality Report 2023, the climate crisis and global income inequality are closely intertwined through three key mechanisms (Figure I.1). First, the distribution of climate damage is highly unequal. The poorest half of the global population is projected to bear around 74% of relative income losses by 2050, while the top 10% will face only about 3%, as they are generally less exposed and far less vulnerable to climate impacts. Second, richer households are disproportionately responsible for environmental degradation. The global bottom 50% account for just 10% of global emissions through their consumption, whereas the top 10% accounts for nearly 47%. Third, the capacity to finance climate action is deeply unequal. As of today, the bottom half of the world's population owns only about 3% of global wealth—leaving them with virtually no means to invest in mitigation or adaptation. In contrast, the top 10% hold roughly 74% of global wealth and, consequently, exert substantial influence over the trajectory of future climate investments.

This report explores the triple inequality crisis from a wealth perspective. To this end, we present novel evidence on the relationship between carbon emissions and wealth inequality and analyze how different climate finance trajectories may influence the future distribution of wealth. Net wealth is thereby defined as the sum of financial assets (such as equity or bonds) and non-financial assets (such as housing or land) owned by the private or the public sector, net of their debts. In this sense, wealth provides a more comprehensive measure than capital, which is typically understood as the stock of assets used in production processes (such as machinery) but excludes financial assets and non-produced assets like land.

The focus on wealth is critical because wealth is a key indicator of power inequalities in society. Wealth is also more unequally distributed than income: the bottom half owns merely 3% of global wealth, compared with 74% held by the top 10%. To put this in perspective, an individual in the global top 10% possesses, on average, assets worth EUR 1.3 million, while someone in the bottom 50% owns just EUR 3,365. Wealth inequality is even more striking within the top 1%: the global top 0.001%—approximately 56,000

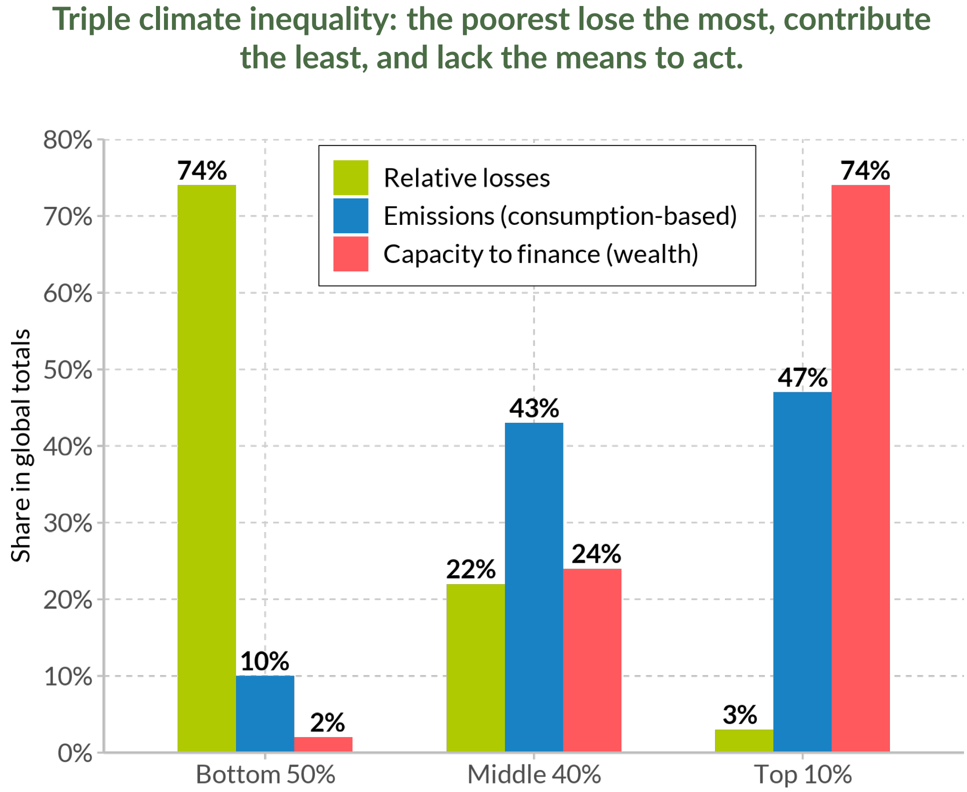

Figure I.1. Global climate inequality: relative losses, emissions, and capacity to finance

Note: The figure illustrates three dimensions of global climate inequality. Projected relative income losses from climate change in 2050 are taken from Bothe et al., 2025 and represent percentage reductions in income compared with a business-as-usual scenario. The distribution of emissions is based on Bruckner et al., 2022. The distribution of wealth shares comes from WID, 2025. Groups are defined by income for losses, by emitters for emissions, and by wealth for the wealth distribution, but all three distributions are highly correlated. For another paper on emissions inequalities by income groups, see Kartha et al., 2020, who find similar concentration levels. **Data sources:** Bothe et al., 2025; Bruckner et al., 2022; WID, 2025.

individuals—collectively own three times more wealth than the entire bottom half of the population combined. As illustrated in Figure I.2, the growing concentration of wealth at the top results from rising inequality over the past three decades, during which the wealth of the richest increased markedly, whereas the share of the global bottom 50% remained relatively stable.

Wealth has also become increasingly concentrated in the private sector, while public wealth has declined. In rich countries, private wealth rose from 200–400% of national income in the early 1980s to 500–700% by the early 2020s. In the same period, public wealth fell from 60–100% to near or below zero, with public debt exceeding public assets in countries like the United States and the United Kingdom. Globally, the private sector's share of total wealth increased from 82% to 85% over the past three decades, while the public sector's share declined from 18% to 15%—a broad trend that conceals much sharper regional divergences (WID, 2025).

Focusing on wealth rather than income provides a more accurate measure of people's actual economic agency—such as their capacity to invest, to influence policy processes, and to shape structural change. Unlike income, wealth is more stable over time and can be mobilized to absorb shocks, secure credit, and finance

Global wealth is highly concentrated: the top 0.001% (56,000 adults) now own 3x as much as the bottom 50% (2.8 billion adults) combined.

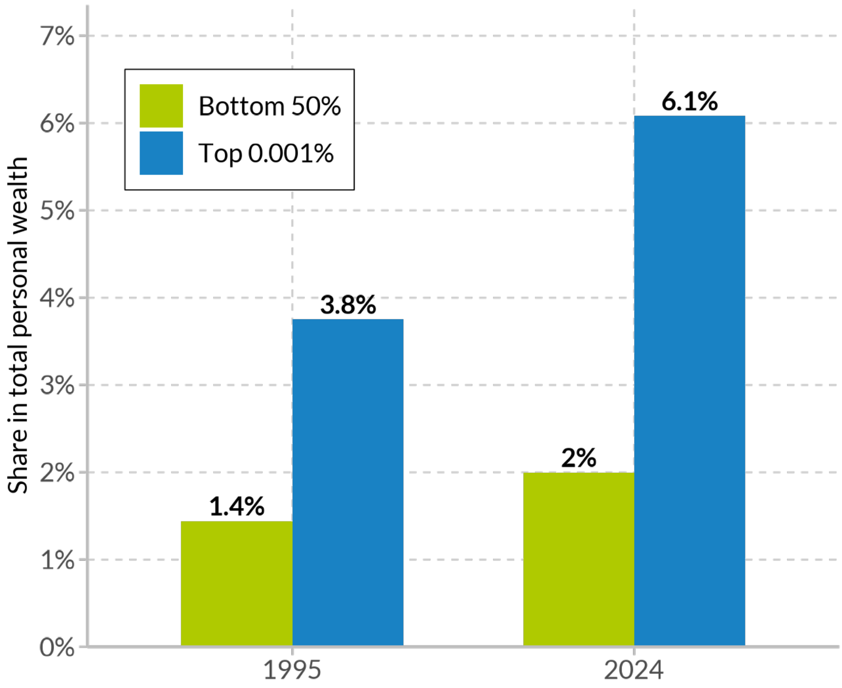

Figure I.2. Distribution of global net personal wealth, 1995 and 2024

Note: Net wealth is defined as the sum of financial assets (such as equities and bonds) and non-financial assets (such as housing). **Data source:** WID, 2025.

long-term investments, making it a stronger indicator of economic power. Both private and public wealth inequalities have been shown to have wide-ranging and destabilizing impacts on societies, economies, and governance systems (Cagé, 2020; Carruthers & Ariovich, 2004; Gilens & Page, 2014; Piketty, 2014).

This report presents new research that traces carbon emissions to patterns of wealth ownership rather than consumption alone. This approach recognizes that wealthy individuals often serve as shareholders in high-emitting industries—profiting from and shaping the very processes driving the climate crisis. The findings show that the world's wealthiest 1% accounts for 41% of emissions associated with private capital ownership, vs. 15% of emissions associated with consumption. This implies that per-capita emissions for an individual in the global top 1% are about 75 times higher than those of someone in the bottom 50% under the consumption-based approach, and about 680 times higher under the ownership-based approach.

We also show that wealthy individuals—ranging from major shareholders of fossil-fuel companies to state elites in resource-rich countries—not only hold financial resources but also the political and corporate power to shape climate action. With their involvement, fossil fuel expansion continues: as of 2025, over 200 new oil and gas extraction sites are under development and more than 450 have been discovered, directly defying the Paris Agreement's call to halt new fossil fuel projects (Global Energy Monitor, 2025a, 2025c). The climate impact of continued investments is disastrous: burning the reserves that are currently targeted by new extraction facilities could substantially speed up the depletion of the carbon budget, and create irreversible climate damage. These infrastructures are tied to complex webs of ownership and interests, which often obscure the true beneficiaries of—and thus those accountable for—the climate losses they will cause. Crucially, many of these ownership structures can be traced back to major institutional investors in the Global North (Global Energy Monitor, 2025b).

In addition, we show that climate change and the design of related policies will have significant implications for wealth distribution. Although comprehensive evidence of the impact of climate change on the distribution of global wealth is still lacking, existing studies demonstrate that global warming, extreme weather events, and related shocks can substantially reshape the value of both physical and financial assets. Moreover, the way climate investments and divestments are structured, financed, and allocated will determine whether they will reinforce existing inequalities or promote a more equitable distribution of wealth. This report offers illustrative projections of private and public wealth inequality under different ownership scenarios for climate-related investments. We show that if the wealthiest 1% were to finance and control these assets, their share of global wealth could increase from 38.4% today to 46% by 2050.

Addressing the dual challenges of climate change and wealth inequality requires policy action. Section 3 of the report outlines three main policy options to guide action in the lead-up to COP30, each addressing the challenge that wealth inequality poses to effective climate action: a ban on fossil investments, taxation of polluting assets, and public investments in low-carbon infrastructures.

The rest of this report is organized as follows: **Section 1** provides systematic evidence of the unequal contributions to climate change across different wealth groups. **Section 2** examines how climate change and climate policy, in turn, affect the distribution of wealth. Finally, **Section 3** outlines our core policy proposals designed to address both climate change and wealth inequality in an integrated manner.

CHAPTER 1

HOW WEALTH IS FUELING CLIMATE CHANGE

1.1 THE CARBON FOOTPRINT OF CAPITAL

Quantifying the distribution of carbon emissions is essential for designing effective and fair climate policies. Beyond obvious equity concerns in the design of climate policies, targeting top emitters is efficient in the sense that abating emissions at the top of the distribution is usually possible at lower marginal effort: individuals who contribute disproportionately to the climate crisis typically have greater potential to reduce their emissions, as well as more means to switch to low-carbon alternatives.

It is well established that contributions to climate change are highly unequal across and within countries. For example, the average carbon footprint of the top 10% emitter group in the United States—measured by emissions linked to their consumption—is more than 40 times greater than that of Nigeria's top 10%, and over 500 times greater than that of Nigeria's bottom 10%. At the global level, a person in the top 1% emitter group emits, on average, around 75 times more carbon per year than someone in the bottom 50% (Bruckner et al., 2022).[1]

These estimates attribute emissions to the final consumer of goods and services, thereby illustrating the environmental consequences of different lifestyles. In this report, we complement this perspective by emphasizing the role of investment decisions: while many consumers lack agency, information, or affordable alternatives and thus face significant constraints in changing their consumption patterns, owners of polluting assets actively control, influence, and profit from production processes that generate GHG emissions and environmental degradation. Ultimately, they are part of the decision of how production will evolve in the future—and how carbon-intensive it will be.

Production-centred approaches attribute all emissions to firms rather than individuals. One study finds that 72% of global fossil fuel and cement CO2 emissions since the industrial revolution can be traced to just 122 industrial producers (InfluenceMap, 2024). However, their approach attributes emissions to firms without clarifying who ultimately controls and benefits from the associated production.

Private ownership-based approaches link emissions from productive assets directly to the owners of firms. In this framework, an individual who owns 100% of a company's capital stock—whether directly or through intermediaries—is attributed 100% of the emissions arising from that company's production. Importantly, this approach does not allocate emissions generated directly by households, such as those from residential heating or private vehicle use, nor those linked to government consumption or public capital ownership. These excluded emissions account for about 42% of global emissions. In other words, the ownership-based approach discussed in this chapter distributes the remaining 58% of global emissions that can be directly attributed to private capital ownership by individuals (Chancel & Rehm, 2025a, 2025b). The total volume of emissions covered by this approach is relatively close to that distributed in studies focusing on consumption-based accounting.[2]

1. For another study on emissions inequalities by global income rather than by emitter groups, see Kartha et al., 2020, who find similar concentration levels.

