TPI Global Climate Transition Centre

Research and Data at **LSE**

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Just value chains: how corporate decarbonisation activities can impact communities

In association with

JUST TRANSITION FINANCE LAB

Summary

Many companies are beginning to act on climate change by cutting their greenhouse gas emissions. However, the activities and new infrastructure this requires can have both positive and negative impacts on local communities.

A central aspect of planning for a just low-carbon transition involves managing the social impacts of new infrastructure related to decarbonisation, such as renewable energy projects and transition mineral mines. If companies are to maintain their social licence to operate and mitigate the risk of public resistance to their operations, they will need to cultivate trust with local communities. The loss of a company's social licence to operate can translate into material financial risk through project delays and cancellations.

We focus on the negative social impacts of activities linked to the low-carbon transition, setting out an exploratory, evidence-based framework that can help investors and companies anticipate such risks. Combining insights from the academic literature with empirical data on corporate disclosure, the framework can support investors with identifying sector-specific priorities for shareholder engagement with companies.

Core findings

- Adopting three broad categories of social impacts on local communities, we map how each is linked to specific decarbonisation levers adopted by companies. The categories are:
  1. **Land-use conflicts:** arise from competition over access to resources and land, and are associated with nearly every decarbonisation lever.
  2. **The unequal distribution of costs and benefits:** usually linked to renewable energy deployment, the production of alternative fuels and nature-based solutions.
  3. **Regional economic decline:** arises mainly from the closure of high-carbon assets.
- Social impacts are not confined to a company's own operations and can ripple through value chains, sometimes into sectors without a history of managing concerns about just transition.
- In aviation, for example, switching to sustainable aviation fuel can drive land-use conflict upstream, where feedstocks for bio-based fuels are cultivated. Similarly, the auto sector's growing demand for key transition minerals used in battery manufacturing can drive land-use conflicts upstream, where those minerals are mined.

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The **TPI Global Climate Transition Centre** produces independent and forward-looking research and data on the progress of corporate and sovereign entities in the transition to a low-carbon economy. www.transitionpathwayinitiative.org/

The **Just Transition Finance Lab** is a centre for experimentation and excellence in the financial solutions needed for a just transition. justtransitionfinance.org/

The Centre and the Lab are based at the London School of Economics and Political Science (LSE), Global School of Sustainability.

LSE Global School of Sustainability

1. Introduction

The low-carbon transition could have negative social impacts if it is not managed fairly. Companies can make progress towards their climate goals using a range of decarbonisation levers: technologies or activities that aim to directly or indirectly reduce emissions. The use of these levers, which generally vary by sector and location, can affect stakeholders including communities, workers, suppliers and consumers (Curran et al., 2022). For example, closing a coal power plant may lead to significant job losses, while investing in green infrastructure may create new local jobs.

To support a just transition that aligns with global climate goals while ensuring no one is left behind, this brief aims to shed light on: what social impacts may be associated with specific decarbonisation levers; and where in a company's value chain these social impacts may have consequences.

To address these questions, we set out an exploratory, evidence-based framework mapping the potential social impacts of specific decarbonisation levers across sectors. The framework is designed to help companies anticipate the social impacts of decarbonisation strategies and to support investors with stewardship activities involving shareholder engagement on climate change and just transition risks. This lever- and sector-specific framework is informed by our review of the disclosed decarbonisation levers of the world's largest corporate greenhouse gas emitters across carbon-intensive sectors. We also examined how low-carbon technologies are developed or sourced to understand their associated value chains.

Context and definitions

We focus on the transition's negative social impacts on communities. Taking Hurst and Johnston's (2025) social impact framework as a starting point, we define social impact as a negative effect on communities that is directly or indirectly caused by a decarbonisation-related corporate action and that alters the area's economic, environmental or social conditions. The aim of highlighting negative impacts is not to hold back the low-carbon transition but to support investors and companies in addressing social impacts as they arise.

Comprehensive just transition planning for communities should consider social impacts that can occur through different channels. Communities should not be treated as isolated stakeholders, as a single community member can be affected by corporate decarbonisation in various ways. A community member may live near a factory while also being a worker at the factory, an employee of one of its suppliers or a local customer of the company.

