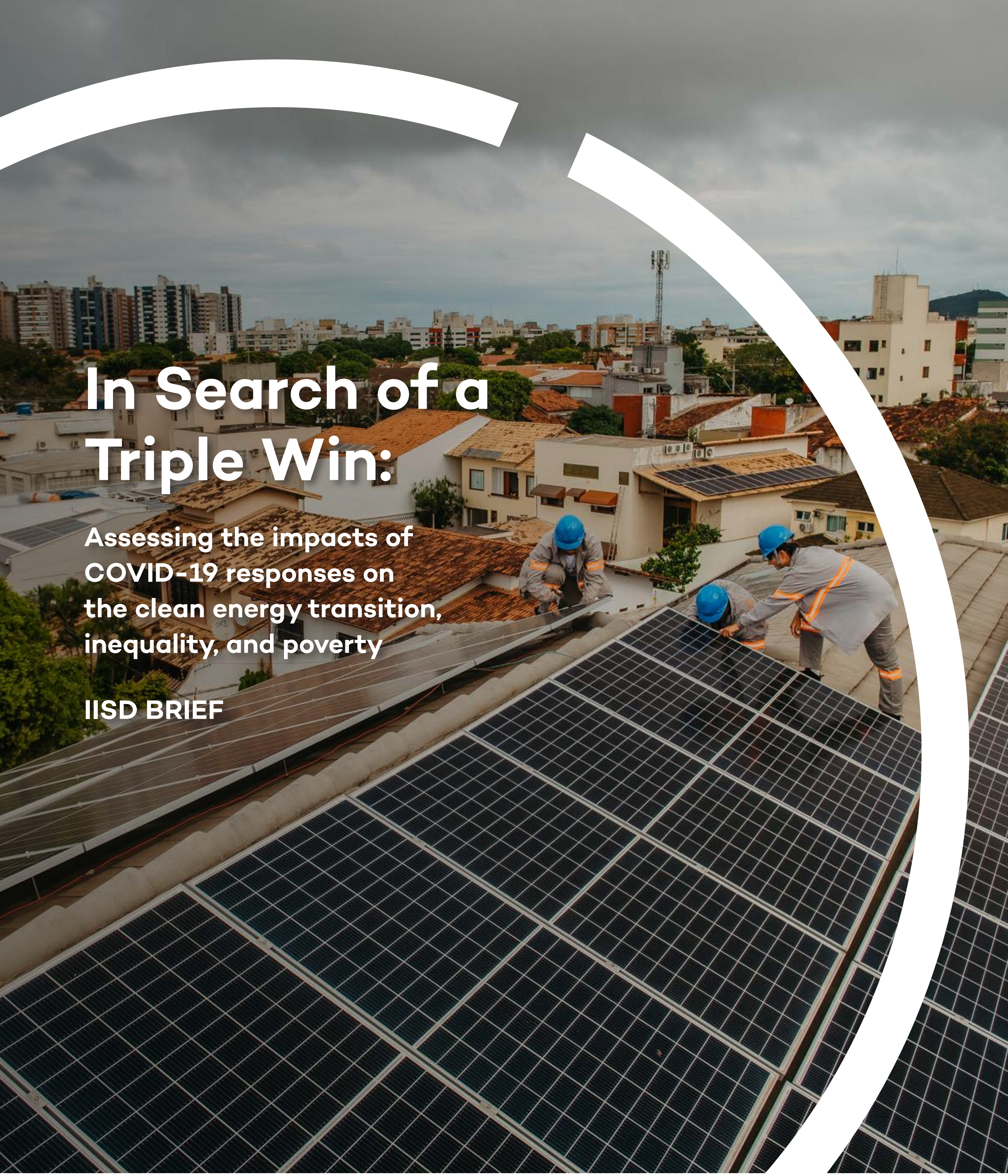

In Search of a Triple Win:

Assessing the impacts of COVID-19 responses on the clean energy transition, inequality, and poverty

IISD BRIEF

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April 2022

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Key Messages

1. Governments have yet to learn how to design policies on energy production and use in a way that reduces not only carbon emissions but also inequality and poverty.[1]

- The suite of responses to the COVID-19 crisis includes both fossil fuel and clean energy policies that fail to reduce poverty and inequality. But if policies are well designed or complemented with mitigation measures, negative social impacts can be avoided or offset.
- Our assessment of policies captured by the Energy Policy Tracker[2] concludes that only 13% of policies captured are "win–win" policies with both positive social and environmental impacts.
- A number of policies are "lose–lose," especially those linked to fossil fuel production. These policies are at risk of having detrimental social and environmental impacts. The social and climate risks of these policies appear too high to provide a valid rationale for governments to continue supporting them.
- Governments aimed their policies at poverty reduction more than at inequality reduction. In particular, 748 policies (60% of all policies) can decrease poverty if well-designed and implemented. In contrast, only 143 policies (11% of all policies) are likely to decrease inequality.

2. The poverty and inequality effects of policies on energy production and use must be considered separately in the short, medium, and long terms, as they are likely to vary over time.

- Policies that support fossil fuel consumption and production may provide some short-term social benefits (for example, by reducing energy prices), but these effects risk being outweighed over time because of the indirect social costs of environmental pollution and climate change.
- In contrast, clean energy policies can impose some short-term costs on households and firms, but adverse social impacts can be reversed as demand for clean energy products and services increases and as prices subsequently decrease for both
lower- and higher-income households.
- These timescales should be systematically assessed by governments when anticipating the social impacts of energy policies.

[1] We focus on *income* inequality and define it as the existing income gap between higher- and lower-income groups in a given country. We consider poverty impact as the way in which the lower-income groups are *economically* affected by policies. When relevant, we also considered the *multidimensional* aspect of poverty.

[2] Our analysis covers 1,047 policies approved in the buildings, mobility, power, and resource extraction sectors between January 2020 and November 2021 in 30 countries and European Institutions.

3. Policies that support energy production and use must be designed in a way that maximizes the positive social impact of policy interventions and be paired with social policies.

- The design of energy policies matters greatly to determine social outcomes. Design can include targeting lower-income households, including local communities in decision-making processes, and making industry bailouts conditional on decent work principles.
- Pairing energy policies with a broader set of social policies is essential to avoiding detrimental poverty and inequality impacts. This includes retraining lower-income workers, setting clear employment pathways for workers in soon-to-decline industries, and recycling revenues from carbon or energy taxes.
- Different contextual factors—such as average household energy spending, car ownership rates, or the extent of the informality of the job market—are critical elements that affect the social outcomes of policies on energy production and use. Such factors vary greatly across countries and explain differences in the inequality and poverty impacts of energy policies in low-, middle- and high-income countries.

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1.0 Introduction

Have governments been able to design their COVID-19 response policies in a way that ensures a clean energy transition, reduces inequality, and alleviates poverty? What are the outcomes achieved by their energy policies with regard to these distinct, but equally crucial, goals? What are the necessary considerations and conditions that would enable the achievement of all three?

This brief attempts to answer these questions through an assessment of policies captured by the Energy Policy Tracker (EPT) in 30 countries in four key sectors of energy production and use (buildings, mobility, power, and resource extraction) from January 2020 to November 2021. For brevity, we refer to these policies as energy policies throughout the study.

The social impacts of the clean energy transition have often been overlooked. Yet, they are tremendously important. Lower-income groups are least responsible for climate change (the poorest 50% of the world's population contributes only 12% of global emissions) but bear the brunt of climate inaction and have the fewest resources available to cope with its costs (Chancel et al., 2022). Conversely, the wealthiest 10% of the world's population is responsible for nearly half of greenhouse gas emissions (Chancel et al., 2022).[3] While global income inequality *between countries* has decreased since the 1990s, inequality *within countries* has increased during the same period (World Bank, 2016).[4]

As governments ramp up efforts to limit global warming to 1.5°C and accelerate the transition toward a clean energy future, it is essential to ensure that social justice[5] is placed at the heart of climate action and that those who contribute the least to climate change do not pay the highest costs of the energy transition. The failure to account for poverty and inequality effects increases the risk that energy policies (including fossil fuel policies) will impose a relatively higher burden on lower-income groups; this can happen due to increases in energy costs, unequal access to environmental goods and services, and higher job losses in fossil fuel-producing regions or fossil-intensive sectors. In turn, there is a risk of undermining the public acceptance of energy policies that are urgently needed to limit climate change.