2. For instance, Bruckner et al., 2022 allocate emissions associated with consumption using household surveys, and then assume that remaining emissions—those linked to in-

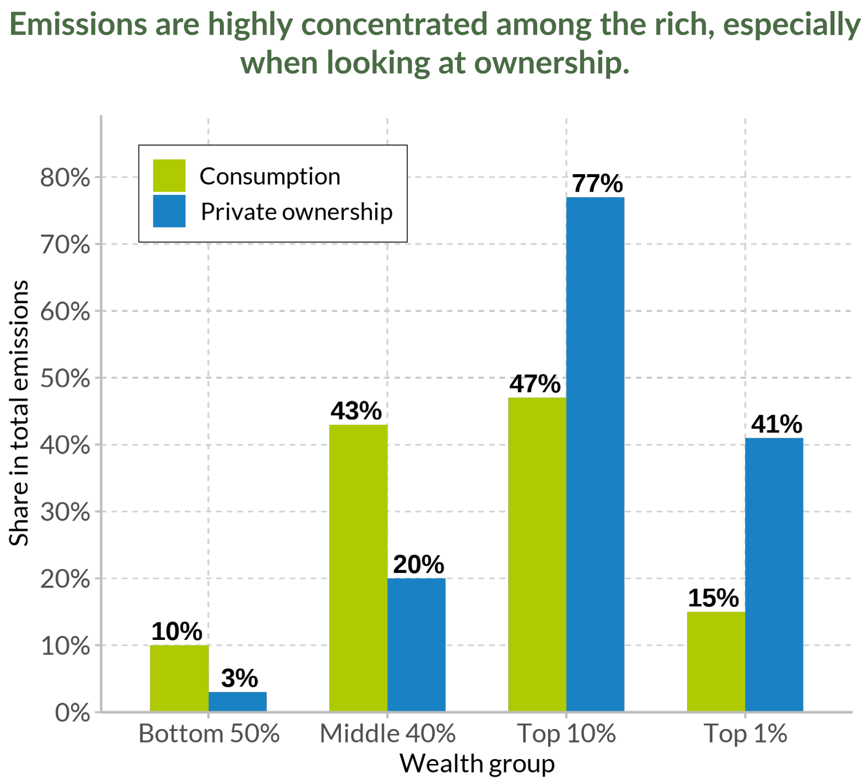

Figure 1.1. Emissions shares of global wealth groups

Note: The figure shows the share of global GHG emissions attributable to the bottom 50% and the top 1% of the world population. Emissions are separated into consumption-based (emissions from production attributed to final consumers) and ownership-based (scope 1 emissions from firms and assets owned by individuals). Private ownership-based emissions (representing around 60% of total emissions) do not include government-owned or direct household emissions. The total volume of emissions covered by the ownership-based approach is relatively close to that explicitly accounted for in the consumption-based approach presented here. The latter assumes that emissions associated with government activities and investments—typically representing 30–40% of total emissions—are distribution-neutral (Bruckner et al., 2022). Groups are defined by consumption-based emissions and wealth respectively, but both distributions are highly correlated.
Data sources: Bruckner et al., 2022; Chancel and Rehm, 2025b.

Following an ownership-based approach, the carbon footprint of the wealthiest 10% in France, Germany, and the United States is three to five times higher than suggested by consumption-only estimates. In the US, for instance, the top 10% account for 24% of emissions under the consumption-based approach, but 72% under the ownership-based approach. The contribution of the wealthiest 1% is disproportionately large. In the consumption approach, the share of total emissions of the top 1% stands at 3% in France, 2% in Germany, and 6% in the US. However, when we pivot to ownership emissions, these percentages soar to 44%, 45%, and 43% for France, Germany, and the US, respectively.

At the global scale, the top 1% accounts for 41% of private ownership-based emissions, while the bottom 50% accounts for just 3% (Figure 1.1). In other words, a person in the top 1% emits more than 25 times as much as the average individual worldwide through their direct ownership of assets, and more than 680 times

vestments and government spending—are distribution neutral, i.e. that they are distributed in the same way as emissions from private consumption. Other studies make explicit and differing assumptions on how to allocate emissions related to government activities and investments.

as much as an individual in the bottom 50%. The emissions attributable to the wealthiest 1% exceed even their share of global wealth, which stood at 36% in 2022, making emissions from investments more concentrated than wealth itself (Chancel & Rehm, 2025b).

The strong concentration of private ownership-based emissions is driven both by the volume of assets held by wealthy individuals and by the higher carbon intensity of those assets. Figure 1.2 shows the annual average per capita emissions for different wealth groups in the US, as well as the average carbon intensity of different asset classes (Chancel & Rehm, 2025a). While private capital emissions of individuals in the bottom 50% are on average 1 tGHG per year, this figure rises to 78 tGHG for the top 10% and 465 tGHG for the top 1%. Among the wealthiest, the vast majority of private capital emissions are associated with equity and business assets.

As shown in the right panel, these assets are considerably more carbon-intensive than pension and life insurance holdings, which constitute the main asset types owned by the middle 40%. This skew in portfolio composition directly reflects investment strategies: wealthier individuals tend to invest in higher-risk, higher-return sectors—often those with greater environmental footprints. Hsu et al. (2022) estimate that comparatively high-emitting companies generate

Rich individuals own highly polluting business and financial assets.

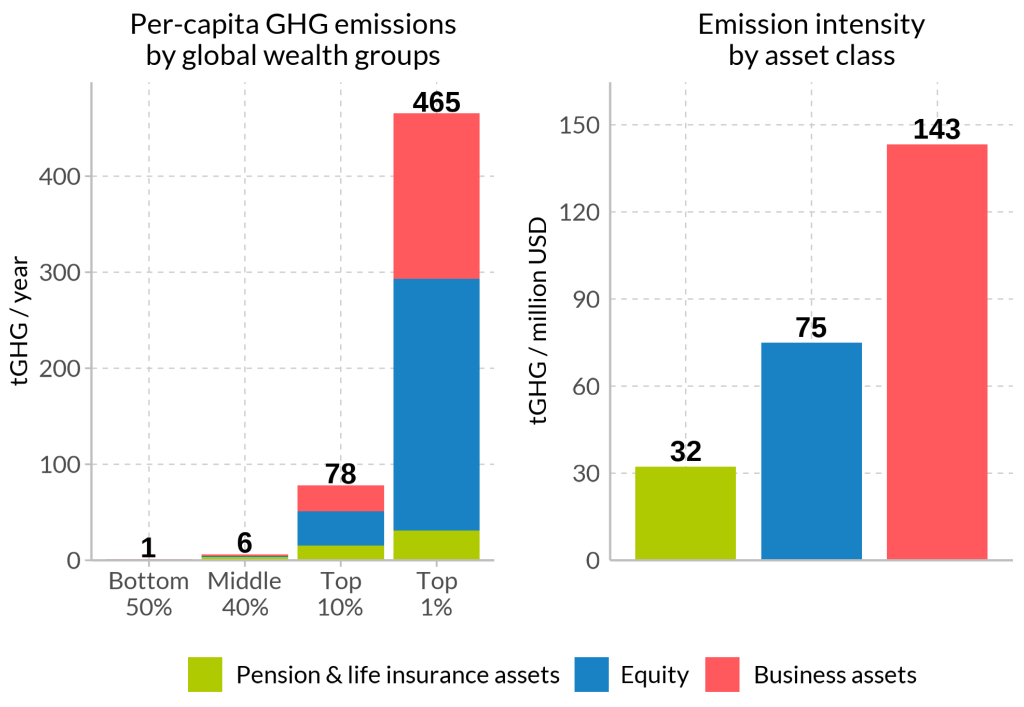

Figure 1.2. Comparison of emissions and asset composition in the United States

Note: This figure shows the emission intensities of different asset groups in the US in 2019 and the asset composition of different wealth groups in 2022. Note that housing assets are excluded because their ownership-based emission intensity is very low: (i) heating emissions are counted as direct household emissions rather than private-ownership emissions, and (ii) construction-phase emissions are attributed to the owners of construction firms. **Data source:** Chancel and Rehm, 2025a.

4.42 percentage points more in annual excess returns than their low-emission peers.

Taking an ownership perspective also highlights structural differences in the sources of emissions across the wealth distribution. For lower-income groups, carbon footprints are almost entirely linked to basic consumption needs such as transportation, residential heating and cooling, electricity use, and indirect emissions from public services like education and healthcare. By contrast, for wealthier individuals, emissions from asset ownership dominate. Within the top 10%, more than 75% of emissions in the US, France, and Germany stem from capital ownership. Among the top 1%, this share rises further to 85–95% (Chancel & Rehm, 2025a). his again suggests that wealthy individuals have far greater capacity to achieve significant carbon reductions without threatening their personal living standards.

Allocating emissions in the ownership-based framework reveals important patterns of net ownership emission positions across countries. In this framework, a country's carbon footprint includes the direct GHG emissions from assets owned by its residents and government, along with direct household emissions on its territory. In Figure 1.3, net ownership emissions are defined as the ratio of a country's carbon footprint to its production-based emissions (that is, the emissions linked to the production of residents in the country). Major Western European economies, as well as Japan and South Korea, exhibit large positive net foreign ownership emission positions. In France, for instance, adjusting for foreign investment raises production-based emissions by 36%. This indicates that, beyond "importing" emissions via traded goods, Western European investors also own polluting production facilities abroad, and the associated emissions exceed those arising from domestic polluting activities owned by foreign investors. Conversely, in many middle- and low-income countries, part of the emissions from domestic production is effectively linked to foreign investors in richer countries, resulting in negative net ownership emissions.

This concentration of emissions linked to wealth, could be partly addressed via a tax levied on the carbon content of wealth. Such a tax has the potential not only be more progressive than an equivalent levy on the carbon content of consumption, but could also, if effectively designed, also address foreign investments made by national investors. We return to the proposal of a carbon wealth tax in Section 3.

High-income countries are net-importers of wealth-related emissions.

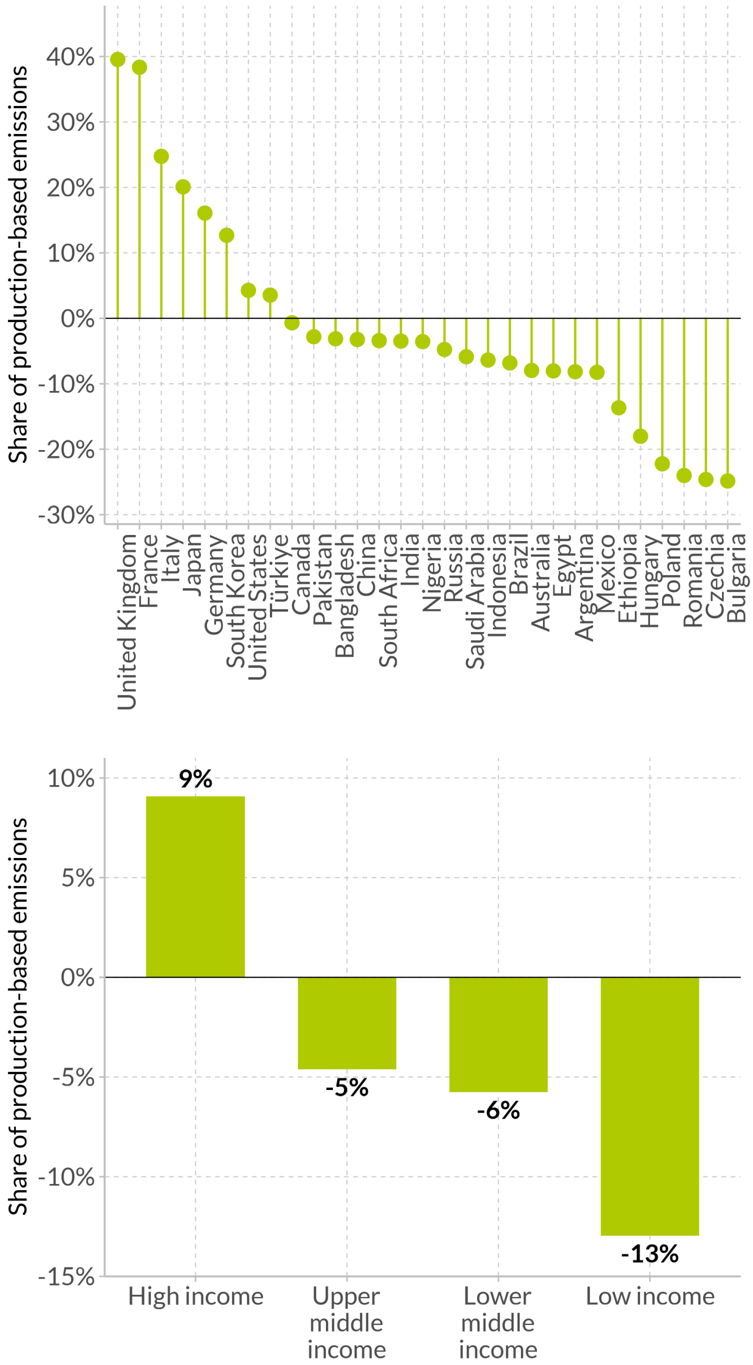

Figure 1.3. Net foreign ownership emissions in 2022

Note: This figure shows the net ownership CO2 emissions in selected countries and four country groups in 2022 as a share of the country's / country group's production-based emissions. **Data source:** Chancel and Rehm, 2025b.