The social impacts arising from the transition, and where they materialise in a value chain, vary by sector. While the literature increasingly recognises that the social impacts of the just transition extend across companies' value chains (United Nations Global Compact [UNGC], 2023), less attention has been paid to how these impacts vary by sector and by decarbonisation lever. Until recently, existing frameworks have only partly addressed this gap: the World Benchmarking Alliance's Just Transition Methodology provides insights into companies' progress towards the just transition, but the approach is sector-agnostic (World Benchmarking Alliance [WBA], 2025). Meanwhile, sector-specific guidance, such as that from the Transition Plan Taskforce (2024) and the Council for Inclusive Capitalism (2023), concentrates on the extractive and energy sectors, leaving industrial manufacturing underexamined. A new generation of more sector-specific frameworks is beginning to emerge, including the Climate Action 100+ (CA100+) Net Zero Company Benchmark framework, which has begun to incorporate a sector-sensitive approach (Ashraf and Clinton, 2025), and the Net Zero Strategies Framework for Diversified Mining, which also provides sector-specific data on companies' management of just transition (Modirzadeh et al., 2026).

For companies, managing these impacts is a matter of financial risk, not just social responsibility. Unmanaged social impacts can erode a company's legitimacy in the eyes of affected communities and can cause it to lose its social licence to operate (Gehman et al., 2017). This licence to operate stems from the company's efforts to cultivate trust with local communities and, in doing so, mitigate the risk of resistance from those who are affected by its operations. Originally focused on the social impacts of extractive industries, this concept has widened to encompass all industrial operations, including decarbonisation activities. Losing the social licence to operate can have direct financial consequences: community opposition can delay, disrupt or halt projects, trigger litigation and cause reputational damage, all of which can affect a company's cash flows, project timelines and cost of capital. As companies move from disclosing headline net zero commitments to transition plans that set out the specific decarbonisation levers they will use, it becomes increasingly important for them to understand, anticipate and manage the potential social impacts of these levers.

For investors, these same risks can aggregate across an entire portfolio. The Institutional Investors Group on Climate Change (IIGCC)'s Net Zero Investment Framework 2.0 highlights four types of financial risk posed by inaction on the just transition (2024):

1. Systemic risks from the loss of social acceptance
2. Operational execution risk, whereby delays, cancellations and litigation at the company level aggregate into portfolio-wide exposure, eroding investor returns and asset values
3. Operational legal risk, which arises from litigation related to how the transition is affecting companies, individuals and communities
4. Regulatory risks, which arise from public policies or non-compliance with regulations.

Mitigating these risks is, therefore, not only important from a social perspective but also for preserving long-term value across portfolios. Investors can play an active role in managing these impacts by engaging with companies strategically. To do so effectively, they first need to understand how different decarbonisation levers across sectors may affect communities.

The framework presented in this brief is designed to help companies and investors identify the potential social impacts of specific decarbonisation levers. For each decarbonisation lever identified, we examine the types of social impacts that may arise and whether they are most likely to occur near a company's own operations or in its supply chain (see Figure 1). We focus on downside impacts and do not address positive social impacts or opportunities. While the regulatory context is central in determining whether and how social impacts and their associated risks materialise, government policy to promote a just transition is not the focus of our analysis. We adopt a narrow definition of 'value chains' as a company's own operations and its upstream supply chain.

Our methodology is described further below; the resultant analysis and framework are then set out in Section 2, providing details of the social impacts associated with corporate decarbonisation and mapping them on to the main decarbonisation levers. Section 2 concludes by illustrating how our analysis can inform investor engagement across a sample of companies operating in carbon-intensive sectors.