The COVID-19 crisis has further exacerbated poverty and inequality in many countries, with a projected increase in the global poverty rate[6] (World Bank, 2021). Several governments

[3] The per capita emissions of the wealthiest 10% are systematically higher than those in the bottom 50% of income distribution, with the highest differences in countries such as China, Indonesia, Mexico, and South Africa, where the per capita emissions of the wealthiest 10% are between 10 and 12 times higher than the bottom 50%. A more detailed overview can be found in the Inequality and Poverty Dashboard (https://www.energypolicytracker.org/inequalities).

[4] It is noteworthy that the Gini coefficient has increased the most from 2008 to 2020 in a number of countries, including New Zealand, Australia, South Africa, Turkey, and India. A more detailed overview of several key poverty and inequality indicators can be found on the Inequality and Poverty Dashboard (https://www.energypolicytracker.org/inequalities).

[5] Social justice has a wide range of goals, including ensuring everyone has access to equal economic, social, and political rights and opportunities. In this brief, we have a particular focus on the distributional dimensions of justice and how to redress income inequalities and monetary and multidimensional poverty.

[6] The World Bank estimates that an additional 97 million people will be in poverty in 2020. This estimate is based on a USD 1.90 a day poverty line; the impact of the pandemic on poverty could be even more acute if a higher poverty line were considered.

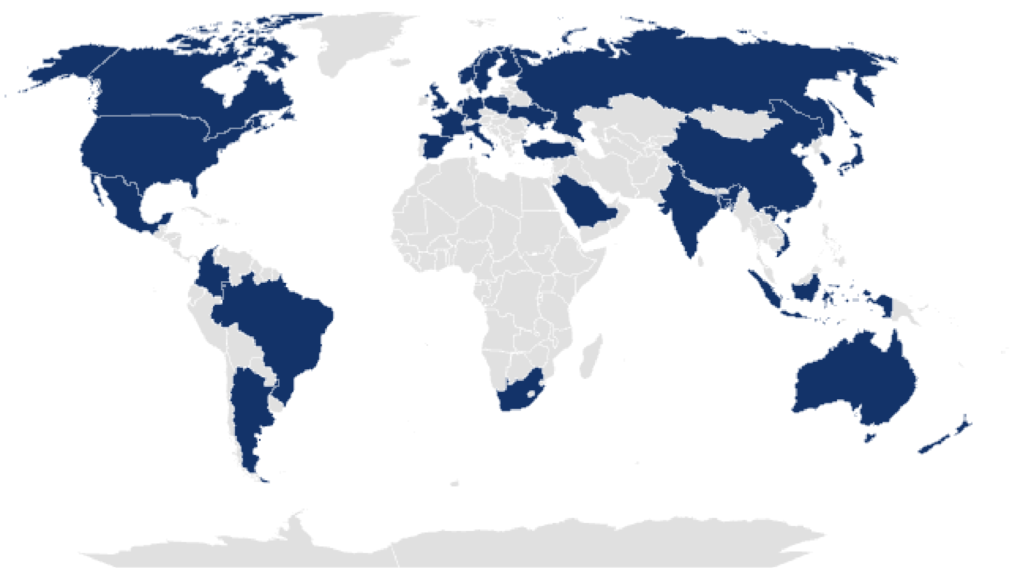
have, in response to the COVID-19 pandemic, adopted clean energy measures with potentially wide-ranging economic and environmental benefits in terms of emission reductions, green job creation, and access to energy-efficient and climate-resilient infrastructure (EPT, 2021). Yet most governments have also doubled down on support for carbon-intensive investment, propping up fossil fuel consumption and production (Stockholm Environmental Institute et al., 2021). A systematic assessment of the poverty and inequality impacts of these exceptional energy policy responses is still missing—and crucial to understanding which population groups stand to benefit and lose the most from the implementation of different types of energy policies.

1.1 Methodology

This brief summarizes the main findings from the EPT's Inequality and Poverty Dashboard (hereafter "the Dashboard"). It draws policy recommendations from the potential inequality and poverty impacts of different types of energy policies approved by governments during the COVID-19 pandemic.

The Dashboard analyzes the social outcomes of energy policies based on a review of available literature and a dedicated conceptual framework[7] (EPT, 2021). The EPT Dashboard dataset includes 1,047 policies adopted by 30 governments, as well as European institutions, between January 2020 and November 2021 (Figure 1).

Figure 1. Overview of the 30 countries covered in the EPT Inequality and Poverty Dashboard



[7] The main steps of the methodology are available in Annex 1. A detailed description of the framework used can be found in the methodology page of the Inequality and Poverty Dashboard (https://www.energypolicytracker.org/inequalities-methodology/).

Box 1. The Energy Policy Tracker

The EPT website showcases information on new public money commitments made by governments (via financial and regulatory policies) for different energy types and other policies supporting energy production and consumption since January 2020. The EPT focuses on four key sectors that produce and consume energy: buildings, mobility, power, and resource extraction. It determines whether policies approved by governments support fossil fuels or clean energy, with or without environmental conditionalities attached. The research follows a bottom-up approach, which involves collecting data on individual policies at the level of an individual government and then aggregating them to compare public money commitments for different energy types. The database uses only publicly available information and may therefore not fully reflect governments' actions. A full description of the EPT's methodology can be found on the website (see link below). The EPT covers over 30 countries, including all of the G20 countries. The data analyzed in this study comes from 30 countries, as well as European institutions.

EPT website: https://www.energypolicytracker.org/methodology/

For the purpose of this analysis, the policies are grouped into what we call "policy categories" (a full list is available in Annex 2). Policy categories group similar policies together for each of the sectors covered in the EPT (buildings, mobility, power, and resource extraction) based on their incidence (support to consumption, production, or infrastructure) and their classification in the EPT (clean, fossil fuel, or other energy). Based on a review of the literature and a dedicated framework, each policy category's likely impacts on within-country economic inequality and poverty are then assessed.

We applied a conservative approach to our analysis, taking into account the many unknowns and contextual factors. As a result, a number of policy categories were found to have unclear effects on poverty and/or inequality, either because available literature is scarce or inconclusive or because such effects are found to depend heavily on the social, economic, and geographic contexts that specific policies are implemented in.

Box 2. Defining poverty and inequality

In this brief, we used the "poverty" and "inequality" dimensions as proxies for policies' social outcomes. There is no single definition of poverty or of inequality. Both are distinct yet related terms that can take multiple forms. In the Dashboard, inequality and poverty are defined in qualitative terms. We focus on *income* inequality and consider it as referring to the existing income gap between higher- and lower-income groups in a given country. While inequality looks at the whole income distribution, poverty focuses on the lower end of the income distribution. We therefore consider poverty impact as the way in which the lower-income groups are *economically* affected by policies. When relevant, we also considered the *multidimensional* aspect of poverty, encompassing the many deprivations that can be experienced across different areas of people's lives.