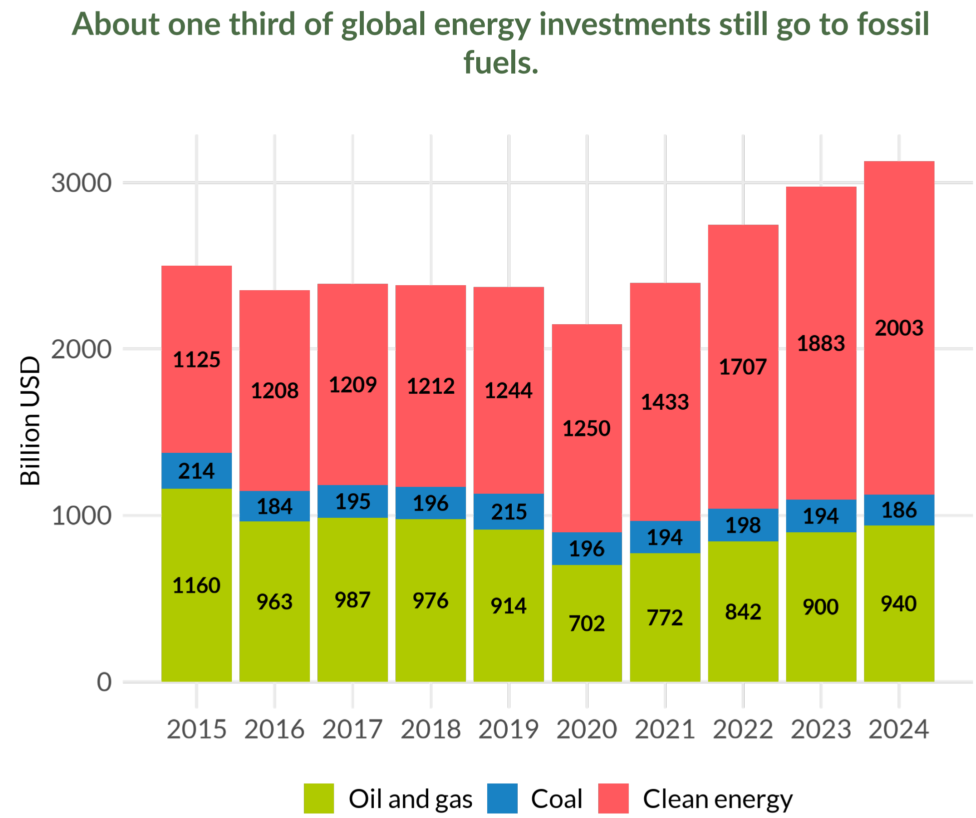

Figure 1.4. Global energy investments between 2015 and 2024

Note: Clean energy (including "clean" fuels, transitional fossil fuels, nuclear, renewables, storage, electricity networks, fossil fuels with CCUS, and end-use efficiency) attracted around USD 2 trillion in global investment in 2024, compared with over USD 1 trillion in fossil fuels. Note that, at the same time, fossil fuel consumption subsidies exceeded USD 1 trillion in 2022 and amounted to about USD 0.6 trillion in 2023 (International Energy Agency, 2025a). **Data source:** International Energy Agency, 2025b.

1.2 DECARBONIZING AT HOME, BURNING FUEL ABROAD?

Taking a look at ongoing investment projects is also crucial to understanding the future trajectory of climate change. Despite global climate pledges, substantial investments in fossil fuel infrastructure continue. This section outlines the scale of these investments, showing that they are concentrated in the hands of a few companies and their shareholders (both private and public)—and are therefore inherently tied to wealth inequality as well. Individuals investing in highly carbon intensive projects can be residents of rapidly decarbonizing countries.

In 2025, global capital flowing into fossil fuel projects still amounts to approximately USD 1.1 trillion, representing nearly one-third of total energy investments. "Clean" energy, including renewables, electricity grids, storage, and low-emission technologies, at the same time receives USD 2.2 trillion, or roughly twice as much as fossil fuels. This not only indicates that fossil fuel financing remains significant but also that it persists at levels comparable to those of the pre-Covid-19 years (Figure 1.4).

Approval of new extraction sites continues. Currently, over 200 oil and gas projects are under development and more than 450 have been discovered. At the same time, more than 850 coal mines have been proposed. Coal development

Planned new oil, gas, and coal extraction alone could exhaust the 1.7°C carbon budget.

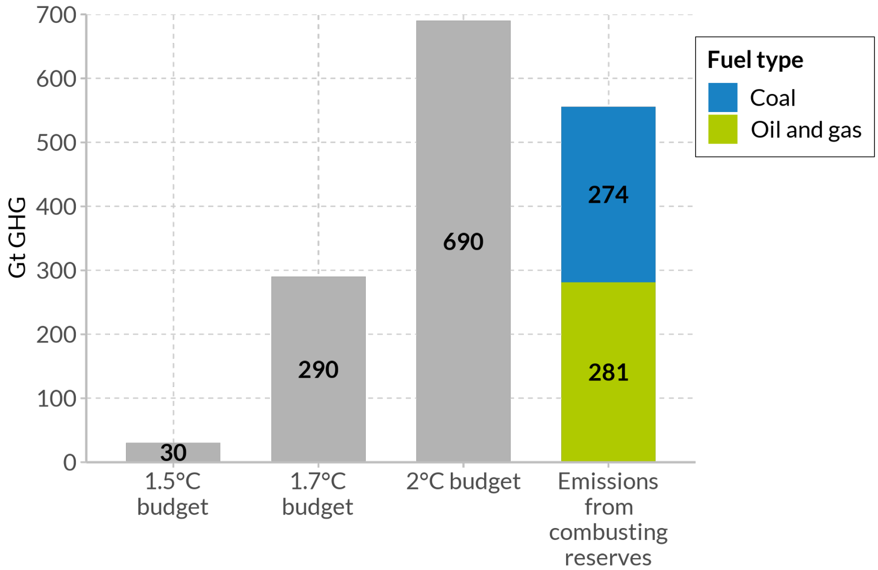

Figure 1.5. Remaining carbon budget under temperature targets vs. projected emissions from the combustion of oil, gas, and coal reserves discovered or under development

Note: This figure compares the carbon budgets for different temperature targets with the potential emissions from burning all oil and gas reserves that have been discovered (474), are under exploration (5), or in development (204), as well as coal reserves that are currently proposed (870). Carbon budgets are from Forster et al., 2025 and correspond to an 83% probability of meeting each target. Reserve data are from the Global Oil and Gas Extraction Tracker and the Global Coal Mine Tracker, and reserve sizes were converted to potential combustion emissions using emission factors from the US Environmental Protection Agency. When multiple observations existed for the same reserve, the most recent observation with the most reliable reserve classification was used. Liquids (NGL, LPG, condensate) and coal bed methane were treated with conversion factors of oil and gas respectively, hydrocarbons were assigned to both categories with equal weight. Methane leakage emissions from extraction are not included. About 30% of coal reserve entries lacked reserve size data and were excluded. The figure also does not include future emissions from oil, gas, and coal projects already in operation. **Data sources:** EPA, 2024; Forster et al., 2025; Global Energy Monitor, 2025a, 2025c.

is particularly pronounced in China—accounting for nearly 60% of new coal projects globally. Oil and gas extraction sites are less clustered; however, some countries emerge in relevance: 16% and 11% of new oil and gas extraction sites are located, respectively, in Norway and Russia (Global Energy Monitor, 2025a, 2025c). One major driver of this development is ongoing fossil fuel subsidies. Those subsidies exceeded USD 1.4 trillion in 2022 in response to energy price spikes, and still amounted to USD 0.6 trillion in 2023 (International Energy Agency, 2025a).

The potential environmental impacts of planned projects are disastrous. Fossil fuel extraction sites damage ecosystems and communities alike. Coal mines strip land, pollute waterways with acid drainage, and release dust and particulates. Oil and gas projects contaminate water, fragment habitats, and pollute the air through flaring and operations. Both threaten biodiversity and disrupt livelihoods (Mudumba et al., 2023; Shamoon et al., 2022). Beyond these local impacts, fossil fuel projects indeed contribute decisively to global climate change: In the last decade, fossil fuels were responsible for 86% of carbon dioxide emissions (IPCC, 2021).

In fact, the combustion of oil, gas, and coal from newly planned projects alone would be sufficient to exhaust the remaining carbon budget compatible with a 1.7°C target (Figure 1.5)—even without considering the numerous fossil fuel sites that are already in operation. The projected emissions are based on a set of simplifying assumptions, for instance regarding emission factors, and include only fossil fuel projects listed in the Global Energy Monitor that provide information on reserve size (Global Energy Monitor, 2025a, 2025c).[3] It is also important to note that these estimates cover end-use emissions from oil, gas, and coal projects and exclude methane leakage, which constitutes an important driver of short-term warming.

Despite these limitations, our total projected emissions from planned fossil fuel projects align closely with an estimate by CarbonBombs.org and are somewhat below similar projections based on national production plans from major fossil fuel–producing countries, which conclude that even the 2 °C target cannot be achieved under current trajectories (CarbonBombs.org, 2025; SEI, Climate Analytics, & IISD., 2023).[4] Overall, the evidence is striking: newly planned fossil fuel projects alone could already push the world beyond its remaining climate budget.

Ownership of fossil fuel investments mirrors patterns of global wealth inequality and signals new forms of colonial extractivism. Some of the largest extraction companies worldwide are headquartered in the Global North.[5] Figure 1.6 illustrates that, while these companies maintain a significant share of investments in their regions, they invest heavily across the globe, particularly in Sub-Saharan Africa, MENA, and Latin America.

A similar pattern can be observed for coal mines. While most coal mines in Europe are owned by ultimate owners within the same region, more than 30% of coal mines in Sub-Saharan Africa are owned by entities based in other regions (Figure 1.7). Within countries as well, the wealthiest individuals control energy assets. Semieniuk et al. (2025) estimate that in the US, 50% of fossil fuel profits from the 2022 oil and gas crisis accrued to the wealthiest 1% of individuals, primarily through direct shareholdings and private company ownership. By contrast, the bottom 50% received only 1% of the profits.

Figure 1.7 also highlights significant data gaps in identifying ultimate ownership. Because of complex, transnational corporate structures, the ultimate owners of fossil fuel assets are often difficult to trace, which obscures who truly controls them and hampers effective regulatory oversight. According to available data, ownership often passes through numerous intermediary entities, on average four and up to 13 legal layers (Global Energy Monitor, 2025c), before reaching the actual beneficial owners. These chains frequently span multiple jurisdictions, making it exceedingly difficult to trace accountability or to assign liability for environmental and financial risks. A key contributing factor is the widespread use of offshore financial centres, also known as tax havens. Taking a broader financing perspective, one estimate suggests that nearly 70% of fossil fuel financing by the world's 60 largest banks is routed through such secrecy jurisdictions (Atiles & Whyte, 2025), further impeding transparency and regulatory enforcement.

Given the ongoing investments in fossil fuel infrastructure and their disastrous environmental impacts, we call for a ban on any new fossil fuel investments. As emphasized by major institutions such as the IPCC, regulating new fossil fuel investments is essential to avoid further lock-in of high-carbon assets (IPCC, 2023). At the same time, the complex transnational ownership patterns of fossil fuel infrastructure highlight the need for a global financial register to ensure effective regulation of cross-border investments. We return to this proposal in more

3. About 30% of proposed coal mines were excluded due to missing data on reserve size.

4. The estimate by CarbonBombs.org relies on a much broader set of data sources (CarbonBombs.org, 2025).

5. The six companies considered in this analysis are Shell, TotalEnergies, BP, ExxonMobil, Chevron, and ConocoPhillips, which are the largest companies in the regions under consideration according to CompaniesMarketCap.com, 2025a, 2025b.