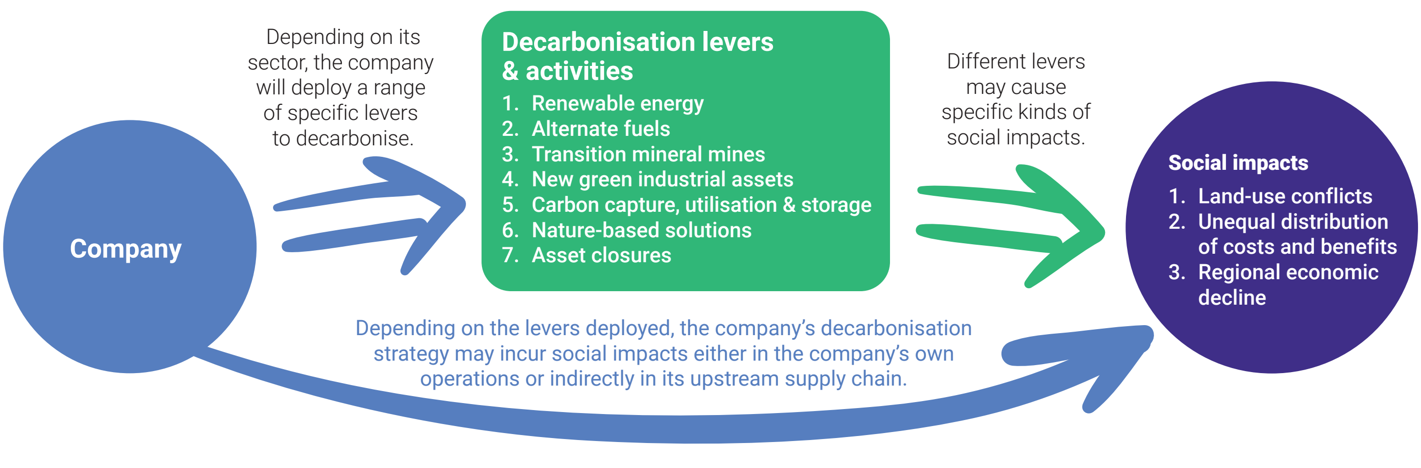
Methodology

To systematically manage social impacts and associated risks that could stem from deploying and using decarbonisation levers, the following questions need to be answered:

1. What social impacts may be associated with specific decarbonisation levers or enabling activities used in high-emitting sectors?
2. Where in a company's value chain may these social impacts have consequences: *directly* near its own operations or *indirectly* in its upstream supply chain?

To address these questions, we first reviewed the corporate disclosures of the world's most significant companies by market capitalisation and greenhouse gas emissions in key carbon-intensive sectors.[1] This involved reviewing publicly available annual reports, sustainability reports and transition plans to identify which decarbonisation activities companies intend to rely on to meet their emissions reduction targets.

Figure 1. Mapping decarbonisation levers to social impacts



[1] Airlines, auto manufacturers, cement producers, chemicals producers, diversified mining companies, electricity utilities, oil and gas producers, and steel makers.

Disclosed levers were grouped into seven broad categories to allow for comparisons across sectors.

We then reviewed academic and sector-specific industry publications to identify patterns of potential social impacts occurring as a result of using specific decarbonisation levers. Our literature review examined the main decarbonisation pathways across the evaluated sectors, the substitute technologies each sector could use to decarbonise and how those technologies are developed or sourced. For example, one route to decarbonising electricity production is to switch to renewable generation sources such as solar energy – which, in turn, depends on key transition minerals sourced from upstream mining. This extends the relevant value chain impacts well beyond an electricity utility's own operations.

The literature describes possible decarbonisation pathways but not necessarily those that companies are pursuing in practice. To focus on the most relevant levers for investors and companies, we returned to the corporate disclosure data to determine which of them companies are actually planning to use. In the final part of Section 2, we apply our exploratory, evidence-based framework to a sample of 72 companies from the CA100+ focus list that disclose sufficient detail on their decarbonisation strategies, showing how investors can tailor their shareholder engagement on just transition to the specific levers a company plans to use.

2. Framework and analysis

Across the disclosures of companies in high-emitting sectors, we identify seven main decarbonisation levers:

1. Producing or purchasing renewable energy
2. Adopting alternative fuels, such as hydrogen, biofuels and biomass
3. Mining key transition minerals, such as nickel and lithium
4. Building new green industrial assets
5. Deploying carbon capture, utilisation and storage (CCUS)
6. Developing nature-based solutions
7. Closing down carbon-intensive assets.

Typology of potential social impacts

We link each of these decarbonisation levers to the social impacts they may generate. To enable cross-lever comparison, we group relevant social impacts into the three broad categories below.

Land-use conflicts

Land-use conflicts arise from competing demands for land and can affect communities living near a project in many ways. First, communities can be physically displaced from land they occupy or use, disrupting their livelihoods (World Commission on Dams, 2000). Second, communities can face contested land ownership or tenure rights, particularly where those rights are informally or customarily held. This heightens tensions between competing land uses such as agriculture, housing and ecosystem services. Third, even where communities are not displaced, corporate activities can restrict their access to resources they depend on, including water, forests and fisheries. Fourth, even where communities technically retain access to

Photo: Maria Krasnova, Unsplash

land or water, the quality of these resources can be degraded by pollution or contamination associated with a project. Fifth, the operation or failure of infrastructure such as pipelines or tailings ponds can create direct health and safety risks for communities living nearby (World Bank, 2016).