A number of metrics can be used to measure poverty and inequality. For inequality, the most common indicators include the Gini coefficient or the Palma ratio. For poverty, this includes international poverty lines or relative poverty rates defined at the national level. It is not in this brief's scope to discuss the relevance of these different metrics. The Dashboard, however, provides an overview of the 30 countries' performance in relation to a set of key inequality and poverty indicators.[8]

1.2 Value and Aims of the Analysis

This brief and the Dashboard complement the EPT with an analysis of the likely social outcomes of energy policies adopted in response to and during the pandemic. A large number of these policies are direct COVID-19 response measures, but most of them were implemented in one form or another prior to the COVID-19 period and will continue being implemented thereafter. Our inequality and poverty assessment therefore remains valid irrespective of the pandemic context, as these types of energy policies are not unique to the pandemic and can be implemented at any period of time by governments.

The Dashboard's findings also provide an overview of the challenges policy-makers may encounter when designing and implementing energy policies with both positive and negative socio-economic impacts. In doing so, the Dashboard supports future work from researchers and policy-makers to further shed light on the complex links between energy policies, poverty, and inequality.

The following sections present the main findings of our analysis, which is structured around three key themes. In Section 2, we present the overall findings of the expected impact of EPT policies on poverty and inequality. In Section 3, a sectoral lens is applied to these findings to shed light on which sectors present the highest social risks and opportunities. Section 4 follows by discussing the contextual factors, policy design elements, and complementary policies that affect the direction and magnitude of impacts for each policy category. The final two sections provide some conclusions and offer policy recommendations.

[8] Several of these metrics can be found in the Inequality and Poverty Dashboard (https://www.energypolicytracker.org/inequalities).

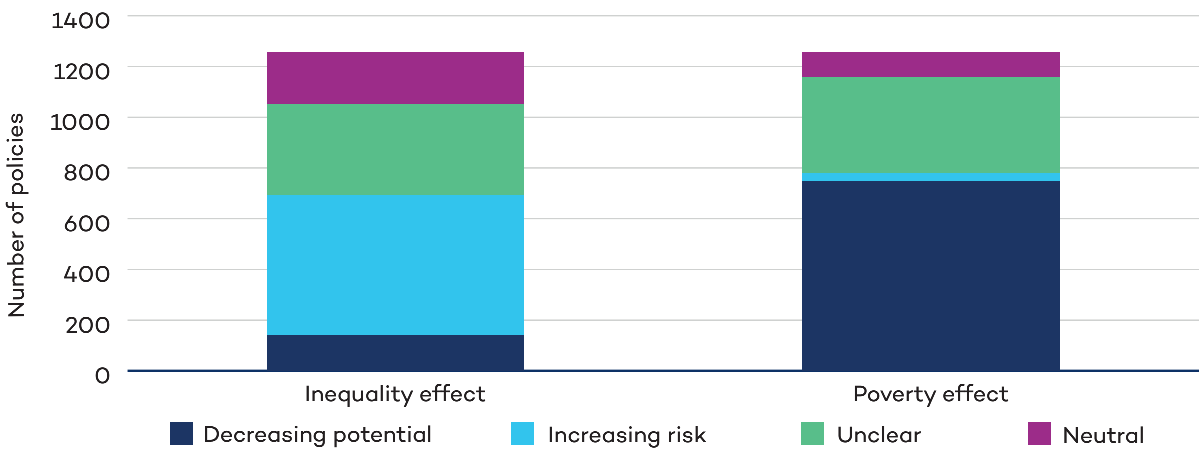
2.0 Energy Policies Under a Poverty and Inequality Lens

This section provides an overview of the key trends related to the inequality and poverty effects of energy policies adopted during the COVID-19 period. It is articulated around four overarching findings.

2.1 Distinct Outcomes for the Assessment of Inequality and Poverty

If well designed and implemented, we find that 60% of energy policies approved between January 2020 and November 2021 could contribute to poverty reduction.[9] Yet only 11% of energy policies are likely to decrease inequality (Figure 2). This may reflect governments' preference to tackle the short-term poverty impacts of the COVID-19 pandemic by providing immediate support to industries and households without considering the effects on the entire income distribution.[10] It points to the need for policy-makers to increase the attention paid to the inequality implications of energy policies.

Figure 2. Expected inequality and poverty effects of energy policies approved between January 2020 and November 2021



Source: Author's analysis using data from EPT, 2021.

Note: A number of policies listed in the EPT were categorized in more than one policy category. The total number of policies falling in each poverty and inequality assessment is therefore higher than the number of policies analyzed in our inventory.

[9] The percentages refer to the share of policies responding to a specific inequality and poverty impact. Some policies were associated with more than one policy category and are therefore counted twice.

[10] An example of this is how, during the pandemic, many governments have provided bailouts to their airline industries, which, by maintaining employment for airport workers, can lead to short-term poverty-reducing impacts.

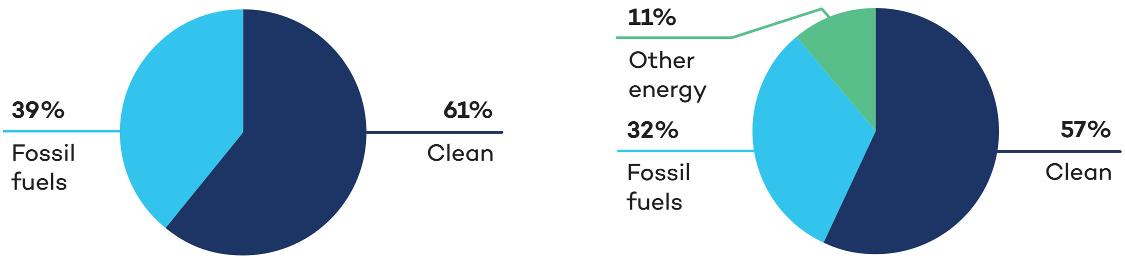
This main finding also highlights the fact that the same energy policy can impact inequality and poverty in different directions. Policies that are likely to decrease poverty can also benefit higher-income households relatively more, therefore increasing inequality.

In particular, we find three policy categories that risk increasing inequality while being likely to reduce poverty. These categories are *airline bailouts*, the policy category that received the largest amount of support in financial terms and is found in most high-income countries; *subsidies to encourage electric vehicle (EV) purchases and use*, adopted in countries such as the United Kingdom, China, and Germany; and *government support for energy-efficiency retrofits in private housing* in countries such as France, Canada, South Korea, and Brazil. For retrofits in private housing and support for EVs, for example, policies tend to initially cater more to higher-income households who can better capture the benefits of such incentive schemes. At the same time, these policies are likely to reduce poverty due to the labour intensiveness of such activities and the recruitment of low-skilled workers.[11] A number of other underlying factors can affect poverty reduction, including cost reductions, beneficial impacts in terms of health and pollution reduction, increased wages, and improved access to goods and services for lower-income groups.

2.2 The Complex Relationship Between Social and Environmental Impacts

Our findings also go against the preconceived idea that clean policies are systematically progressive while fossil fuel policies are always regressive. Looking at the most prevalent direction of impacts for inequality and poverty—the 555 policies at risk of increasing inequality and the 748 policies likely to reduce poverty—we find that there is no evident relationship between the environmental and social impacts of energy policies. In Figure 3, it is noteworthy that out of all the policies at risk of increasing inequality, 61% support clean energy while 39% support fossil fuels. Out of all policies likely to alleviate poverty, 57% support clean energy while 32% support fossil fuels. This, in particular, highlights the importance of thoroughly assessing the anticipated social impacts of clean policies in order to avoid their potential regressive effects.

Figure 3. Type of energy supported by policies at risk of increasing inequality (left) and likely to decrease poverty (right).



Source: Author's analysis using data from the EPT, 2021.

[11] See Section 3 for a more detailed overview of the poverty and inequality impacts per sector.

2.3 Poverty and Inequality Effects Vary Over Time

The poverty and inequality impacts of energy policies also vary in the short, medium, and long terms. For instance, policies supporting the consumption of fossil fuels are often justified as they provide immediate relief to industries and households by temporarily reducing energy prices.[12] However, over time, policies that encourage fossil fuel consumption also risk increasing the vulnerability of households to fossil fuel price increases (due to the volatility of fossil fuel supply and demand that affects fossil fuel prices) (Global Subsidies Initiative, 2020).