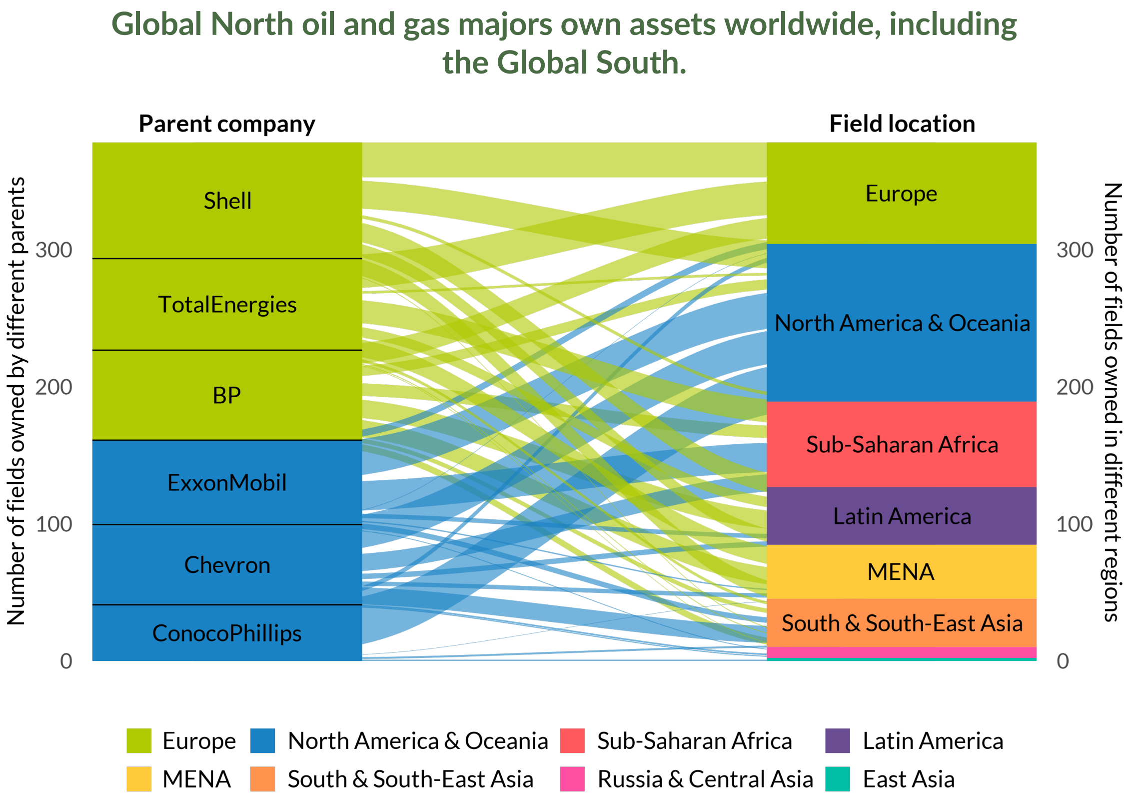

Figure 1.6. Ownership patterns of some of the largest oil and gas companies in Europe and North America

Note: This figure illustrates the oil and gas infrastructure investments of six of the largest oil and gas companies in Europe and North America. The left side shows the regions where the companies' headquarters are located, while the right side indicates the locations of their operating oil and gas fields. The number of fields reflects each company's ownership share. For example, if a company owns 50% of a field, it is counted as 0.5 fields. The Global Energy Monitor dataset does not provide full coverage of all sites. **Data sources:** Global Energy Monitor, 2025b, 2025c.

detail in Section 3.

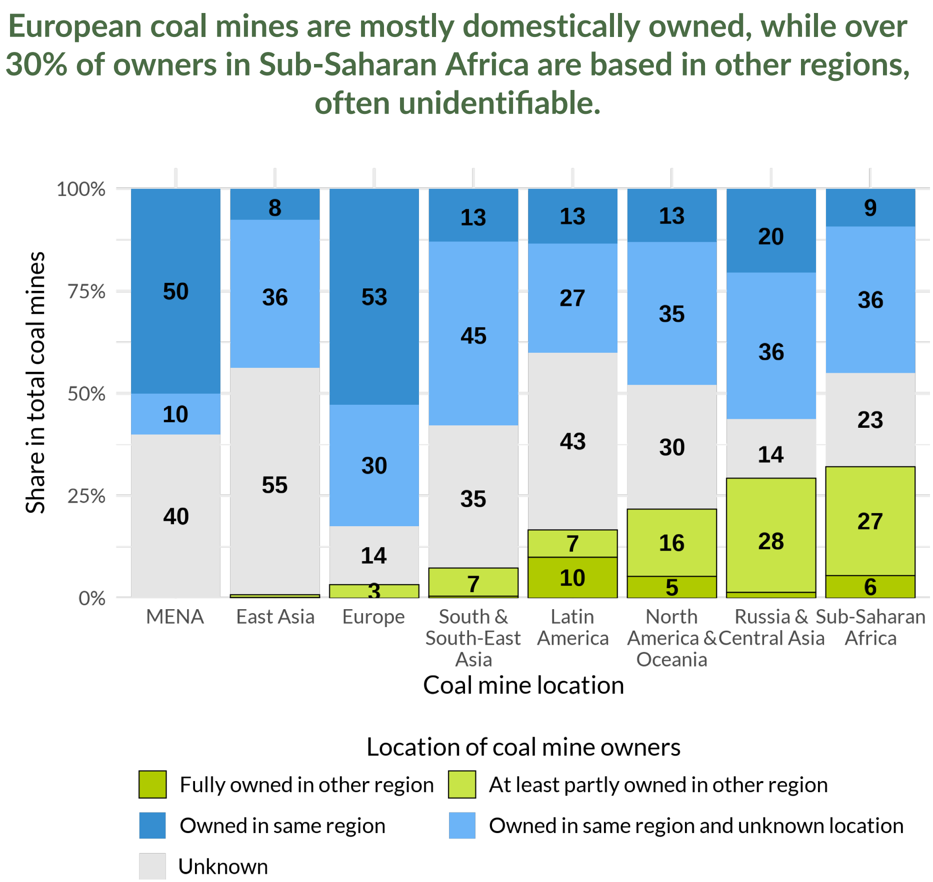

Figure 1.7. Share of coal mines owned by shareholders in other regions

Note: This figure associates all 3,845 globally operating coal mines with the location of their ultimate "parent" owners. Parents are identified using the following hierarchy: (1) the lowest-level publicly listed company, if one exists; (2) otherwise, the highest-level state-owned enterprise, but not a state or state body if a lower-level legal entity is available; (3) otherwise, the highest-level privately owned company. Natural persons are not considered parents if data on lower-level entities exist. In cases where the highest-level owners are general investors (e.g., major banks), the parent is defined as the highest-level energy company within that ownership chain. **Data sources:** Global Energy Monitor, 2025a, 2025b.

CHAPTER 2

WEALTH INEQUALITY IN A WORLD OF CHANGING CLIMATE

Wealth inequality not only drives climate change but is also shaped by it. A growing body of research shows that climate impacts and related policies affect both incomes—which determine individuals' ability to invest in and to accumulate assets—and the value of existing wealth. While recent studies point to a significant link between climate induced changes in local weather and wealth inequality, the empirical relationship remains understudied (Brzezinska & Jasper, 2024; Kumar & Maiti, 2025). The following section reviews what is known today and provides illustrative examples, suggesting that the impacts of climate on the distribution of wealth are potentially substantial and warrant greater attention from researchers and policymakers.

2.1 CLIMATE CHANGE ALREADY SHAPES THE DISTRIBUTION OF PRIVATE AND PUBLIC WEALTH

There is much evidence that climate change exacerbates income inequality both within and between countries. Global warming and associated extreme weather events disproportionately affect individuals in lower-income countries due to higher exposure, greater vulnerability, and more limited adaptive capacity (Alizadeh et al., 2022; Burke et al., 2015; Douris & Kim, 2021; Kalkuhl & Wenz, 2020; I. B. Nath et al., 2024; Rentschler et al., 2022). Between 1961 and 2010, greenhouse gas–driven warming is estimated to have widened the income gap between the world's richest and poorest countries by roughly 25% compared with a scenario without climate change (Diffenbaugh & Burke, 2019). Also within countries, evidence shows that poorer households are more exposed to environmental hazards and suffer disproportionately from their impacts (Gilli et al., 2024; Palagi et al., 2022).

At the global level, the bottom 50% of the population could bear up to 75% of relative climate damage by 2050 (Bothe et al., 2025). While absolute damage is higher for high-income groups due to greater economic exposure, lower-income households face far greater relative losses—measured as a share of income—because even small climate-induced income shocks can significantly erode their already limited resources (Figure 2.1). From a well-being perspective, these larger relative losses are particularly meaningful, as they translate into stronger declines in living standards compared with the same absolute losses among wealthier groups.

These income effects are compounded by severe impacts on displacement, health, and mortality (Hsiang, 2025). In 2023, floods, storms, droughts, and wildfires displaced more than 20 million people, mostly in Asia and Africa (IDMC, 2024). In the coming decades, sea-level rises alone could force hundreds of millions to emigrate from their homes (Kulp & Strauss, 2019). Climate change is also projected to sharply increase the global population at risk of vector-borne diseases caused by parasites, viruses, and bacteria such as dengue fever (Messina et al., 2019) and to put tens of millions more people at risk of hunger due to declining crop yields (IPCC, 2022b).

Income shocks affect the capacity of individuals to invest and accumulate new wealth (Awaworyi Churchill et al., 2023; Hallegatte & Rozenberg, 2017; Trinh et al., 2024). Climate-related drops in income make it more difficult for households to accumulate assets—especially those already at the lower end of the wealth distribution. This not only entrenches existing inequalities but

Relative climate losses are highly concentrated among the global bottom 50%.

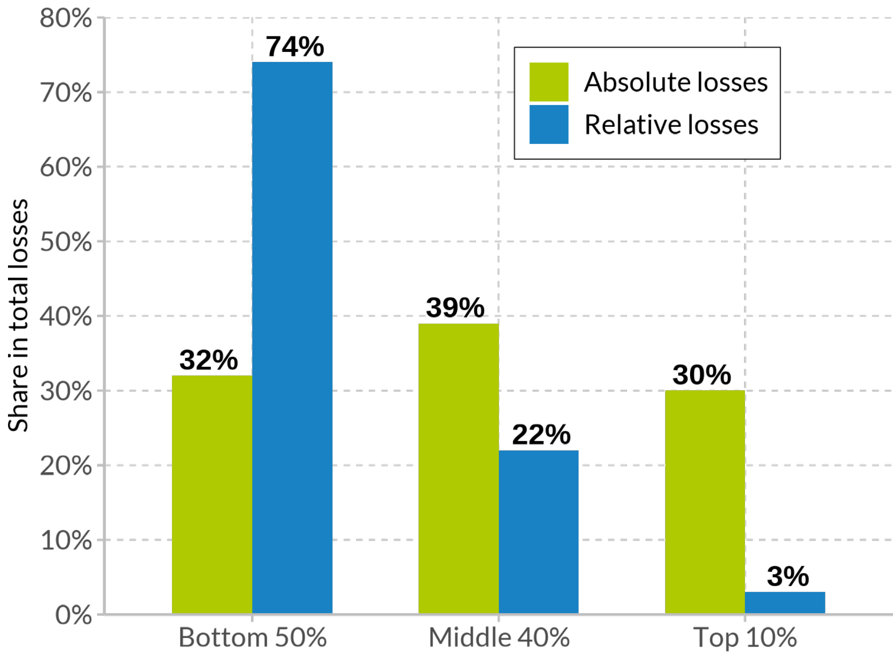

Figure 2.1. Distribution of climate losses in 2050

Note: This figure illustrates the projected distribution of climate damages in 2050. Absolute losses refer to total monetary damages from climate change compared with a business-as-usual scenario, while relative losses indicate the percentage reduction in income relative to that scenario. Countries projected to benefit from climate change are not included. BAU projections of global post-tax income in 2050 combine SSP2 national income projections with historic within-country inequality trends. Climate damage is allocated between countries following I. Nath et al., 2024, and within countries following Gilli et al., 2024. **Data source:** Bothe et al., 2025.

also limits opportunities for upward mobility, as diminished household wealth reduces access to education, health care, and credit.

Climate change also directly affects the value of assets. Physical assets such as housing are particularly vulnerable to extreme weather events. Floods, wildfires, storms, and even the anticipation of such events can sharply reduce their market value (Athukorala et al., 2019; Beltrán et al., 2018; Bin & Landry, 2013; Bosker et al., 2019; McCoy & Walsh, 2018). How climate risks are priced in the housing market depends on both awareness of the risks and beliefs about their severity (Baldauf et al., 2020; Clayton et al., 2021; Gibson & Mullins, 2020; Gourevitch et al., 2023; Ortega & Taşpınar, 2018).

Climate change has significant impacts on agricultural land as well. Some studies directly quantify potential benefits or losses from temperature and precipitation shifts (Bareille & Chakir, 2022; Deschênes & Greenstone, 2012; Kabubo-Mariara & Karanja, 2007; Schlenker et al., 2005). Other studies document substantial impacts of climate risks on agricultural productivity and livestock without making explicit the resulting movements in land values (Jägermeyr et al., 2021; Lippert et al., 2021; Paudel et al., 2015).

Global warming also erodes natural capital through glacier retreat, ecosystem degradation, and biodiversity loss (IPCC, 2023; Pecl et al., 2017). Numerous studies suggest that the associated future economic costs will be substantial; it is estimated that more than half of today's global GDP is moderately or highly dependent on nature (World Economic Forum, 2020). Particularly at risk are ecosystem services that are not traded in markets, such as water purification, carbon sequestration, and cultural benefits. While their economic value is more difficult to quantify, it is likely to diminish considerably (Bastien-Olvera et al., 2023).

To give some historic examples on the destructive power of climate change, in the last three years, climate and weather-related extremes have induced economic losses of assets estimated at EUR 162 billion in the European Union (EEA, 2024), which is roughly equivalent to the entire annual EU budget for 2023 (Council of the European Union, 2022). The 2022 Pakistan floods caused damage estimated at approximately USD 40 billion, making it one of the costliest floods in history (Mishra, 2025).