Land-use conflicts can present serious project execution risk where Indigenous Peoples' traditional territories are affected, because these communities hold distinct legal protections. These protections reflect Indigenous communities' historical and cultural ties to land and are codified in the United Nations Declaration on the Rights of Indigenous Peoples (UN, 2007). The declaration sets out Indigenous Peoples' right to free, prior and informed consent to projects affecting their traditional territories. Without their consent, a project's development can be considered a violation of this right, and companies may face legal challenge, project delay or cancellation as a result.

Unequal distribution of the costs and benefits of the low-carbon transition

The costs and benefits of the low-carbon transition may be distributed unequally. A community that hosts transition-related infrastructure may incur the costs of the transition through disruption to their livelihoods and surrounding environment, without receiving a proportionate share of the resulting benefits. As the literature on energy justice shows, some communities face a form of distributive injustice from the inequitable sharing across society of the benefits and burdens of energy production and consumption (Sovacool et al., 2019). A similar dynamic can arise through food prices: rising demand for biofuel feedstock can disproportionately increase the cost of staple crops for lower-income households, which spend a greater share of their income on food (Doornbosch and Steenblik, 2007). Although food price changes may also affect wider populations, local communities are among those affected and also bear additional costs of hosting the activity in question.

Regional economic decline

The closure of carbon-intensive assets can lead to economic decline in the regions that depend on them. First, the region can lose the fiscal base that its closed assets once provided. Communities may be affected by the loss of local tax revenue generated by the company's assets, thereby limiting the resources available for local infrastructure and public services (Jolley et al., 2019). Second, the closure may result in direct and indirect job losses locally even when the transition creates new green jobs elsewhere. Fossil fuel-dependent regions can be left in structural decline as 'stranded communities' (Robins et al., 2021). These issues are relevant to companies whose operations contribute a large share of a region's tax revenue or employ significant proportions of a population.

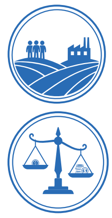
"A community that hosts transition-related infrastructure may incur the costs of the transition through disruption to their livelihoods and surrounding environment, without receiving a proportionate share of the resulting benefits."

Mapping social impacts to decarbonisation levers

In Table 1, we map the social impacts that may arise from the use of different decarbonisation levers and where they are likely to occur in the value chain. Land-use conflicts are the most common impacts, as they are associated with all levers except asset closures. The unequal distribution of costs and benefits can have social impacts when deploying renewables, alternative fuels and nature-based solutions. Regional economic decline is exclusively associated with the closure of carbon-intensive assets. Where impacts occur in the value chain depends on the company's sector and whether it performs the decarbonisation activity itself or sources relevant products from companies in other sectors.

Each lever and its possible associated social impacts are discussed below, illustrated with real-world examples that demonstrate how negative social impacts can materialise into financial risks for both companies and investors.

Table 1. Exploratory evidence-based framework of social impacts mapped to decarbonisation levers and location in the value chain

Decarbonisation levers and activities		Renewable energy	Alternative fuels	Key transition mineral mines	New green industrial assets	Carbon capture, utilisation and storage (CCUS)	Nature-based solutions	Asset closure
Possible social impacts associated with decarbonisation levers or enabling activities in high-emitting sectors								
Location of social impacts in the company's value chain	**Directly** near a company's operations…	…if the company is building renewable capacity itself (e.g. electricity sector)	…if producing alternative fuels (e.g. oil and gas sector)	…if conducting extractive mining activities (e.g. mining sector)	…if building new green assets other than renewable energy (e.g. steel, cement sectors)	…if building CCUS capacity (e.g. steel, cement sectors)	…if developing nature-based solutions like conservation projects (e.g. paper sector)	…if closing high-carbon assets (e.g. electricity, steel sectors)
	Indirectly in a company's upstream supply chain…	…if the company is purchasing clean energy (e.g. steel, cement sectors)	…if procuring alternative fuels (e.g. aviation sector)	…if procuring minerals (e.g. autos, electricity sectors)	No evidence found	No evidence found	…if purchasing offsets that rely on nature-based solutions (any sector)	No evidence found

Source: Authors' analysis.