A similar analogy can be made with policies supporting fossil fuel production. In the short term, these policies can increase energy security and lead to an increase in domestic employment. However, there are important social and environmental trade-offs to these policies, with risks of increasing both poverty and inequality over time. Policies supporting fossil fuel production increase local air pollution with higher effects on lower-income groups and can lock economies into high-carbon pathways and hamper economic diversification efforts. In contrast, clean energy policies can impose short-term costs on households and firms, but adverse inequality impacts can be reversed over time as demand for clean energy products and services increases and as prices subsequently decrease both for low- and high-income households.

2.4 Win–Win and Lose–Lose Policies

Our analysis also helped identify several "win–win" policies, which have positive clean energy and social outcomes, and "lose–lose" policies, which risk being detrimental from both climate and social standpoints.[13]

The win–win policies include government support for energy-efficiency programs in social housing and public and commercial buildings, as well as government support for cycling.[14] These policies currently represent only about 13% of policies in our dataset, which shows that there is still an opportunity to significantly increase government support for such measures. For example, countries have committed about USD 33 billion for energy efficiency in buildings, but retrofits in social housing represent less than 1% of these total commitments and are linked to only a small number of policies in Canada, New Zealand, Spain, and the United Kingdom. There are real-world examples of how to achieve such win–win policies: in Denmark (which is not analyzed in the EPT), the government committed USD 4.8 billion as part of its National Buildings Fund to improve green renovation in social housing (State of Green, 2020).

[12] While subsidies that encourage fossil fuel consumption may reduce poverty in the short term, they can also increase inequality in the same time frame, as they benefit higher income groups more (Coady et al., 2015).

[13] We call policies "win–win" if they are classified as clean in the EPT and have a positive/neutral effect on inequality and poverty. We call them "lose–lose" if they are classified as fossil fuels in the EPT and have negative effects on at least one social dimension, the others being unclear or neutral.

[14] In the case of energy-efficiency programs in public and commercial buildings, and government support for cycling, our analysis showed a neutral impact on inequality despite poverty-reducing and positive climate impacts.

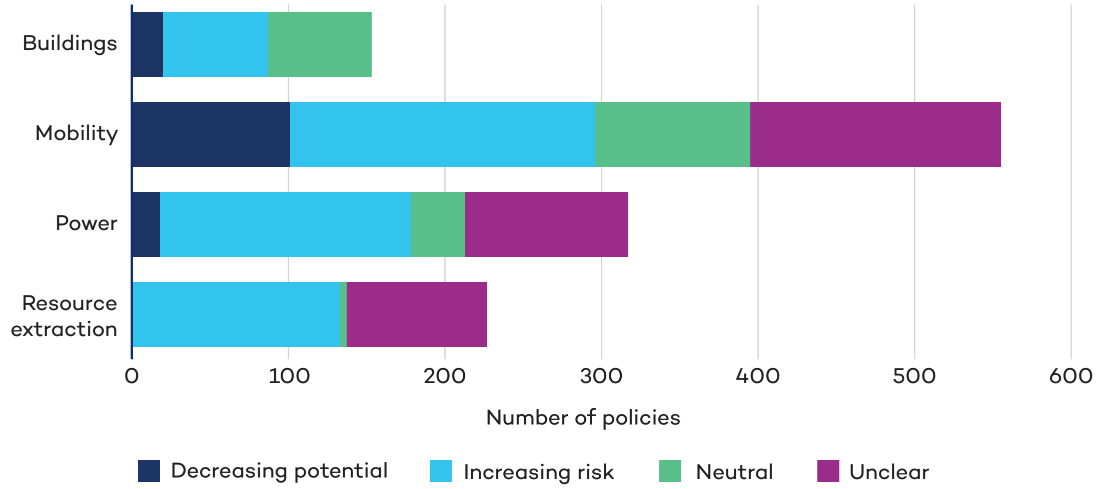
In contrast, several policies are detrimental from a climate standpoint and are at high risk of having negative social outcomes. These policies are mostly in the resource extraction sector, such as government support for the exploration, domestic production, and extraction of fossil fuels. Countries such as India and China have, for example, invested heavily during the pandemic in new coal power plants, coal to chemical projects, and coal transportation infrastructure. While these investments trigger an increase in energy supply in the short term, they also present significant social and climate risks in the medium and long terms. These policies can create jobs in the industry, including for lower-income and sometimes high-income workers. However, these jobs are often spatially uneven, as fossil fuel production targets mostly certain regions, and are at risk as the world shifts away from fossil fuels. These policies are also at high risk of increasing inequalities by centralizing wealth in the hands of industry executives, negatively affecting the livelihoods of local communities, and increasing their exposure to air pollution and climate impacts (Loayza & Rigolini, 2016; Odumosu-Ayanu & Newman, 2020; Ross, 2012).

Social policies that have the potential to be progressive can also be combined with policies that benefit fossil fuel production and will have detrimental environmental impacts. In Argentina, for example, 25% of the revenues from a wealth tax implemented during the COVID-19 pandemic (USD 1.1 billion) was redirected to increase gas exploration and extraction (EPT, 2021). In addition to exacerbating climate risks, using revenues in such a way is a lost opportunity to reduce inequality and redistribute wealth from higher- to lower-income groups. In the case of Argentina, these revenues could have been better used by funding social protection and aiding small and medium-sized enterprises, as is the case for the remainder of the revenues generated from the wealth tax.

3.0 Understanding Sector-Specific Risks and Opportunities

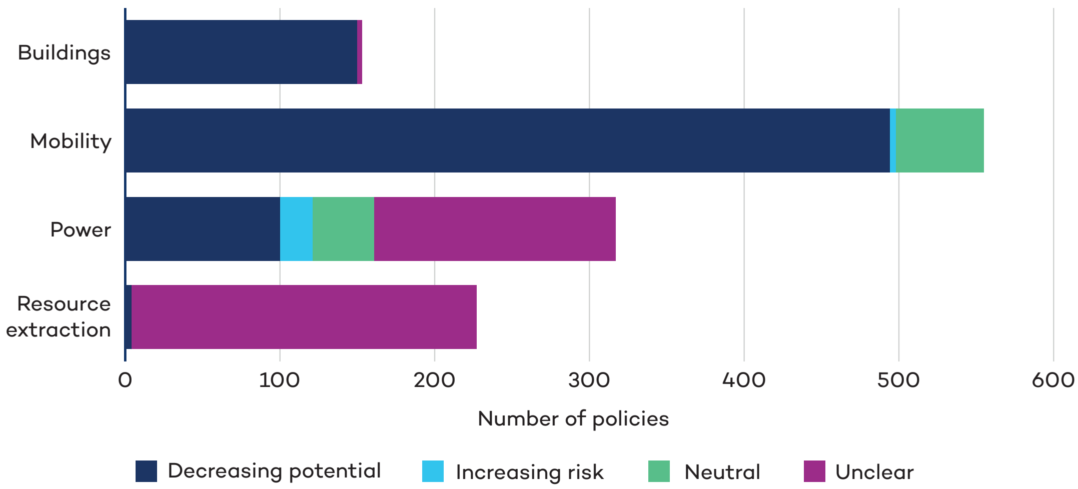
This section analyzes the social risks and opportunities related to policy interventions in the buildings, mobility, power, and resource extraction sectors. Our research shows that inequality and poverty effects vary across sectors. These sectoral patterns can provide useful guidance to policy-makers when prioritizing, designing, and implementing energy policy interventions.

Figure 4. Number of policies committed to energy-consuming and producing activities in response to COVID-19 since January 2020 at risk of affecting inequality, by sector



Source: EPT, 2021.

Figure 5. Number of policies committed to energy-consuming and producing activities in response to COVID-19 from January 2020 to November 2021 at risk of affecting poverty, by sector



Source: EPT, 2021.