Lower- and middle-income households are particularly vulnerable to climate-related shocks (Pardy et al., 2024). Exposure to climate hazards is highly uneven across regions, with poorer countries facing a disproportionately large share of global risk; for example, 89% of the world's flood-exposed population live in low- and middle-income countries (Rentschler et al., 2022). As outlined earlier in this report, within countries, households in the lower and middle parts of the wealth distribution hold most of their assets in the form of housing, making them especially susceptible to physical damage. Wealthy households are not immune either: financial assets such as equities and bonds are also exposed to substantial climate risk, and numerous studies document the impact of droughts, hurricanes, and sea-level rises on their market values (Goldsmith-Pinkham et al., 2023; Griffin et al., 2019; Makridis & Schloetzer, 2023; Mandel et al., 2021; Noth & Schüwer, 2023; Painter, 2020).

Wealth also shapes resilience. Affluent households can protect their assets through diversification or relocation, while poorer households often cannot absorb or adapt to such losses (Awaworyi Churchill et al., 2023; Hallegatte & Rozenberg, 2017; Trinh et al., 2024). As a result, the same climate shock can lead to relatively minor setbacks for wealthy asset holders, but can erase years of wealth accumulation for poorer households.

Insurance and public safety nets can play a critical role in cushioning households from climate-related shocks. Yet coverage is highly uneven, both within and between countries. Three out of four people in low-income countries have no social protection coverage whatsoever (World Bank, 2025). In addition, climate-related insurance rates in developing countries are often below 10%, sometimes effectively zero (Munich Re, 2025). In high-income economies, private and public insurance schemes are more widespread, but even there, protection is far from universal: as of today, only about 35% of economically relevant climate-related losses are insured in the EU, with substantial gaps in some countries (ESRB, 2021, Figure 2.2).

Accessibility to insurance is declining in some high-risk areas. In the United States, for example, major insurers have withdrawn from markets such as California and Florida due to escalating wildfire and hurricane risks (Maffei, 2020). In parts of Australia, households in flood-prone regions face prohibitively high premiums or outright loss of coverage (National Legal Aid, 2024). Such market withdrawals leave households either uninsured or dependent on costly public interventions. Publicly mandated insurance schemes also have distributional implications. In the US, net premiums for mandatory flood insurance have been found to be regressive, placing a disproportionate burden on lower-income households (Bin et al., 2017). In France, mandatory flood insurance tends to benefit second-home owners—a group with above-average wealth—more than primary residents (Bézy, 2025). In both contexts, reforms could make flood insurance more progressive—for example through income-based premiums or subsidies—while addressing the broader policy trade-off between protecting vulnerable households and preventing further development in high-risk zones.

Climate change exerts growing pressure not

only on private but also on public wealth. At the local level, climate-related hazards can erode property tax bases (Jerch et al., 2023; Liao & Kousky, 2022; Lodi et al., 2023). In Florida, for example, more than half the municipalities are projected to be affected by sea-level rises by the end of the century; roughly 30% of local revenues derive from properties at risk of chronic flooding (Shi et al., 2023). National budgets are affected as well. Severe weather events can trigger spikes in emergency spending, reconstruction costs, and social protection payments, often forcing governments to borrow. In the Middle East and North Africa, higher temperatures have been linked to rising public debt burdens, while in the Caribbean, hurricane damage has led to rapid debt accumulation as governments finance recovery efforts (Giovanis & Ozdamar, 2022; Mejia, 2014). Financial markets increasingly price climate risk into sovereign borrowing costs. Countries exposed to high climate vulnerability are shown to receive lower sovereign credit ratings, which may translate into higher borrowing costs and thus make it more expensive to raise capital for adaptation and mitigation (Cappiello et al., 2025). This dynamic creates a perverse cycle: the very governments that most need investment to build resilience are those facing the highest financing costs.

The erosion of public wealth has long-term implications for inequality. Reduced fiscal capacity limits governments' ability to provide public goods, maintain infrastructure, and invest in low-carbon sectors. Without targeted reforms, climate change risks deepening the divide between countries and communities with the means to adapt and those left without adequate protection.

Overall, the evidence reviewed in this section demonstrates that climate change has the potential to reshape wealth distribution through multiple, interconnected channels. It affects household incomes by altering the labour market and capital incomes, while also impacting the value of physical and financial assets across the wealth distribution. At the same time, it erodes public wealth by straining fiscal capacities and increasing debt burdens. Together, these dynamics risk reinforcing existing wealth inequalities within and between countries. A more systematic body of research is needed to capture the full distributional implications of climate change for both the private and public sectors, and to inform policy strategies that can mitigate these risks.

Even in high-income European countries, insurance coverage for climate losses can be close to zero.

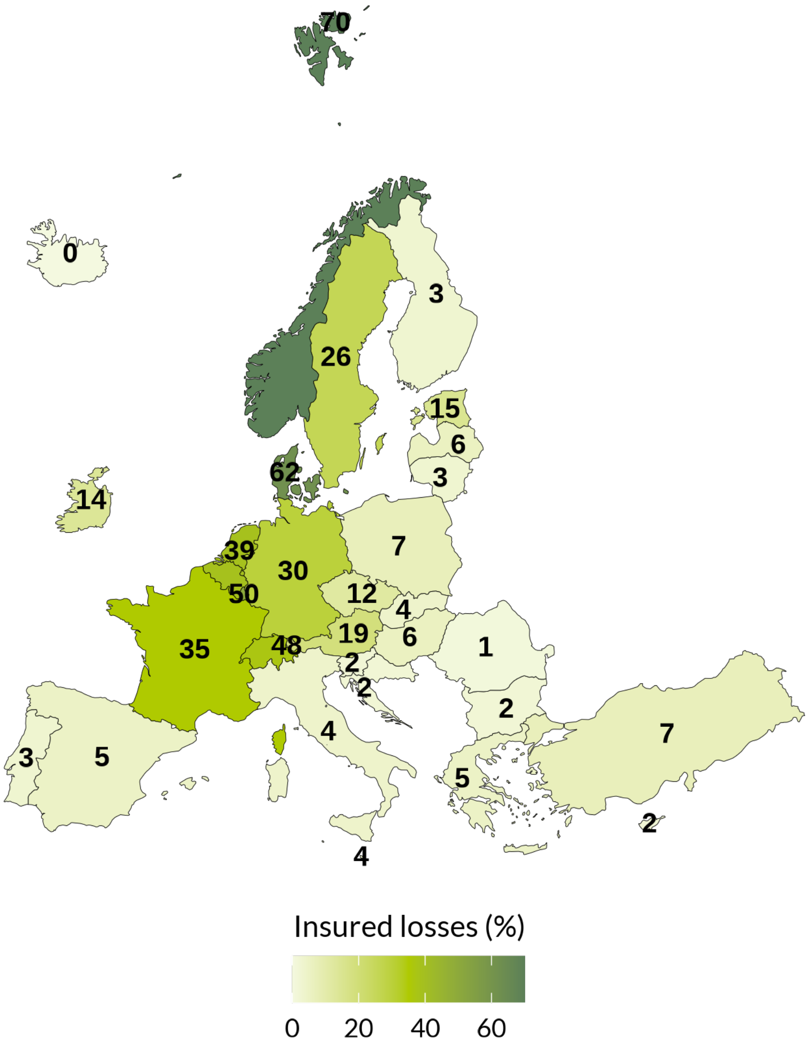

Figure 2.2. Share of insured losses from weather- and climate-related extremes in the European Union, 1980-2023

Note: This figure shows the share of insured losses from weather- and climate-related extremes in the European Union between 1980 and 2023. The share goes from 0% in Iceland to 70% in Norway. **Data source:** EEA, 2024.

2.2 CLIMATE POLICY COULD INDUCE STRONG SHIFTS IN THE WEALTH DISTRIBUTION

Who pays for decarbonisation also reshapes the distribution of wealth. Market-based climate policies, such as carbon taxes, can place a disproportionate burden on low-income households. Evidence from developed countries shows these measures are often regressive, as lower-income households spend a larger share of their income on carbon-intensive goods and services (Ohlendorf et al., 2021). Without compensatory mechanisms, these costs risk exacerbating existing income and wealth inequalities. Even when such climate policies are not strictly regressive, affordability remains a concern, as low-income households often lack the means to adjust their consumption or invest in low-carbon alternatives such as electric vehicles.

Labour market impacts will also influence the impacts of decarbonisation on household incomes. The development of clean technologies is expected to create jobs in "high-skilled" sectors such as engineering (Aghion et al., 2019; Saussay et al., 2022). However, job growth may also occur in the manufacturing, installation, maintenance, and operation of renewable energy infrastructure, which could benefit a broader range of workers (Taheripour et al., 2022).

Climate policy affects stock returns, the cost of equity, and interest rate spreads. Such impacts on the financial market have been shown for example in the context of the Paris Agreement (Monasterolo & De Angelis, 2020) and the Shenzhen Pilot ETS (Wen et al., 2020). Some studies emphasize that financial risks associated with decarbonisation may even take on systemic dimensions (Giuzio et al., 2019).

Asset stranding could result in losses amounting to several trillion USD. The accelerated phase-out of high-carbon assets brings the risk of asset stranding—a sudden and substantial decline in the expected profitability and market value of such assets. The potential scale of these losses is significant: in a 1.5 °C scenario, the upstream oil and gas sector alone could lose between USD 7.3–12.1 trillion in value in some estimates, and USD 3.7–4.1 trillion in others, depending on the modeling approach (Jakob & Semieniuk, 2023).

Most assets at risk of stranding are ultimately held by wealthy private investors in OECD countries. Hence, the fear that such losses could occur on a large scale may create political pressures from wealthy individuals to delay decisive climate action or reverse already implemented policies. However, these potential losses are small compared with their total wealth. For example, in the US, the wealthiest 10% of households are estimated to bear about 82% of ultimate losses. However, the aggregate value of these assets amounts to merely 0.4% of the net wealth of the top 10% wealth owners, implying that the aggregate effects of asset stranding on wealth inequality are negligible for the average investor (Semieniuk et al., 2022, 2023).

The distribution of public wealth could be more directly affected by asset stranding. Governments own an estimated 34% of all potential ultimate losses from asset stranding globally, mostly in non-OECD countries (Semieniuk et al., 2022). This implies that asset stranding could meaningfully reshape the distribution of public wealth. Moreover, if governments step in to stabilize the financial system, bailout costs can represent a substantial transfer of resources from the public to the private sector (Lamperti et al., 2019). The wealth of the public sector is also threatened by massive litigation risks, particularly through investor–state dispute settlements. Such settlements allow foreign investors to sue governments if treaty-protected fossil fuel investments are canceled. Tienhaara et al. (2022) estimate that investor–state dispute settlement-protected oil and gas projects that would have to be cancelled to meet deep decarbonisation goals could have a global net present value between USD 60 and 234 billion.

The way climate investments are financed and owned will have major implications for global wealth inequality as well. The scale of investment required for deep decarbonisation is huge.

One average estimate places cumulative spending needs by 2050 at around USD 266 trillion, implying that annual climate finance will need to rise by more than 4% of global GDP over the coming years (left panel of Figure 2.3). Put differently, cumulative climate investment needs even exceed the total value of today's global capital stock (right panel of Figure 2.3).[1]

Simple projections suggest that if the richest 1% were to finance the entire investment and retain ownership of all resulting assets—while other investment patterns remain as in 2019—the global top 1% wealth share could rise from its current 38.4% to around 46% by 2050 (Scenario 1, Figure 2.4). Conversely, if the same investment were instead funded through a tax on the wealthiest and the resulting assets were owned by the public sector, the top 1% wealth share could fall by approximately 13 percentage points, to 26% in 2050 (Scenario 2, Figure 2.4).

1. Note that the estimate of the value of today's global capital stock is obtained from the IMF Investment and Capital Stock Dataset (IMF, 2021). This estimate is about half the size of the global capital stock recently reported by (Bauluz et al., 2025). One explanation for this discrepancy is that the IMF estimates are based on the Perpetual Inventory Method, which cumulates investment at production costs. As a result, these figures exclude non-produced assets such as land underlying dwellings, and they value produced assets at costs rather than current selling prices.