Renewable energy

The construction of renewable energy projects can result in land-use conflicts and can unequally distribute the costs and benefits of the transition. For example, the Lake Turkana Wind Power Project in northern Kenya, now the largest wind farm in Africa, was built on rangeland around Sarima to which multiple pastoralist communities hold competing claims: Turkana herders had settled and grazed livestock in the area since the late 1990s, while neighbouring Samburu and Rendille communities asserted ancestral and cultural claims to the same area. Despite hosting the project, many communities in the surrounding area remain without a reliable connection to the electricity it generates (Lind and Rogei, 2025). Similarly, in Pakistan-administered Kashmir, the Mangla Dam's construction submerged 280 villages and displaced around 110,000 people (Institution of Civil Engineers, 2025) but the host region received only a fraction of the royalties it was owed and continues to face daily power outages lasting up to 10 hours. In this way, transition-related activities can impact local communities in two stages: once through the disruption to their land and livelihoods, and again as consumers who are excluded from the benefits of those activities.

Communities are more likely to resist renewable energy projects that impose costs on them without providing benefits. This can delay or halt the development of such projects. A 2023 Lawrence Berkeley National Laboratory survey found that, on average, each cancelled wind or solar project in the United States had non-recoverable sunk costs of more than US$2 million or US$7.5 million, respectively, with community opposition among the leading causes of cancellations (Nilson et al., 2024).

Respecting Indigenous rights to land use is also material to project success: a failure to anticipate the regulatory enforcement of such rights can result in cancellations. For example, the development of the Gunaa Sicarú wind farm in Mexico by the utility firm Électricité de France (EDF) was halted in 2022, following a legal challenge brought by Indigenous members of the Unión Hidalgo community. After EDF launched the project without consulting the community as required under Mexican law, the federal court ruled that the project could only proceed by securing their consent. Amid the resulting social unrest, EDF was unable to do so. The Mexican Energy Ministry then shuttered the project, resulting in a loss of future revenue and sunk development costs for the company (Bailey and Lavite, 2025).

These impacts and risks can also arise in a company's upstream supply chain if a company procures renewable electricity rather than builds its own energy infrastructure. The renewable energy developer supplying electricity is directly responsible for the social impacts of its projects, but a company purchasing this electricity is also linked to these upstream impacts and has a responsibility to evaluate and manage them through its procurement due diligence.

Alternative fuels

Increased demand for alternative fuels such as biomass, biofuels and hydrogen can have land-related social impacts on communities. Biomass and biofuels require land to grow the crops they use as inputs. In Kenya's Tana Delta, for example, developers seeking to grow feedstock for biofuels disregarded informal land rights to acquire increasing amounts of land that residents traditionally used for small-scale farming, fishing and grazing. This created distrust and conflict between farming and pastoralist communities (Duvail et al., 2012). One of the biofuels developers eventually filed for bankruptcy after the project collapsed amid inter-communal violence and under sustained pressure from an NGO campaign, which led to a loss of investor confidence (Krijtenburg and Evers, 2014). Hydrogen production also requires land: green hydrogen depends on land for renewable energy generation, while blue hydrogen on land for CCUS developments. Many electricity utilities and oil and gas companies are planning to produce or purchase hydrogen, to use as a low-carbon replacement for natural gas, requiring just transition planning for the land-use impacts this may generate.

Given that growing the feedstock for first-generation biofuels competes for the same land, water and labour used in other forms of agriculture, expanding biofuel production projects can constrain local food production (Herrmann et al., 2018). At the national and global levels, this can contribute to food price spikes that are also borne by local communities. Rising demand for biofuels is estimated to have contributed 30% of the 2007–08 spike in global food prices (Rosegrant, 2008), which pushed an estimated 105 million people into poverty in low-income countries (Ivanic and Martin, 2008). In this way, communities adjacent to transition-related activities may also bear costs as consumers, even if these costs are also felt by the broader population.

Land-use conflicts can affect different parts of a company's value chain depending on whether it purchases the end product or produces the bio-feedstock or fuel. Oil and gas companies planning to manufacture alternative fuels generally source bio-feedstocks from agricultural producers and sell the end product to companies in sectors such as aviation and shipping. Land-use conflicts can occur near a bio-feedstock producer's site of operations, which is in the alternative fuel producer's upstream supply chain. Similarly, the most commonly cited decarbonisation lever for airlines is switching from conventional fuel to sustainable aviation fuel (SAF). There are several types of SAF, including those manufactured from waste products, crops and hydrogen (e-fuels). Although switching to SAF involves relatively limited changes to an airline's own operations, increased demand for crops-based fuel will require land for growing bio-feedstocks (International Air Transport Association, 2024). Therefore, land-use conflicts associated with biofuel production, such as those in the Tana Delta, could occur in an airline's upstream supply chain. Companies and investors should consider these impacts in their transition planning.