3.1 The Mobility Sector: Large government support, mixed social effects

The mobility sector received the largest amount of public money committed as part of the COVID-19 response (USD 420.3 billion, or 50% of new public money committed between January 2020 and November 2021) (EPT, 2021). The scale of support to the mobility sector in response to the COVID-19 crisis underscores the need to tackle the inequality and poverty risks associated with these policies.

By value, the bulk of government support to the sector was classified as fossil fuel policies in the EPT. Mobility policies that support the consumption of fossil fuels include support for the production and purchase of internal combustion engine cars, transport fuels, and road infrastructure, as well as for the airline and shipping industries. Although internal combustion engine and road infrastructure policies present a short-term poverty alleviation benefit by improving accessibility to cheaper means of transportation for the low-income groups and creating jobs, the indirect social costs caused by their negative environmental and climate impacts are likely to outweigh the benefits over time. Bailouts to airline companies stand out as a specific case, as they concentrated more than USD 158 billion in public money commitments through the COVID-19 response. Despite their potential for poverty reduction through employment support,[15] they are at high risk of increasing inequality if public money commitments primarily benefit airline shareholders and high-income passengers. These social risks, as well as the potential climate impact of aviation, support associating airline bailout policies with environmental and social safeguards. Such safeguards were, however, not generally included in the policies announced since January 2020 (EPT, 2021; Transport & Environment et al., 2021).

Clean mobility policies include support for the production and purchase of EVs, investment in public transportation, and investment in active mobility, such as cycling. These investments are usually considered to have poverty-reducing potential, as they alleviate transport exclusion and poverty (Benevenuto & Caulfield, 2019; Lucas et al., 2016). When it comes to inequality, special attention is required to ensure that low-income groups are the primary beneficiaries of policies or that wealthier groups do not disproportionately benefit. For instance, in the absence of targeted design, support for EVs is at risk of increasing inequality in the short term because of the large upfront costs inaccessible to low-income consumers. As a result, the benefits of these policies are mainly captured by those who can afford EVs[16] (Borenstein & Davis, 2016; Guo & Kontou, 2021; Lu et al., 2021; West, 2004). In the medium and long terms, the drop in air pollution and health impacts associated with the uptake of public transportation, EVs, and active mobility will further increase the social benefits of these policies.

[15] In many cases, bailouts were introduced to maintain employment in the industry, which can have a positive effect on poverty compared to the counterfactual scenario in which no policy had been adopted.

[16] This finding is especially relevant for electric cars. Because of relatively lower purchase costs, electric two- and three-wheelers are more affordable for low-income households, and support policies present smaller risks of increasing inequality.

3.2 The Building Sector: Potentially high social benefits, low government support

Policies in the buildings sector largely favour a clean energy transition by supporting energy efficiency or switching to renewable heating. While these policies are likely to benefit poverty alleviation by spurring job creation, leading to energy costs savings and improving multidimensional poverty (Berry, 2018; Pivo, 2014), they are also at risk of increasing inequalities due to the high upfront costs of retrofits—meaning that they are initially only affordable by better-off households (Borenstein & Davis, 2016; Xu & Chen, 2019). This risk can, however, be limited by designing policies in a way that increases the outreach to—and financing support for—low-income homeowners and by limiting the indirect consequences of retrofits on the housing market, such as rent increases and gentrification (Bouzarovski et al., 2018). Conversely, in the absence of climate or efficiency standards, support policies in the building sector can make low-income households more vulnerable to energy price increases and volatility by maintaining them in energy-intensive housing.

The buildings sector received the smallest public money commitments identified over the reviewed period (USD 47.5 billion, or 6% of new public money committed) (EPT, 2021). This is a missed opportunity considering the untapped potential of emission reductions through energy efficiency and the related social benefits of such policies in this sector.

3.3 The Power Sector: Mitigable social risks, critical impact on the future of energy systems

The power sector received a considerable amount of public money commitments identified in COVID-19 policy responses (USD 138.6 billion, or 16% of new public money committed) and is associated with mixed risks (Figure 4 and 5).

Policies directly targeting consumers are likely to have a more pronounced social effect than those benefiting energy suppliers and infrastructure investment. In particular, the introduction of fossil fuel and electricity consumer subsidies is often justified by the short-term benefits for poverty alleviation through a direct reduction in energy bills (Chancel, 2020; Zachmann et al., 2018). However, trade-offs and opportunity costs must be carefully assessed. The literature overwhelmingly points to the inequality-increasing effect of such policies,[17] and consumer subsidies contribute to both an increase in greenhouse gas emissions and incentivizing energy-intensive consumption patterns (Kuehl et al., 2021). In many cases, other types of support are better suited to achieving social outcomes (Bridle et al., 2019; Sanchez et al., 2021). The removal of subsidies is praised for its positive climate impact but must be accompanied by complementary policies to mitigate adverse social effects in the short term. Reform of such subsidies with a redistribution of revenues to lower-income households is an effective way to support the energy transition and mitigate social impacts (Global Subsidies Initiative, 2020).

[17] Because of geographic variations, especially in countries with low access to energy, we have, however, classified policy categories related to consumer fossil fuel subsidies as “inequality unclear” in our analysis.

Given that a sharp increase in investments is needed to boost renewable-energy generation and enable the transition to net-zero (International Energy Agency, 2021), special attention must be paid to the social effects of policies supporting this goal. Some renewable support mechanisms, such as feed-in tariffs, are at risk of increasing inequality in the short term by raising the cost of integrating renewable electricity into the grid and impacting lower-income households' energy spending relatively more than higher-income households (Borenstein & Davis, 2016; Lamb et al., 2020). There are complementary policies that mitigate such risks (see Section 4). Similarly, even though policies supporting fossil fuel-based and nuclear power generation may only be associated with small direct effects on inequality and poverty, this could be rapidly reversed in the event of high volatility or an increase in energy or electricity prices.

3.4 The Resource Extraction Sector: High climate risks, high social risks, few social rewards

The resource extraction sector received USD 77.0 billion, or 9% of new public money committed between January 2020 and November 2021. While energy policies supporting the exploration, extraction, and production of fossil fuels unequivocally contribute to climate change, their social impacts are difficult to assess. This is due to conflicting effects on job creation, energy security, local environmental pollution, induced spatial inequality, and uncertain consequences on the economy (Muttitt & Kartha, 2020; Stevens et al., 2015). Our analysis finds that four of the five policy categories identified in this sector[18] have unclear effects on poverty and a high risk of increasing inequality; the actual effect depends on national circumstances and the regulations in place. As the impacts of climate change grow and disproportionately affect the most vulnerable, low-income communities, these policies are likely to have a much clearer detrimental social effect. One policy category that may contribute to poverty reduction is supporting the clean-up and remediation of abandoned wells or mines, as such policies can reduce local environmental pollution (Dybowska et al., 2006) and provide fossil fuel-dependent regions with economic opportunities while they diversify their activities (Pavloudakis et al., 2020; Zhao et al., 2020).

[18] The categories include government support for the domestic exploration, extraction, and production of fossil fuels; support for enhanced private sector participation in fossil fuel extraction; investment in transportation and storage infrastructure; and support for the use of renewable energy in fossil fuel extraction activities.

4.0 Contextual Factors, Policy Design, and Complementary Policies Matter the Most

4.1 Inequality and Poverty Effects are Context-Specific

Policy impacts cannot be assessed without considering the broader environment in which they are implemented. Our category analysis identified several *contextual factors* that are likely to affect the direction and/or scale of impacts energy policies could have on poverty and inequality. These factors are reflections of the geographic, economic, social, and regulatory contexts in which real policies are implemented.