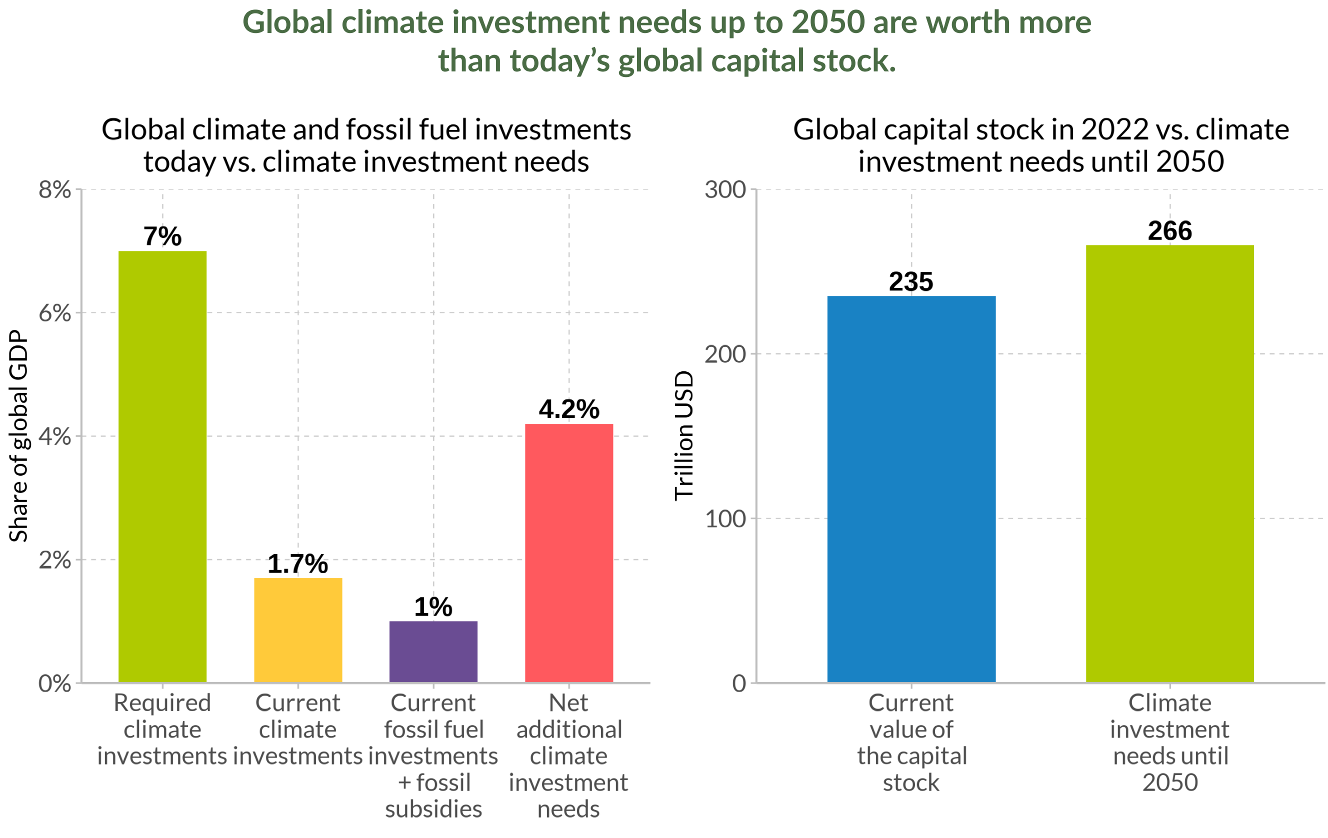

Figure 2.3. Projected climate investment needs up to 2050 vs. today's capital stock

Note: This figure compares the climate investments required by 2050 in order to achieve the 1.5°C target with current spending on climate and fossil fuels, as well as the size of today's capital stock. Required climate investments are shown as an annual share of global GDP, assuming a growth rate of 2%. Current climate investments in 2023 are taken from Buchner et al., 2023, while current fossil fuel investments and subsidies are drawn from International Energy Agency, 2025a, 2025b. The value of today's capital stock is based on the IMF Investment and Capital Stock Dataset (IMF, 2021). **Data sources:** Buchner et al., 2023; IMF, 2021; International Energy Agency, 2025a, 2025b.

Climate investments could also significantly change public sector wealth. If the public sector were to close the climate investment gap between now and 2050 and retain ownership of the resulting capital—such as infrastructure, buildings, and equipment—the public capital-to-GDP ratio could rise from around 80% in 2019 to over 150% by 2050 (Scenario 1, Figure 2.5). By contrast, if all additional climate investments were undertaken and owned by the private sector, the private capital stock could climb to 245% of GDP by 2050, while public capital would remain at roughly 80% (Scenario 2, Figure 2.5). While these projections are stylized, they suggest that the impacts of deep decarbonisation on the distribution of wealth could be substantial.

The potential of deep decarbonisation to significantly reshape the distribution of wealth underscores the importance of careful policy design. In the next section, we outline proposals for a publicly-driven transition away from fossil fuels that contributes to a more equitable distribution of wealth.

Climate investments could raise the top 1% wealth share by 6 percentage points by 2050.

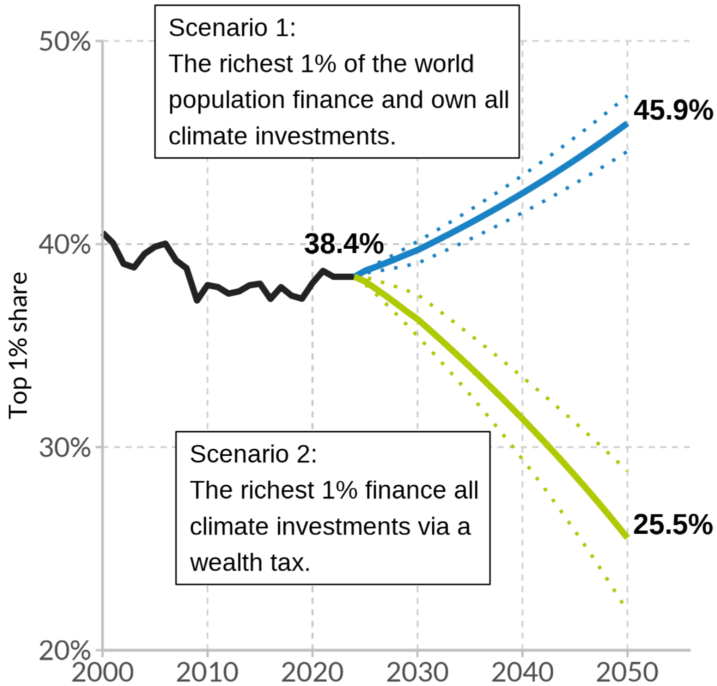

Figure 2.4. Top 1% share in global wealth over 2000-2025, observed vs. projected

Note: This figure shows possible dynamics of the global top 1% wealth share if the top 1% owns all required climate investments (Scenario 1) and if all these investments are financed by a wealth tax on the top 1% (Scenario 2). The dotted lines represent uncertainty about projected investment needs. **Data source:** Chancel et al., 2025.

If financed entirely by private actors, climate investments could almost double the global private capital-to-GDP ratio by 2050.

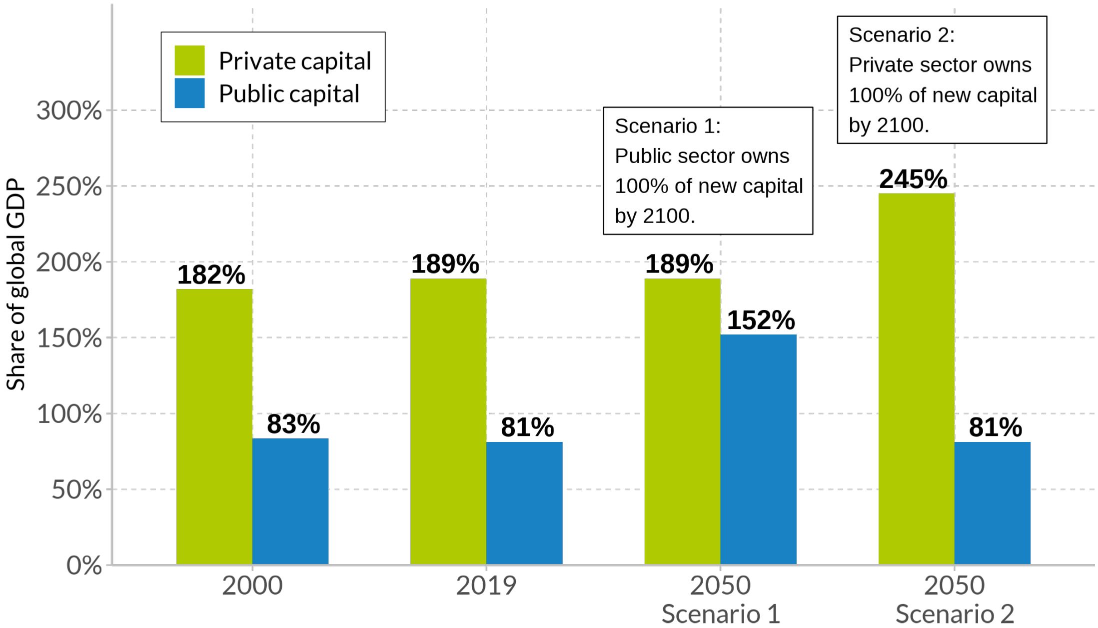

Figure 2.5. Public vs. private capital over 2000-2050, observed vs. projected

Note: This figure presents observed and projected values of private and public capital as shares of GDP. In Scenarios 1 and 2, either the public or the private sector undertakes all additional climate investments and, in turn, owns the corresponding increase in capital stock. **Data source:** Chancel et al., 2025.

CHAPTER 3

HOW CLIMATE POLICY CAN ADDRESS OWNERSHIP

The previous sections of this report described the tight link between wealth concentration and the climate crisis. **In the following, we propose a set of policy options to address this dual challenge.** These are not intended as ready-made legislative measures. They aim to introduce novel elements to advance policy debates in concrete terms, though further work will be needed to refine and implement them. We argue that it is urgent to engage in these debates on practical and precise grounds.

First, we suggest a ban on new domestic dirty investments, such as fossil fuel exploration, to halt further contributions to climate change. Countries need not wait for an international agreement. They can start today. Any serious commitment by countries to this end should start with stronger financial disclosure rules to trace and regulate investments made abroad.

Second, we propose a carbon-adjusted tax on wealth and investments, with the double goal of discouraging high-carbon investments and financing the low-carbon investments in a progressive manner. We argue that carbon taxation typically targets consumers, while financial investors often face no comparable carbon price, even though their investments may be associated with high emission levels.

Third, in the context of a shortage of low-carbon investments, we stress the role of public investments and shared public ownership (international, national, local, and cooperative), to accelerate the shift to a resilient, low-carbon energy infrastructure that has the potential to reduce wealth inequalities. We also discuss efforts around the world to withdraw from investor-state dispute settlement treaties that threaten public finances, especially in the Global South.

3.1 IMPLEMENTING A FULL BAN ON NEW FOSSIL FUEL INVESTMENTS

While alternative solutions exist (Green et al., 2024), **current plans for fossil energy investments make it impossible to meet global climate targets**. As discussed in Section 1.2, even planned fossil fuel projects—without accounting for those already in operation—could push global emissions beyond the 1.7°C temperature target.

At the same time, several growing civil society movements and policy initiatives are challenging this trajectory. Advocates of the "keep it in the ground" approach have made meaningful progress that offers valuable insights for coordinated policy action (Carter & McKenzie, 2020). Among these efforts, the **Fossil Fuel Non Proliferation Treaty (FFNPT)** stands out as a key platform, convening 17 nation-states and thousands of local and regional governments worldwide (FFNPT, 2025). Its adoption would mark a critical step towards achieving a stabilization of temperature increases of between 1.5°C and 2°C. Building on the momentum of initiatives like the FFNPT, we propose both domestic bans on new fossil fuel production and measures to restrict such investments abroad.

The cornerstone of a comprehensive ban on dirty investments must be a legal instrument that explicitly prohibits new oil, gas, and coal investments. As seen in Section 1.2, ongoing fossil fuel projects are located in both high- and low-income countries, although much of their financing originates from high-income countries.

In high-income countries, national legislative bodies such as parliaments have the authority to enact laws that permanently freeze the issuing of any new licenses, permits or concessions for oil and gas exploration, drilling or extraction with immediate effect. Such prohibitions should apply to all persons and entities within national jurisdictions and include foreign entities operating domestically, as well as subsidiaries, in order to prevent any circumvention. State-owned enterprises such as Norway's Equinor should also fall in the scope of these regulations (Greene & Carter, 2024).

Oil refining and commercial gasoline production activities should be subject to scrutiny as well and gradually be phased out following the production ban. According to industry reports, in 2023 there were 825 refineries worldwide, and the total capacity of crude distillation units is projected to increase by 15% by 2027 (Offshore Technology, 2023). This means that nearly 200 new refining plants are expected to become operational by 2030. These investments risk reinforcing perverse incentives, motivating their owners to continue lobbying against the fossil fuel phase-out.

National bans can draw on legislative examples from first-mover countries. Examples are Denmark's amendments to the Subsoil Act (Box 1), Ireland's Petroleum and Other Minerals Development (Amendment) Act, and Portugal's legislative annulments of new offshore drilling contracts.

Compensating communities at risk will be crucial. The political economy of fossil fuel bans demands particular attention in a context of "climate backlash". The United States illustrates this challenge: even the already modest drilling restrictions introduced by the Biden administration were swiftly reversed in the "drill, baby, drill" backlash by the Trump administration. Research on such "green backlash" underscores the need to integrate redistribution and worker relocation measures from the outset of transition planning (Bosetti et al., 2025). Denmark's phase-out illustrates this approach by compensating oil-sector workers and channeling public investment into low-carbon industries such as offshore wind and other renewables. As it has repeatedly been stressed in applied climate policy research, any legislation should include dedicated funding for job retraining, regional economic diversification, and infrastructure conversion.

Preventing policy reversals also requires long-term legal safeguards. In countries with constitutional environmental rights, embedding the duty to deny new fossil fuel approvals —through constitutional amendments or judicial rulings—can strengthen the durability of bans. A growing body of strategic climate litigation, including landmark cases in Germany (Bönnemann, 2023) and elsewhere (Setzer & Higham, 2024), demonstrates how legal precedent can help to secure sustained progress towards decarbonisation.