Key transition mineral mines

Land-use conflicts linked to mineral extraction pose not only direct risks to the operations of companies in the mining sector but also indirect risks to the upstream supply chains of most other sectors. For mining companies, social impacts can occur in communities near established and new mines due to heightened competition for shared resources, such as water. For instance, lithium extraction in Chile's Salar de Atacama is estimated to consume over 2 million litres of water each day (Jerez et al., 2021). Indigenous communities in the region report a corresponding decline in small-scale agriculture and livestock-keeping, and have pursued both litigation and direct protest in response. In 2019, these communities successfully petitioned the courts to block one corporation's proposal for a new lithium project (ibid.). Similarly, the proposed Tia Maria copper mine in Peru has been beset by protests and conflict since 2015, following a breakdown in dialogue between the Peruvian government and civil society groups. Between 2020 and 2022, these delays resulted in estimated annual losses in revenue and investment of up to US$650 million, equivalent to 0.27% of Peru's GDP (Zevallos and Iannacone, 2024). In contrast, the Quellaveco mine in Peru became operational following participatory environmental assessments (Jaskoski, 2014).

These conflicts and resource pressures in upstream supply chains can be significant for companies that purchase mined materials, including renewable energy developers and car manufacturers. The key decarbonisation lever for the autos sector is switching from manufacturing internal combustion engine vehicles to electric vehicles (EVs). Scaling up EV manufacturing involves increased procurement of key transition minerals such as nickel for batteries. With demand for nickel projected to increase by at least 69% by 2040 (International Energy Agency, 2025), suppliers will develop new mines to expand production, potentially leading to further land-use conflicts in upstream supply chains for auto manufacturers. Some auto manufacturers are beginning to factor in such concerns into their just transition planning. For example, Volkswagen operates a due diligence process to manage environmental and social risks in its supply chain, covering raw materials such as those used in battery manufacturing (cobalt, lithium, nickel and graphite). The company's due diligence explicitly covers the rights of communities near mining sites, including those related to land and access to water.

> "Land-use conflicts associated with the mining of key transitional minerals could occur in an auto manufacturer's upstream supply chain."

New green industrial assets

The development of green industrial assets is a lever for decarbonisation across heavy industry that can cause land-use conflicts near a company's own operations. Steel companies, for example, are planning to deploy a range of new technologies to decarbonise production, including direct-reduced iron and electric arc furnaces. Similarly, cement companies are disclosing plans to replace energy-intensive clinker with low-carbon alternatives as inputs to their processes. Some of these improvements require the construction of new industrial assets. For instance, in 2025, Heidelberg Materials began production at a new calcined clay plant in Ghana to supply raw materials for lower-emissions cement. As with any industrial development, the construction of such plants can cause land-use conflicts. For instance, a greenfield steel plant proposed by South Korean steelmaker POSCO in the Indian state of Odisha led to prolonged conflict over land acquisition, with evidence of forced evictions.

Financial risks can arise from the failure to address communities' concerns over new industrial activity. For example, a Tesla EV plant in Berlin faced opposition over plans to clear the surrounding forest for expansion. Amid the social opposition, the plant was left without power for over a week, costing the firm over US$350 million in lost output. The company's share price dropped 6.5% over the same week.

Carbon capture, utilisation and storage

CCUS is often cited as a decarbonisation lever by companies across most sectors. Various companies are planning to adopt CCUS to reduce emissions from coal- and gas-fired power plants, as well as plants for mineral processing, steelmaking and cement manufacturing. The social impacts and associated risks of CCUS are less clear than those of other levers, as it is a technology still in a relatively early stage of deployment and is typically retrofitted into or added to a company's existing operations.

Nonetheless, land-use conflicts could arise due to CCUS developments associated with a company's own operations. The development of pipelines to transport captured CO_2 could damage ecosystems, as could the construction of facilities at the point of storage. Pipelines require developers to secure a right of way on the land they cross. In some jurisdictions, where landowners do not agree voluntarily, developers could acquire the land through eminent domain (Congressional Research Service, 2025). This involuntary acquisition has been met with sustained resistance in several US states, where coalitions of landowners have successfully halted CCUS pipeline projects and regulators have denied permits over conflicts between proposed routes and local ordinances. Opposition to proposals for new pipelines has intensified due to concerns over safety, including those stemming from a 2020 pipeline rupture that hospitalised 45 people in Satartia, Mississippi (Congressional Research Service, 2025). Additionally, the geological storage site for captured CO2 can also be associated with groundwater contamination (Tishman Environment and Design Center et al., 2024).