As Table 1 shows, some of those factors are sector-specific while others are common to more than one or all energy-intensive sectors. For example, the size of government investment programs and the degree to which companies pass losses or profits deriving from policy implementation on to workers and/or consumers were found to affect the expected impacts in most sectors. Similarly, the share of skilled or unskilled labour in a sector or industry is key to determining the direction of the social impacts. Policies that affect industries primarily relying on a low-skilled workforce therefore have a higher likelihood of impacting inequality and poverty.

An example of sector-specific factors can be found in the mobility sector. The social impact of policy categories analyzed in this sector depends on factors such as the configuration of urban and rural areas, available transportation options, and the ridership demographics of those who use such options. For instance, policies subsidizing the price of public transport fares for users[19] have clear poverty-reducing effects but may increase or decrease inequality depending on factors such as lower-income residents living on the peripheries or in inner cities or final fares being flat or distance-based.

Our analysis also found that there are important differences between higher- and lower-income countries when it comes to the social outcomes of certain energy policies.[20] These disparities can be explained by the fact that some contextual factors vary substantially between lower- and higher-income countries (Table 1). These factors include—but are not limited to—energy access rates and the average household energy spending, car ownership rates, the level of informality in the job market, or the stock and state of infrastructure affected by government programs. For example, policies increasing the price of transport fuels[21] tend to be more progressive in low-income countries than in high-income countries because of structural differences in car ownership rates. In low-income countries characterized by lower car ownership rates, an increase in transport fuel prices tends to affect relatively more higher-

[19] Examples of these types of policies are the transport fee caps introduced in July 2020 and the free transit for youth approved as part of the budget in April 2021, both in British Columbia, Canada (EPT, 2021)

[20] It is worth noting that the literature the Dashboard relies on is as geographically balanced as possible but tends to be more skewed toward high-income than middle- and low-income countries.

[21] Examples of these policies are excise duty hikes on the retail sale of gasoline and diesel introduced in India in March 2020 and the tax on greenhouse gas emissions for fuels, heating, and gas approved in Germany in January 2021 (EPT, 2021).

income households, as car ownership is concentrated at the top of income distribution. Conversely, in high-income countries characterized by higher car ownership rates, fuel price increases affect the expenditure of almost everyone in the income distribution, disproportionately disadvantaging lower-income households (Bento et al., 2005; Flues & Thomas, 2015; Lamb et al., 2020; Zachmann et al., 2018).

Table 1: Main contextual factors identified across the 32 policy categories in the mobility, buildings, power, and resource extraction sectors

EPT Sectors	Mobility	Power	Resource	Buildings
Most common contextual factors **(Sector specific)**	• Public transport/bike/ conventional car ridership demographics and patterns* • Size and density of metropolitan areas; location of key resources (hospitals, jobs, government services) with respect to various transport options • Availability of alternative transport options for low-income communities • Income level makeup of car owners in the country/car ownership rates among lower-income households* • Location of vehicle manufacturers and labour intensity of the industry • Economic size of the car industry	• Degree of volatility of gas and electricity prices • Electricity/gas consumption patterns, and shares of households' income spent on electricity/gas* • Characteristics of the firms affected by gas/ electricity subsidies (e.g., size/energy intensity/type/ target consumers/ability to substitute factors of production) • Electrification rates/ demographics of the population with grid access/ reliability of electricity grids* • Share of renewables/fossil fuels/nuclear in the energy mix	• Extent of migratory nature of resource extraction work* • Location of resource extraction sites in relation to local/Indigenous communities • Nature of resource extraction activities (type of fuel extracted, short-term versus long-term projects)	• Income level of households accessing subsidies for energy-efficiency retrofits • Changes in energy costs over time, both affiliated and unaffiliated with the effects of the energy-efficiency programs • Income level/energy poverty level of the population living in social housing • Energy performance of the social housing stock • Rent market regulations (e.g., the existence of rent control policies) • Proportion of the population working in unsafe/under-heated/under-cooled environments

Contextual factors that are common to two or more sectors	• National income distribution • Employment makeup of affected industries, especially skilled versus unskilled labour shares (EV infrastructure/EVs and conventional car manufacturing/fossil fuel/renewable power sector/extractive industry/remediation and clean-up industry/renewable-energy installation) • Country's broad economic situation and unemployment levels (both at local and national levels) • Size of government investment programs • Share of urban versus rural population and extent of rural poverty as opposed to urban poverty* • Homeownership rates and distribution across the income scale • Prevalent housing/building types* • Tariff structure (gas, electricity, public transport fares) • Infrastructure location (public transport, EVs charging/bike sharing, renewable-energy installations, hydro/nuclear installations, resource extraction sites) • Extent to which businesses pass profits/losses on to workers/consumers • Opportunity costs of the policy's government support as opposed to more generalized welfare support, and decisions by the government to reinvest savings into social welfare programs • Average household energy spending* • Extent of the informality of the job market* • Current stock and state of infrastructure affected by government programs*

Note: The contextual factors marked with an asterisk tend to present substantial differences between lower- and higher-income countries and hence often determine different social outcomes for the same types of policies if applied in lower-income countries (as opposed to higher).

Source: Authors' analysis based on full category analysis.

4.2 Policy Design and Complementary Policies Can Mitigate Negative Social Outcomes

Policy design elements and complementary policies are both determining factors in each policy's social outcomes (Lamb et al., 2020; Zachmann et al., 2018). When well implemented, they can improve the effectiveness of policies or mitigate their expected negative social outcomes.[22] For all policy categories in our analysis, we were able to identify a number of design elements and complementary policies that could either increase the likelihood and magnitude of positive social outcomes or mitigate social risks associated with the policies.

Among the main design elements that can help guarantee policies are fair and protective of those most vulnerable (see Table 2), we identified:

- Targeting government incentives for low-income households through direct cash transfers[23]
- Making industry support conditional on consumers' and workers' protection
- Implementing policies progressively over time
- Including local communities in decision-making processes.

Furthermore, governments can influence the impact of energy policies by implementing separate complementary policies, such as proactive job policies (training/retraining schemes, setting clear employment pathways for workers in soon-to-decline industries), revenue recycling policies using carbon or other fossil fuel taxes to protect consumers from energy price increases, or policies increasing the progressiveness of the general taxation system.

As the EPT shows, a few COVID-19 response policies included progressive design elements. Due to a lack of relevant data, we have limited evidence of the introduction of complementary policies aimed at mitigating/enhancing the general policies' social outcomes. A few examples stand out:

- The Swedish "green jobs program" first proposed in April 2020 explicitly targeted long-term unemployed people and the creation of low-skill jobs in green sectors.
- Colombia targeted electricity and gas price support for low-income and unemployed consumers in July 2020.

[22] There is an evident interplay between the contextual factors discussed in the previous section and the policy design and complementary policies. It was not in the scope of our analysis, however, to assess the extent to which policy design and complementary policies take into account or make up for the effects of contextual factors.

[23] The recommendation to target policies at the most vulnerable groups to improve social outcomes, as opposed to betting on a more universal reach of policy interventions, was a recurring element in most of our categories' analysis. However, it is important to note that, while there are certainly equality benefits to the targeting approach, targeting often comes with high administrative costs and the risk of not reaching all eligible groups and may not necessarily be the best choice in the long term when universal access to certain services (e.g., transport infrastructure) may instead guarantee that those services are taken care of and subject to continuous investments. The merits of targeted versus universal approaches were outside of the scope of our work, but this is an important and still open debate (Budowski & Künzler, 2020; Mkandawire, 2005).

- The agreement reached in Poland in September 2020 to phase out the coal mining industry by 2049 guarantees miners' jobs until their retirement or, when not possible, provides adequate social protection.
- Nine clean energy projects supported in British Columbia, Canada, from April 2021 were led by and targeted at Indigenous communities (EPT, 2021).