An essential element of fossil fuel bans is the prevention of loopholes, particularly so-called "open-door" and "neighbour-block" exceptions. Open-door procedures allow new exploration licenses outside regular government-initiated rounds—an approach that has weakened Denmark's otherwise strong phase-out framework. Neighbour-blocks refer to areas adjacent to existing extraction sites and are often justified as mere extensions of ongoing operations rather than new drilling activities (Greene & Carter, 2024). For countries considering a ban, both mechanisms risk undermining its effectiveness if not explicitly prohibited in the drafting process.

Immediate administrative action should accompany legislative bans to ensure enforcement. Governments should suspend or cancel ongoing tender rounds for new oil and gas projects and impose moratoria on future tenders. A comprehensive legal review of existing contracts is also necessary to identify and annul pending or pre-approved extraction projects, invoking the climate emergency or overriding public interest as justification.

Experiences in countries such as Denmark underline the importance of highly specific and comprehensive measures (Box 1). Laws must clearly define the full prohibition and all forms of oil and gas extraction—including new or unconventional methods— all geographies (including onshore, offshore, exclusive economic zones, etc.), and all new technological approaches. Implementation should specifically block indirect forms of expansion such as capacity increases in existing fields, the reopening of retired sites, and the introduction of technology upgrades aimed at prolonging extraction. Early scrutiny of proposed corporate investment plans will further help prevent so called "backdoor" expansion.

A key limitation of existing fossil fuel extraction bans is their failure to cover investments made beyond national borders. Yet countries have several policy options for regulating or restricting overseas investments by their nationals. We discuss these mechanisms in the following section.

Countries serious about discouraging fossil investment must also address domestic investors financing projects abroad. This approach allows even countries without oil and gas reserves to contribute to decarbonisation by regulating investments made by their own residents in foreign fossil fuel projects.

Comparable mechanisms already exist in the form of economic sanctions: for instance, US citizens and companies operating in the United States are prohibited from investing in certain countries, including Iran, under the Office of Foreign Assets Control regulations.

Following Russia's invasion of Ukraine in February 2022, the EU adopted a wide range of restrictive measures against it, enlarging laws that were originally adopted in 2014 and repeatedly amended thereafter[1]. These measures prohibit EU nationals and financial institutions from purchasing or selling new debt, equity, and money-market instruments issued by Russian state-owned entities, and from providing investment services, loans, or credit to them. They also ban new investments in the Russian energy sector, including financing or participating in joint ventures involving oil exploration, production, and refining. The prohibitions apply to all EU persons or EU-incorporated entities, making them a clear precedent for how governments can regulate the overseas investment behaviour of their residents.

Enforcing pollution investment bans requires financial transparency. The effective enforcement of fossil fuel investment bans faces a major obstacle: the opacity of the international financial system. Any measure seeking to halt all fossil fuel investments abroad must be able to trace ownership structures and to identify the ultimate beneficiaries of capital flows. Without such transparency, investors and intermediaries from jurisdictions that enforce fossil bans could circumvent regulation through complex chains of opaque ownership and offshore intermediation.

In most countries, public authorities currently have limited information on who owns what—let alone on the carbon content of investments. Yet this opacity is not immutable: a more transparent financial architecture is both technically and institutionally achievable.

Central Securities Depositories (CSDs) are key to this transformation. These institutions, typically private, act as the notaries of the financial system: they record who buys and who owns what. However, major CSDs—such as the US Depository Trust Company (DTC) and the European systems Euroclear and Clearstream—rely on opaque ownership accounting, in which multiple clients' assets are pooled under the names of intermediaries. This structure makes it difficult to trace asset ownership and to assess the carbon exposure of investment portfolios.

More transparent ecosystems already exist. Nordic markets, including Norway, require disclosure of investor identities for shares—and in some cases, for all financial instruments. A study by the European Central Securities Depositories Association shows that full end-investor transparency is compatible with both operational efficiency and high transaction volumes (ECSDA, 2015). In short, financial transparency is technically and economically viable at scale.

The disproportionate influence of EU and US institutional investors—such as Vanguard and

1. Notably by Regulations No 2014/833 article 5, 2022/328, 2022/428, and 2022/879.

BlackRock—in global fossil fuel financing creates immense opportunity and responsibility for public regulators in these countries. Targeted rules for large asset managers could have systemic effects in redirecting capital flows away from high-carbon industries. In this context, mandatory accounting transparency, at least for tax and supervisory authorities, will be essential within CSDs.

Existing sustainability disclosure frameworks also provide leverage for reform. The EU's Sustainable Finance Disclosure Regulation requires financial market participants to report on sustainability risks and impacts—an important step that provides public authorities with data that can enable more targeted regulation. Yet "green" funds still hold over EUR 20 billion (USD 33 billion) in oil and gas firms (InfluenceMap, 2023). Regulators must therefore apply much stricter criteria in classifying investments as low-carbon.

In the US, the Securities and Exchange Commission's climate disclosure rules required certain large companies to report their Scope 1 and 2 emissions, setting an important precedent for mandatory climate transparency in financial markets.[2] Extending such measures to include ownership structures and portfolio emissions would mark a crucial next step towards genuine climate transparency in financial markets.

In sum, this section shows that ending fossil investments is possible through a combination of national legislation, international coordination, and financial transparency. Existing legal precedents, disclosure frameworks, and market institutions already provide the basis for tracing and regulating carbon-intensive capital. Yet, moving forward will require taking significantly more ambitious action.

2. The rule's implementation is currently stayed pending legal challenge.

Box 1. Phase-out in Denmark: lessons and limits

Denmark's phase-out of oil and gas production, formalized in the 2020 North Sea Agreement (NSA), illustrates how investment-focused public policy can guide a national transition away from fossil fuels. The NSA establishes 2050 as the definitive end date for extracting oil and gas and simultaneously cancels all upcoming and future licensing rounds for hydrocarbon exploration and extraction. This approach directly targets future investments in fossil fuel production, stopping new capital from flowing into the sector and sending an unambiguous signal to investors, operators, and financial markets about the direction of national energy policy. The agreement defines the scope of investments to be phased out by targeting both exploration and production activities. The end dates are designed to apply to all off-shore hydrocarbon extraction licenses, with provisions to cancel pending licensing rounds and prohibit future ones. While companies holding existing licenses can continue to operate until 2050, the agreement effectively freezes the footprint of the Danish oil and gas sector. This means that investments in expanding production capacity, entering new exploration blocks, or initiating new oil and gas projects are explicitly barred from the date of the agreement onward (Greene & Carter, 2024; Madsen et al., 2023).

Denmark's actions rely on legislative and administrative reforms that give legal effect to the North Sea Agreement. The government amended the Danish Subsoil Act to ensure that the legal authority exists to deny further permits and to enforce a national prohibition on new fossil fuel ventures. The only exceptions allowed are for limited "mini-rounds" or "neighbour block" permits adjacent to currently operating fields but even these are subject to scrutiny and are not expected to generate significant new investment activity. The broad intention was to close loopholes and avoid incremental project expansion that could undermine the overall policy's credibility (Greene & Carter, 2024).

To facilitate social and political acceptability, the NSA includes provisions for compensating affected operators and targeted support for regions and workers reliant on the oil and gas sector. At the same time, the government is investing in alternative pathways—such as offshore wind and carbon capture and storage—which help to redirect private and public investment flows into genuinely low-carbon sectors (Madsen et al., 2023).

Critiques of the Danish approach centre on the timeline for phasing out already existing exploitation activities by 2050, which is considered incompatible with climate objectives adopted in the Paris agreement. Recent analyses suggest that consistency with Denmark's national climate targets would require bringing the end date forward to 2042 or even 2034 (Calverley & Anderson, 2022; Hansen et al., 2022). In addition, the potential expansion of production capacity by current license holders through "mini-rounds" or "neighbour-blocks" —even if small in volume— is problematic and inconsistent with the rest of the policy.

Box 2. Transforming fossil capital: decommissioning and conversion of oil and gas infrastructure

Pollution from oil and gas infrastructures often persists long after they are decommissioned, due to methane leaks and other forms of environmental contamination. Globally, an estimated 29 million oil and gas wells have been abandoned (Partridge et al., 2023). Offshore installations are at the heart of this problem. An often overlooked aspect of the climate challenge involves the proper decommissioning and potential conversion of these sites (Box 2).

The offshore decommissioning market is experiencing unprecedented growth: the UK North Sea alone faces a USD 44 billion (EUR 52 billion) decommissioning bill (NSTA, 2025). A growing body of research demonstrates that converting offshore platforms to renewable energy production could generate positive returns of investment with payback periods as short as one to three years. For instance, converting a four-legged platform in the North Sea to wind-powered hydrogen production has been projected to yield as much as 2.7 billion euros in 20 years (Leporini et al., 2019).

Going forward, governments should require operators to have extensive decommissioning plans in advance of phase-out (Lockman & Brauch, 2023). It is also important to prioritize the establishment of regulatory frameworks that encourage infrastructure conversion. The economic exploitation of such infrastructure should be subject to review, and governments should consider entering the ownership structure in some cases.

3.2 TAXING THE CARBON CONTENT OF WEALTH AND INVESTMENTS

The concentration of emissions linked to capital in the hands of the richest individuals highlights the potential for more ambitious taxation systems that price pollution in a progressive way.

The current dominant paradigm in carbon pricing presents several challenges. Firstly, it systematically undervalues its social harm, with the IPCC arguing that pathways compatible with Paris climate goals require much higher carbon pricing than currently in place (IPCC, 2020). Secondly, it is already facing serious backlash, to the point that a study by the OECD covering 79 countries responsible for 82% of global emissions has measured an effective carbon tax rate decline from around EUR 18 per ton of carbon in 2021 to an even more modest EUR 14 per ton in 2023 (OECD, 2024). For instance, the French carbon tax, initially introduced in 2014, faced growing public backlash as rates increased (Douenne & Fabre, 2022).[3]

A carbon-based wealth tax could raise revenues and help guide investment. As the debate on wealth taxes gains momentum and concrete proposals emerge (Zucman, 2024), a window of opportunity opens to develop new carbon taxation schemes. A tax on the carbon-adjusted wealth could complement both a general wealth tax and the regulatory measures discussed in the previous section. Such a tax could be designed as an additional component of a wealth tax, adjusting each taxpayer's liability according to the carbon intensity of the assets they own.

Implementing such a scheme would require systematic data collection from asset holders and financial institutions, in line with those discussed above. We stress that before the introduction of modern income taxation in the early twentieth century, its opponents argued that tax administrations lacked the information needed to assess and tax incomes progressively. In practice, the statistical apparatus required to track income and wealth has typically developed alongside the establishment of tax systems themselves (Piketty, 2014).

In Figure 3.1, we compare the distributional impact of a USD 150 or EUR 150 "per-tonne" tax in France, Germany and the United States, applied on three different bases: (i) a tax on private ownership emissions, (ii) a tax on direct household (Scope 1) emissions, such as those from private transport and heating, and (iii) a tax on consumption emissions, i.e. the emissions embodied in goods and services consumed. This analysis relies on simplifying assumptions: we assume that a tax on direct emissions is fully borne by consumers, while a tax on asset ownership is fully borne by asset owners. In practice, both sides would share a part of the tax burden, depending on factors such as the tax design and the type of investment (see Chancel and Rehm, 2025a).

A wealth tax on the carbon content of assets is likely to be more progressive than "standard" carbon taxes, which are typically passed on to final consumers. Figure 3.1 illustrates the tax burden of different wealth groups expressed as a share of net wealth: the effective tax burden rises with wealth, reflecting the higher carbon intensity of assets held by top wealth groups. In contrast, the burden of taxes on consumption and direct household emissions declines for individuals in the upper wealth brackets. Taxes on private ownership emissions could therefore share important similarities with progressive wealth taxes, at least on average across individuals.[4]

Moreover, carbon taxes on wealth may prove more effective than taxes targetting low-income consumers: consumers often lack immediate substitutes for fossil fuels, whereas asset owners—particularly those with financial portfolios—can more readily shift their investments to cleaner alternatives.

Such taxes could also yield significant revenues.

3. On this topic, an earmarking can decisively help onboard taxpayers (Woerner et al., 2024).

4. In Norway, for example, administrative data makes it possible to connect firm level emissions with ultimate owners, paving the way to such policy proposal.

Ownership-based carbon taxation might lead to a more progressive distribution of tax burdens.