Nature-based solutions

Nature-based projects developed to offset carbon emissions can lead to both land-use conflicts and an unequal distribution of the costs and benefits of the transition. An increasing number of companies are developing nature-based solutions, such as reforestation or conservation projects, to create carbon credits for sale to corporate emitters. These offsetting projects may have positive impacts on local communities, such as preserving local ecosystems and economies. However, the use of carbon credits expands the use of land under corporate control as a carbon sink, a process that has been labelled 'green grabbing' (Fairhead et al., 2012). This process can undermine the livelihoods, land rights, access to food and water and participation in environmental decision-making of local communities (Esteve-Jordà and Scheidel, 2026). The benefits of nature-based solutions can be unequally distributed when affected communities are excluded from decisions about how a project is designed and how its benefits are shared. Marginalised groups such as smallholder farmers or Indigenous communities may not be incorporated into

decision-making, allowing better-resourced landowners or developers to capture a disproportionate share of the benefits (Zakaria et al., 2026).

Companies can face risks from a failure to mitigate the social impacts of projects from which they purchase carbon credits. For example, local courts in Merti, Kenya halted such a project after the organising conservation agency failed to follow necessary procedures, including local consultations and environmental impact assessments (Osman, 2025). Following the court ruling, the project's certifier suspended it, jeopardising the value of the more than 6 million carbon credits already sold to corporate buyers including Meta, Netflix, NatWest and British Airways.

Asset closures

The closure of a carbon-intensive asset can lead to significant economic decline in local communities, with the negative impacts including a loss of employment, tax revenue and investment. The closure of carbon-intensive assets, such as coal- or gas-fired power plants, is common to many corporate decarbonisation strategies, but these measures can disrupt local economies. While companies can mitigate these impacts by developing new, low-carbon assets on the site of old, high-emitting ones, some job losses are often unavoidable. For example, the closure of the blast furnaces at Tata Steel's Port Talbot steelworks in the UK is estimated to result in the loss of over 5,000 jobs, either directly or indirectly, even though the company has been developing an electric arc furnace on the same site (Jones, 2024). Similarly, the closure of two coal-fired power plants in Ohio was projected to result in the loss of 1,100 jobs and US$8.5 million in tax revenue for local governments (Jolley et al., 2019).

In certain cases, companies mitigate these impacts by bridging the gap in lost revenue created by an accelerated closure. When Duke Energy brought forward the retirement of its Gallagher Station in Indiana from the end of 2022 to June 2021, it made a philanthropic contribution in lieu of property taxes for the intervening period, matching the payments the county would have received on the original timeline.

Applying the framework: an investor use case

By applying our exploratory evidence-based framework to a sample of companies, we show how investors can anticipate where in the value chain social impacts of decarbonisation may occur. We combine the findings outlined in the previous subsection with a deeper examination of a sample of corporate disclosures (see Table 2). In this way, we move beyond a theoretical inventory of possible social impacts to produce a practice-relevant analysis of where social risk is materialising today and where action is most urgently required. The analysis focuses on 72 companies, with relevant disclosure, sampled from the CA100+ company list.[2]

As an illustrative example of how to interpret Table 2, electricity utilities report the following decarbonisation levers: producing and purchasing both renewable energy and alternative fuels, purchasing nature-based carbon credits, deploying CCUS and closing carbon-intensive power plants. As the utilities we assessed plan to both produce and purchase renewable energy and alternative fuels, the social impacts can arise in both their own operations and their upstream supply chains. As discussed, key transition minerals are required in the manufacture of renewable energy technologies such as solar panels and wind turbines. Therefore, renewable energy deployment can have additional social impacts linked to mining activities in the upstream supply chain, as can the purchase of nature-based carbon credits. Equally, CCUS and the closure of carbon-intensive assets, such as coal power plants can have direct social impacts for the utilities' own operations.

[2] The sample of companies comprises five airlines, nine auto manufacturers, five cement producers, seven chemicals producers, seven diversified miners, 21 electricity utilities, 12 oil and gas producers, and six steel producers. The illustrative analysis is based on disclosures made as of 23 June 2025.