Evaluating the effect of policy design is complex, and complementary policies may be implemented outside of the energy-consuming and producing sectors. This makes it particularly challenging to quantify the extent to which policy design and complementary measures can offset energy policies' negative social impacts (see Box 3). Nevertheless, our analysis and other policy debates show that, while complementary policies are not implemented frequently and thoroughly enough, there is a lot of experience with how to identify the right complementary policies (Chancel, 2020; Lamb et al., 2020; Zachmann et al., 2018). There is therefore no reason why they should ever be overlooked by policy-makers.

Table 2. Main policy design elements and complementary policies identified across the 32 policy categories in the mobility, buildings, power, and resource extraction sectors

Policy design elements	Complementary policies
• Targeted incentives for low-income groups (including cash transfers and loans) • Rebates/incentives/subsidies being subject to income tiers and/or income caps • Spatial targeting, with priority for interventions in rural areas • Conditionality of government support to companies on obligations to provide consumer support for low-income groups and job retention • Progressive/phased implementation of policies over time • Inclusion of economically vulnerable groups, including local and Indigenous communities, in decisions to implement projects (e.g., consultations, compensation schemes)	• Targeted government incentives for low-income groups (including cash transfers and loans) • Job training/retraining for workers and clear employment pathways for workers in soon-to-decline industries • Tying the taxation of fossil fuels to the social costs associated with their production and consumption • Tying profits from resource extraction to increased wages for workers and social programs in local communities • Programs to improve education and consumer awareness in areas where the adoption of incentives is low • Revenue recycling (e.g., for fuel taxes) to programs targeting low-income groups • More progressive general taxation systems

Box 3. The complex implementation of policy design and complementary policies

This box focuses on one policy tracked in the EPT—the **Green Homes Grant Scheme (UK)**—to show how policy-makers have attempted to attach progressive policy design elements to incentives for retrofitting and energy efficiency in private homes, as well as how successfully it shaped the social outcomes of this policy.

According to our category analysis, retrofitting policies are likely to decrease poverty but are at risk of increasing inequality. Our analysis identified key policy design elements and complementary policies that could make retrofitting policies more progressive, including targeted incentives for low-income homeowners and training programs for low-income workers.

Launched in September 2020, the **Green Homes Grant Scheme (UK)** is an example of a buildings retrofit policy that targets low-income homeowners. It consisted of issuing vouchers worth up to GBP 5,000 to homeowners in England to make their homes more energy efficient and up to GBP 10,000 to welfare beneficiaries. The scheme was anticipated to reach up to 650,000 homes. However, the program was scrapped early, with expenditures reaching just 10% of its target. Some of the money committed was transferred to councils to run local energy-efficiency programs targeting lower-income households instead. The assessment conducted for this program after its closure provides interesting insights on the effectiveness of the design elements implemented:

- **Job creation:** The scheme did create jobs but did not maximize its impact on employment. It was originally envisaged that the scheme would support up to 82,500 jobs over 6 months, but modelling indicates that it had a more realistic capability of supporting the creation of only 5,600 jobs over 12 months (Committee of Public Accounts, 2021). This is because recruiting and training installers (for example, for heat pumps) required more time than the scheme timelines allowed for. Moreover, it is estimated that low-income households benefited from only around half of the jobs created by the scheme (Brignall, 2021).
- **Households' reach of incentives:** In total, 41,300 measures were installed, out of which just 15,182 were in low-income households. This was in spite of the attempted targeting done by exempting low-income households from the whole cost of the intervention (Brignall, 2021).

Some useful insights can be drawn from how similar schemes could improve both job creation and targeting effectiveness, including allowing such schemes to work and deliver at scale through longer timelines and implementing, in parallel, similar retrofit programs for social housing and public buildings, which could be used as a launchpad to give the market confidence and scale up skills and supply chains (Energy Efficiency Infrastructure Group, 2021).

Source: Authors' analysis based on full category analysis.

5.0 Conclusions

This brief has examined the inequality and poverty effects of energy policy categories in the mobility, buildings, power, and resource extraction sectors. It finds that many of these energy policies, regardless of their environmental and climate impacts, present a risk of increasing inequality and poverty if they are not accompanied by the right complementary policies and sound policy design. Looking at the policy response provided by governments in energy-producing and consuming sectors since the start of the COVID-19 pandemic, we find that the risk of increasing inequality is more pronounced, pointing at the need to put inequality considerations at the heart of policy development, design, and implementation.

These findings bear important implications for the clean energy transition. First, given that a rapid ramp-up of climate action is required to limit global warming to 1.5°C, it will be critical to anticipate the differentiated effects of energy policies on inequality and poverty in order to ensure public support for a just and inclusive transition. Moreover, both dimensions are an integral part of the societal transformation that just climate movements aim to achieve. Second, while clean energy policies are sometimes found to be regressive, this relationship is not inevitable: governments can and should pair clean energy policies with a broader set of policies to maximize the social outcomes of their interventions.

Our work constitutes a first contribution to exploring the relationship between energy policies, inequality, and poverty in a systematic way. Further research is required, notably to better understand and assess the effects of contextual factors, policy design, and complementary policies on energy policies. National approaches and case studies in different policy settings could help in that regard.

Finally, our brief focused on the energy policy response provided by governments in the exceptional context of the COVID-19 crisis. In 2022, as the world enters a period characterized by surging energy prices, we are likely to observe a new wave of rapid energy policy response that has a substantial impact on climate, poverty, and inequality. Although outside of the scope of this research, lessons could be drawn from the COVID-19 period to ensure that these new policy responses more effectively consider the short-, medium- and long-term social outcomes of energy policies. It is also important for governments to develop “win–win” policy blueprints and ensure policy coherence at different levels to be better prepared for any potential unexpected developments and the need for government interventions.

6.0 Recommendations

Our analysis identifies key elements that can be considered by governments if they are to ensure domestic energy policies are implemented from a positive social and climate justice perspective.

1. **End support for policies that harm the people and the climate.** A few energy policy categories have clear-cut negative climate effects associated with either uncertain or negative social effects. These "lose–lose" policies include most forms of public money commitments for the exploration, extraction, and production of fossil fuels. The social and climate risks of these policies appear too high to provide a valid rationale for governments to continue supporting them.
2. **Scale up support for policies that constitute no-regret choices for inequality, poverty, and climate action.** These "win–win" policies, such as those supporting energy efficiency in social housing, are likely to have both positive social and climate effects. These policies should become a priority in governments' decisions and actions.
3. **Carry out a systematic assessment of the long-term social and climate impacts of energy policies.** Since the beginning of the COVID-19 pandemic, many governments' decisions have been driven by a desire to mitigate the immediate economic and social impacts of the crisis. This urge has incentivized the adoption of energy policies with immediate poverty-reducing effects, regardless of their environmental and climate impacts. These policy choices, however, have not considered the trade-offs between immediate and longer-term impacts. The social benefits of energy policies supporting fossil fuel-based energy systems are likely to be fully outweighed as the local and societal impacts of climate change grow. A systematic screening of the interlinkages between social and environmental/climate impacts is therefore needed to best inform policy decisions and implementation. This is particularly relevant as governments continue to implement COVID-19 response measures and must accelerate the implementation of clean energy policies by 2030.
4. **Adopt clean energy policies designed in a way that mitigates their potential detrimental effects.** Regressive clean energy policies are not inevitable: progressive design options can be developed in the vast majority of cases. They are heavily context specific, but the most common options include targeting incentives for low-income groups, conditioning government support for companies on social safeguards, and associating vulnerable stakeholders with policy design and implementation. Further to this, a broader societal approach can enable the implementation of complementary policies such as progressive general taxation systems, job training/retraining schemes to support workers, or revenue recycling of energy taxes, which will support a fair and equitable energy transition.