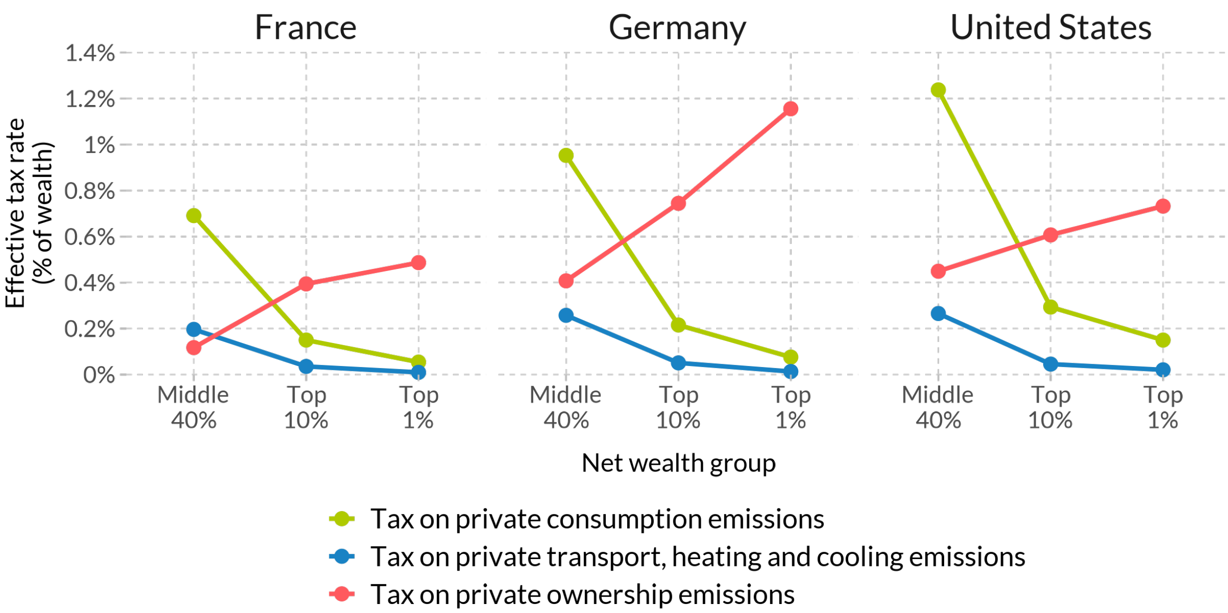

Figure 3.1. Static projections of progressivity of a 150 euros or dollars per-tonne tax levied on different types of individual emissions

Note: This figure presents the static (i.e. absent behavioural responses) distributional impact of a tax levied annually per tonne of individual emissions. Emissions are distributed to adult individuals instead of the total population for tax simulations. Estimates suggest private ownership emissions of 1.47t (US), 0.15t (France) and 0.76t (Germany) for the average adult in bottom 50% in the ownership-based footprint. The tax payment would hence amount to 2-18 euros/dollars per month for this group. An actual tax levied on private ownership emissions would likely feature an exemption threshold below which emissions would not be subject to taxation. Values refer to 2017 in France and Germany and 2019 in the US. **Data source:** Chancel and Rehm, 2025a.

Chancel and Rehm, 2025a find that a 150 euros per tonne tax on the carbon content of wealth could yield around EUR 36 billion in France, EUR 74 billion in Germany, and USD 534 billion in the United States. These results are based on 2017-2019 data and assume no behavioural change and perfect compliance, and thus should be interpreted with precaution. However, they point to the revenue potential of this tax base,[5] which could be used to fund specific adaptation and mitigation schemes.

While the operational design of a carbon-asset tax remains to be developed, this instrument offers a promising avenue to better align wealth creation with climate and social justice objectives. Governments could start experimenting with such tools, starting with taxation of the carbon content of financial assets.

5. See Chancel and Rehm, 2025a, Fig. 10.

3.3 SECURING A PUBLICLY-DRIVEN DECARBONISATION

The scenarios presented in Figures 2.4 and 2.5 project two polar futures for global wealth concentration in 2050, closely linked to expected ownership of low-carbon investments in the coming years. In the first one, the top 1% finances and owns the totality of green new investment, leading to even more extreme patterns of concentration where nearly half of the world's wealth belongs to a handful of individuals. In the second, a publicly-driven investment strategy, financed by a wealth tax and paired with public ownership of key assets, substantially reduces wealth inequality.

As is also illustrated in Figure 1.4, the world is short on climate investments. This investment gap probably constitutes one of the largest market failures of all times, to paraphrase the economist Nicholas Stern. In this context, government actors have a critical role to play to fill the gap. A key question is whether the public sector should subsidize green private investments, or fund publicly-owned infrastructure.

Major technological shifts—from aerospace to digital industries—were driven by public investment. We argue that the same logic applies to decarbonisation: there is a strong economic rationale for states to act as investors of first resort, financing the long-term, high-risk projects that private actors avoid. In other words, a government-led effort driving public value creation is essential for a successful and just decarbonisation.

Historically, governments have actually followed a diversity of pathways in energy sector investment structures and ownership. Figure 3.2 shows the share of electricity production owned by government and non-profit actors since 1900 in key countries. The patterns reveal that countries have pursued full nationalization (as in France from 1946 and the UK between 1940 and 1980), partial nationalization of energy (as in the US since the New Deal, which placed about 20% of electricity production assets under public or cooperative control) and even full privatization (as in the UK during the 1980s and 1990s). In short, governments have the choice to organize energy asset ownership the way they want (Chancel, 2025). Interestingly, the French nuclear program was largely financed through public-sector debt used to fund publicly owned assets.

It is also important to note that in high-income countries, the public sector generally borrows at lower interest rates than private actors for large-scale energy projects. To reduce borrowing costs for the private sector, public authorities often have to assume part of the risk—for instance, by guaranteeing purchase prices—which entails a fiscal cost. From this perspective, direct public borrowing to finance decarbonisation investments can be a sound and defendable strategy (Semieniuk & Mazzucato, 2019).

Public investment in the low-carbon and ecological assets has been contested on budgetary grounds. Yet financial constraints can be eased through progressive wealth taxation or debt issuance: given the overall size of required low-carbon investments (both in terms of mitigation and adaptation), adopting fixed tax-to-GDP and debt-to-GDP ratios for the decades ahead is a misplaced constraint on collective action.

In addition, from a climate-insurance perspective, large-scale public investment in green infrastructure—especially given insufficient private capital—should be viewed as a safeguard against far greater future losses. Moreover, public ownership of energy assets can generate positive externalities by limiting private rent capture, ensuring universal access to low-carbon infrastructures and curbing wealth concentration.

As a matter of fact, public financing already plays an important role in renewable energy, transport electrification, and building retrofits. The long horizons and capital intensity of these sectors demand coordination and ownership (Mazzucato & Semieniuk, 2018). Investing in publicly-owned low-carbon assets thus offers a chance to rebuild productive state capacity and create lasting public value.

Electricity ownership has followed remarkably diverse paths across countries and eras.

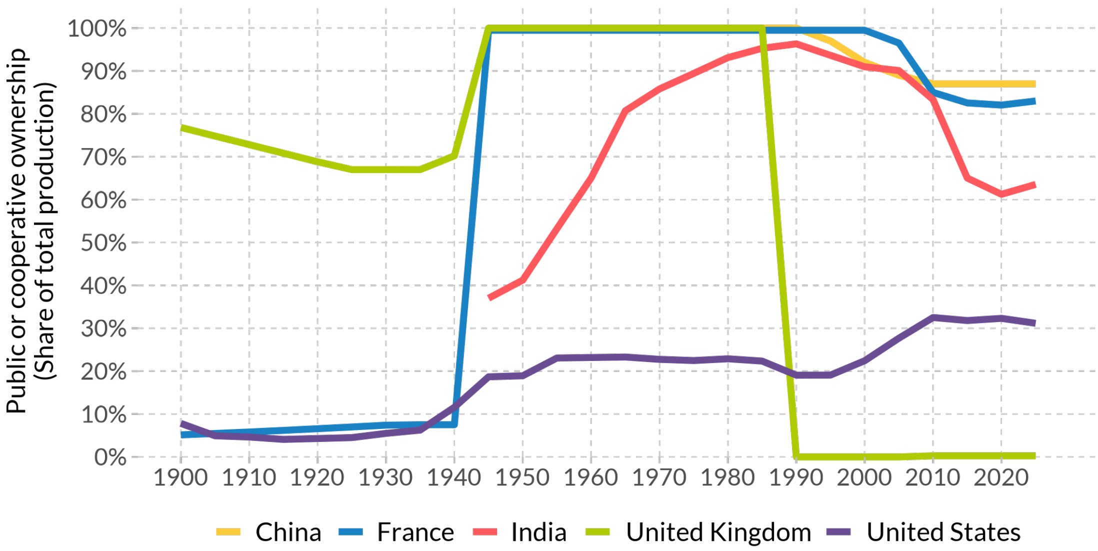

Figure 3.2. Share of the public sector in electricity production around the world, 1900–2025

Note: this figure shows the share of total electricity production under public (federal, state, and municipal) or cooperative ownership in various countries since 1900. **Data source:** Chancel, 2025.

New sovereign green investment funds, dedicated to finance decarbonisation through the revenues of wealth and environmental taxes, can be viewed as an effective tool to accelerate decarbonisation. These funds could serve as long-term public shareholders in key low-carbon sectors such as energy generation, grid infrastructure, transport, and critical minerals, ensuring that a share of future profits remains in public hands.

In Europe, revenues from novel, progressive wealth taxes (potentially coupled with a carbon component, as discussed previously in this section) could mobilize hundreds of billions of euros (Chancel et al., 2022). In the US, a comparable mechanism could channel the proceeds of corporate or windfall taxes on fossil profits into a National Green Investment Fund, complementing initiatives like the Inflation Reduction Act.

A range of financing instruments could be employed—green bonds, blended finance vehicles, and lease-sale-back or partnership-flip structures, where private capital is mobilized but ownership remains public. At the local level, cooperative and community ownership models could also ensure that energy revenues benefit citizens directly and that they remain in control of strategic infrastructure (e.g. small low-carbon energy production plants, heat distribution networks, etc.).

Finally, a publicly driven global ecological transition requires reforming the international credit system to empower the Global South to invest on its own terms. Many developing countries remain trapped in high-cost borrowing environments, constrained by credit-rating methodologies that penalize them for climate vulnerability while ignoring the long-term benefits of green infrastructure. The IMF and World Bank lending rules could be reviewed to account for the climate investment capacity of countries, rather than purely short-term debt ratios.

This would entail a shift from a risk-based to an opportunity-based assessment framework—recognizing that green public investment enhances fiscal sustainability over time. Expanding concessional lending facilities, restructuring debt, and integrating climate performance criteria into sovereign ratings could provide developing countries with affordable capital to lead their own transitions. Moreover, avoiding fossil fuel investments contributes to a global public good—a stable climate—which strengthens the case for concessional finance, at least to cover the incremental costs of choosing renewable over fossil alternatives.

Fossil fuel phase-outs also require in-depth reform of foreign investment arbitration. Investor–state litigation poses significant financial risks to climate policy. Investors, seeking to protect fossil interests, increasingly file compensation claims amounting to billions when phase-outs allegedly violate investment terms (Tienhaara et al., 2022). Given prevailing ownership structures, most claimants are foreign entities under Foreign Direct Investment regimes.

Investor-State Dispute Settlement (ISDS) provisions in International Investment Agreements grant arbitration rights outside national courts, often resulting in massive payouts when extraction is curtailed. ISDS thus functions as a shield for fossil capital, locking states into carbon dependency. Over 2,600 such treaties remain in force globally (UNCTAD, 2025). The Energy Charter Treaty (ECT) has been a major vehicle, underpinning cases such as the Netherlands' coal phase-out compensation to German firms and Mozambique's multi-billion-dollar liabilities (Di & Gubeissi, 2024; Roe, 2018). The resulting "chilling effect" discourages ambitious climate measures (Tienhaara, 2017).

In response, several countries have withdrawn from ISDS frameworks, as has the European Union, which exited the ECT in 2025 following a civil society mobilization, and is advocating a Multilateral Investment Court for fairer arbitration (Parliament, 2025). Yet Global South countries remain most exposed and least able to exit unilaterally (Schaugg, 2025). Governments of firms involved in such deals should exert pressure on their firms to facilitate the withdrawal of Global South countries, and to prevent similarly imbalanced treaties from being enacted in the future.

In sum, public investment and shared ownership will be essential to accelerate decarbonisation and reduce wealth inequality. This requires ending the protection of fossil fuels through arbitration frameworks, expanding public ownership in relevant sectors, and mobilizing new fiscal and financial tools. These investment choices have long been treated as technocratic questions. Recognizing their implications for the distribution of wealth and power is key to bringing them into policy debates, allowing democratic deliberation on them.

CONCLUSION

The evidence presented in this report highlights how the climate crisis and wealth inequality are two sides of the same coin. The wealthiest individuals not only cause far greater environmental harm through their consumption, but, even more importantly, own and finance the assets responsible for the majority of global emissions. Their disproportionate control over capital and political influence enables them to shape the pace and direction of energy investments. This is increasingly evident in the continued flow of investments into fossil fuel infrastructure, despite international climate pledges.

At the same time, the poorest and most vulnerable bear the heaviest burdens of climate damage while having the fewest resources to adapt or to invest in mitigation. Without decisive action, climate change risks deepening both private and public inequalities worldwide: not only the distribution of future climate damage but also the ownership of climate-related investments will have profound consequences for the global distribution of wealth.

To address the dual crises of climate and wealth inequality, new tools and policy frameworks are needed. This report discusses three kee options to move forward:

1. A global ban on new fossil fuel investments to halt the expansion of carbon-intensive infrastructure, beginning with restrictions on foreign investments;

2. A tax based on the carbon content of assets to redirect private capital away from polluting activities; and

3. A public investment shock in low-carbon infrastructures to ensure a faster and more equitable decarbonisation.

Let us stress at the outset that the operational design of our proposals remains to be developed. These instruments offer, however, promising avenues to better align wealth generation with climate and social justice goals. They are intended to open, not close, the debate. Taken together, these measures would help realign investment flows with the goals of the Paris Agreement while reducing concentrations of wealth—reminding us that climate change is ultimately a capital challenge.

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