Focusing on companies in the mining sector as a second example, these companies plan to both produce and purchase renewables and alternative fuels, meaning that impacts from the use of these levers can arise in both their own operations and their upstream supply chains. Critically, mining key transition minerals sits within the supply chain of every other assessed sector but has a direct operational impact on companies in the mining sector. Similarly, asset closures, such as the shutting of coal mines, have direct impacts. For mining companies, the only indirect social impacts in their supply chains relate to nature-based projects that are linked to purchased carbon credits.

Table 2 maps the potential social impacts to decarbonisation levers, as disclosed by companies across sectors in the sample, along with the parts of the value chain in which these impacts are most likely to occur.

Table 2. Social impacts mapped to decarbonisation levers, as disclosed by companies in the sample, and location in the value chain

Decarbonisation levers and activities	Renewable energy	Alternative fuels	Key transition mineral mines	New green industrial assets	Carbon capture, utilisation and storage (CCUS)	Nature-based solutions	Asset closure
Social impacts							
Electricity utilities	Building renewable capacity; purchasing clean electricity	Producing hydrogen; switching fuel from oil to biomass	Purchasing minerals required for solar panels and wind turbines	No evidence found	Developing CCUS	Purchasing nature-based carbon credits	Closing coal-fired power stations
Oil and gas	Building renewable capacity	Producing hydrogen; switching fuel from coal to biomass	Purchasing minerals required for solar panels and wind turbines	No evidence found	Developing CCUS	Purchasing nature-based carbon credits	No evidence found
Mining	Building renewable capacity; purchasing clean electricity	Producing hydrogen; biomass co-firing in thermal plants	Mining key transition minerals	No evidence found	No evidence found	Purchasing nature-based carbon credits	Closing coal mines
Steel	Building renewable capacity; purchasing clean electricity	Using hydrogen for process optimisation	Purchasing minerals required for solar panels, wind turbines and electric arc furnaces	Building electric arc furnaces	Developing CCUS	No evidence found	Closing conventional steel plants
Cement	Purchasing clean electricity	Switching fuel from oil to biomass; using hydrogen injection technology	Purchasing minerals required for electrification of key processes	Building low-clinker cement plants	Developing CCUS	No evidence found	No evidence found
Auto manufacturing	Purchasing clean electricity	Use of hydrogen in manufacturing plants	Purchasing metals required for batteries	Building EV plants	No evidence found	Purchasing nature-based carbon credits	No evidence found
Airlines	No evidence found	Switching from jet fuel to SAF	No evidence found	No evidence found	No evidence found	Purchasing nature-based carbon credits	No evidence found

Direct near own operations   Indirect in upstream supply chain   Both

Source: Authors' analysis.

3. Implications for companies and investors

Decarbonisation strategies vary widely across companies and sectors, as do the social risks they can generate. Managing these risks effectively requires companies and investors to develop a shared, sector-specific understanding of the social impacts that are most material for specific decarbonisation levers. For companies, this means integrating lever-specific social impact assessments into transition planning from the outset, rather than treating the just transition as a separate workstream layered on top of existing decarbonisation commitments. For investors, it means moving beyond broad portfolio-level assessment towards sector-specific engagement that is informed by the decarbonisation levers a company plans to use. Frameworks that adopt a sectoral lens, such as the Net Zero Strategies Framework for Diversified Mining (Modirzadeh et al., 2026), are beginning to generate data that will help investors and companies act on this basis.

The aim of highlighting concerns about the just transition is not to hinder the low-carbon transition, but to ensure that investors and companies are better prepared to prevent or address social impacts as they arise. Emphasising these risks is not an argument against decarbonisation, which remains essential and, on balance, beneficial for communities everywhere. It is an argument for managing a known set of risks so that the transition can proceed without avoidable disruption, litigation or loss of public support. A sector- and lever-specific approach makes it possible to anticipate this shift now rather than react to it once it has generated conflict or delays.

A natural next step is to examine the measures that companies are deploying in practice to reduce social harm – measures such as benefit-sharing, community consultation and social impact assessments. Further research is needed to assess where current corporate practice falls short of the requirements of a credible just transition. As high-emitting sectors continue to decarbonise, there is an increasingly urgent need to close the gap between identifying risks and knowing how to manage them.

The exploratory research in this brief is a first attempt at a consolidated view of the social impacts mapped to specific decarbonisation levers. This framing is not a finished or definitive account and is open to refinement as more data becomes publicly available and as practitioners test the framework. We welcome dialogue on this work from companies, investors and researchers, and expect our analysis to evolve as a result.

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