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Annex 1. Methodology Approach of the Inequality and Poverty Dashboard

The Inequality and Poverty Dashboard was developed through the following steps[24]:

1. We conducted an inventory of 1,047 Energy Policy Tracker (EPT) policies, where we associated each policy with one or more relevant policy categories.
2. We grouped most of the energy policies from the EPT into 32 policy categories (see Annex 2). The categories reflect the policies that are most prevalent in the EPT, as well as the ones that may have a particularly high impact in terms of inequality and poverty outcomes. As a consequence, while the majority of policies can be associated with a category, a limited number of policies recorded on the EPT do not "fit" into any of them and hence were not included in this analysis.
3. Based on relevant literature on inequality and poverty, we assessed the likely poverty and inequality effects of each policy category. Due to a lack of literature for some categories, we also used a dedicated complementary conceptual framework that helped us develop relevant assumptions on the likely poverty and inequality effects of policies.
4. For each policy category, we identified a number of relevant contextual factors and complementary policies that are likely to influence the direction and magnitude of inequality and poverty effects in the context of a specific policy. These provide indicative recommendations on how to further analyze inequality and poverty effects as well as how to mitigate such effects when they are negative.

We used the "poverty" and "inequality" dimensions as proxies for policies' social outcomes. While the poverty dimension focused on the bottom of the income distribution, the inequality dimension looked at expected changes in a country's entire income distribution; where relevant and possible to do so, our analysis has also included information on the expected effects of policy categories on inequalities between the regions of a certain country. Both concepts of poverty and inequality were defined qualitatively, without reference to any specific metrics.

The categories' assessment provided in the Dashboard is not a systematic or granular assessment of each specific policy. In most cases, it represents a general assessment of the social *risks* associated with the various categories rather than their actual social impacts.

The immediate and short-term impacts of energy policies on poverty and inequality are key elements of the public policy debate and are the main focus of this analysis. However, medium- and long-term impacts are equally important, from both social and climate perspectives. Unfortunately, we found the literature on medium- and long-term impacts to be particularly scarce, hence those are generally less reflected in the summary assessment of our categories.

[24] For a more detailed description of the Dashboard methodology, please refer to the Methodology page: https://www.energypolicytracker.org/inequalities-methodology/

Annex 2. List of Policy Categories and Likely Social Impacts

Sector	Incidence	Category	Energy classification	Inequality assessment	Poverty assessment	Number of EPT policies
Mobility	Consumer	Government support for public transport (cheaper fares for users)	Clean	Inequality unclear	Poverty decreasing	6
Mobility	Supply and Infrastructure	Government support for public transport companies and provision of public transport infrastructure	Clean	Inequality unclear	Poverty decreasing	141
Mobility	Consumer	Government support for electric vehicle (EV) and hydrogen vehicle purchase; use of EV charging infrastructure	Clean	Inequality increasing	Poverty Neutral	57
Mobility	Infrastructure	Government support for EV charging infrastructure, grid integration of EVs, hydrogen charging stations	Clean	Inequality increasing	Poverty decreasing	55
Mobility	Consumer	Government support for the purchase of conventional cars	Fossil	Inequality decreasing	Poverty decreasing	33
Mobility	Consumer	Government support for transport fuels (increase in fuel price)	Fossil	inequality unclear	Poverty increasing	2
Mobility	Consumer	Government support for transport fuels (decrease in fuel price)	Fossil	inequality unclear	Poverty decreasing	8
Mobility	Supply	Ban on sales of conventional cars	Fossil	Inequality increasing	Poverty increasing	2
Mobility	Supply	Bailouts of car companies and other forms of government support to the car industry	Fossil	Inequality neutral	Poverty decreasing	40

Sector	Incidence	Category	Energy classification	Inequality assessment	Poverty assessment	Number of EPT policies
Mobility	Consumer and Infrastructure	Government support for bicycles and cycling infrastructure or walking paths	Clean	Inequality neutral	Poverty decreasing	59
Mobility	Infrastructure	Government support for road building and repair, airport, and port infrastructure	Fossil	Inequality decreasing	Poverty decreasing	68
Mobility	Supply	Bailouts of airlines or airports and other forms of government support to the airline industry	Fossil	Inequality increasing	Poverty decreasing	81
Mobility	Supply	Bailouts of shipping companies and other forms of government support for the shipping industry	Fossil	Inequality unclear	Poverty decreasing	3
Power	Consumer	Increases in electricity tariffs for households and related regulatory changes	Other energy	inequality unclear	Poverty increasing	7
Power	Consumer	Decreases in electricity tariffs for households and related regulatory changes	Other energy	inequality unclear	Poverty decreasing	11
Power	Consumer	Increases in gas tariffs for households and related regulatory changes	Fossil	inequality unclear	Poverty increasing	1
Power	Consumer	Decreases in gas tariffs for households and related regulatory changes	Fossil	inequality unclear	Poverty decreasing	3
Power	Consumer	Increases in energy tariffs (electricity and gas) for businesses and related regulatory changes	Other energy	Inequality unclear	Poverty neutral	14
Power	Consumer	Decreases in energy tariffs (electricity and gas) for businesses and related regulatory changes	Other energy	Inequality unclear	Poverty increasing	0
Power	Consumer	Government support for the purchase of residential renewable-energy installation and related regulatory changes (in high-income countries)	Clean	Inequality increasing	Poverty increasing	6

Sector	Incidence	Category	Energy classification	Inequality assessment	Poverty assessment	Number of EPT policies
Power	Consumer	Government support for the purchase of residential renewable-energy installation and related regulatory changes (in low-income countries)	Clean	Inequality decreasing	Poverty decreasing	18
Power	Consumer	Government support for the purchase of renewable-energy installation for businesses and related regulatory changes	Clean	Inequality increasing	Poverty unclear	20
Power	Supply	Government support for fossil-based energy generation	Fossil	Inequality neutral	Poverty neutral	26
Power	Supply	Government support for renewable-energy generation	Clean	Inequality increasing	Poverty unclear	127
Power	Supply	Government support for large hydropower generation	Clean	Inequality increasing	Poverty increasing	7
Power	Supply	Government support for nuclear energy generation	Other energy	Inequality neutral	Poverty unclear	9
Power	Infrastructure	Government support for electricity transmission and distribution and off-grid electrification	Other energy	Inequality unclear	Poverty decreasing	68
Buildings	Consumer	Government support for energy efficiency, retrofitting, or renewable heating programs in private housing and energy efficiency or heating standards or regulations	Clean	Inequality increasing	Poverty decreasing	67
Buildings	Consumer	Government support for energy efficiency or retrofitting or renewable heating programs in social housing	Clean	Inequality decreasing	Poverty decreasing	20

Sector	Incidence	Category	Energy classification	Inequality assessment	Poverty assessment	Number of EPT policies
Buildings	Consumer	Government support for energy efficiency, retrofitting or renewable heating programs in public and commercial buildings	Clean	Inequality neutral	Poverty decreasing	63
Buildings	Consumer	Government support to the buildings sector without climate strings attached	Fossil	Inequality neutral	Poverty unclear	3
Resource extraction	Supply	Government support for resource exploration, domestic resource production, and extraction	Fossil	Inequality increasing	Poverty unclear	124
Resource extraction	Consumer	Government support for energy efficiency and renewable-energy installations for resource extraction industries	Fossil	Inequality unclear	Poverty unclear	8
Resource extraction	Supply	Government support for enhanced private sector participation in resource production	Fossil	Inequality unclear	Poverty unclear	82
Resource extraction	Supply	Government support for orphan and inactive well clean-up; coal mine rehabilitation; disposal of offshore platforms	Fossil	Inequality neutral	Poverty decreasing	4
Resource extraction	Infrastructure	Government support for resource storage, transportation, or infrastructure	Fossil	Inequality increasing	Poverty unclear	9
Multiple sectors	Consumer and supply	Strengthening of emissions trading and carbon pricing schemes (increased price, extension to new sectors)	Fossil	Inequality unclear	Poverty increasing	5

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