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Contents

Abstract

Just transition is becoming an increasingly popular concept to address the social consequences of industrial decarbonization, which EU countries have committed to pursue through the European Green Deal. These consequences include increasing redundancies – especially in carbon-intensive firms – and losses of income and well-being in marginalised communities. However, a review of the reference literature shows that the role of just transition in policy design has so far been largely overlooked by existing empirical studies. Against this backdrop, the core aim of this working paper is to assess whether and how EU and national policy documents speak about a just transition and/or about tackling the social consequences of industrial decarbonisation, by referring to the concept of eco-social policy mixes for a just transition. This study hence maps and analyses these policy mixes, first at the EU level and then at the Member States level. This is done through a manual textual analysis of relevant EU documents and of 27 country-specific National Energy and Climate Plans. Results show that eco-social policy mixes for a just transition are still rare across Europe and, when in place, they are markedly characterised by a narrow scope and an investment-oriented approach, while also being sometimes alarmingly attached to low climate ambitions.

1. Introduction

As the disruptive effects of climate change deepen and become increasingly pronounced, the European Union (EU) and its Member States are ever more committed to transitioning towards an economic model that is more 'sustainable' or, at least, less carbon-intensive. In this respect, the 2019 European Green Deal currently dictates the European line when it comes to this energy transition, also known as decarbonisation, by promoting a green growth model to reconcile economic and environmental objectives. This model is expected to bring about huge structural transformations for carbon-intensive productive processes across Europe, which will be heterogeneous from sector to sector, from fossil fuels to energy-intensive industries. In this scenario, the concept of just transition is (re)emerging strongly as a political demand both at the EU level and in several Member States. Rooted in the history of the trade union movement, this multifaceted and multidimensional concept serves to focus the spotlight on the social implications of environmentally-driven transitions, including job losses and displacements, new skill needs, social exclusion and decreasing income and opportunities, especially for vulnerable people and marginalised communities. For as complex as energy transitions are in themselves, the various possible social consequences that they might entail are still yet to be fully revealed, and, perhaps for this reason, the just transition concept has arguably not yet been developed to its full potential. In particular, just transition as a policy objective has so far received relatively little attention from either academic or political circles.

Against this background, the present study focuses on the important role of public policies in addressing the social implications of industrial decarbonisation in the European Union, at both the supranational and national levels. In particular, it aims to provide a thorough mapping and policy analysis of key official documents, focusing on whether and how these documents refer to a just transition and/or addressing the social consequences of decarbonisation. Thus, the paper ultimately seeks to contribute to just transition literature by concentrating on its hitherto overlooked policy design dimension.

First, building on a review of the current position of the decarbonisation and just transition debates, the paper proposes the concept of *eco-social policy mixes for a just transition* in order to define the complex policies aimed at tackling the social implications of decarbonisation. It proceeds to map and analyse these policy mixes, first in the EU and then in the national arenas. This research relies on qualitative methods, notably on a thorough and systematic

manual textual analysis of several policy documents, as well as on a selective review of relevant contributions from the reference scientific literature. At the EU level, a set of policies and initiatives has been selected for the analysis, while the final National Energy and Climate Plans (NECPs) have been used as reference frameworks for the national-level comparison. Eco-social policy mixes have been mapped in their three constitutive dimensions – strategy, instrument and governance – and analysed according to their scope and their contribution to economic growth.

With respect to the structure of the paper, the following two sections are dedicated to reviewing the academic and political debates about decarbonisation and just transition. Section 4 presents the conceptual and analytical framework of the study, defining and classifying eco-social policy mixes for a just transition. Building on this framework, Section 5 goes on to describe the current eco-social policy mix of the European Union, while Section 6 maps and assesses national policies comparatively. Finally, Section 7 provides the conclusion.

2. Decarbonisation in the EU

Climate change is increasingly becoming a globally prominent political issue as a result of its potentially catastrophic ecological consequences, which include heat waves, loss of biodiversity, desertification and rising sea levels (IPCC 2021). Scientists have indeed long argued that we are close to transgressing a planetary boundary for permissible changes in atmospheric CO_2 concentrations, above which the safe operating space for human activities would be irredeemably damaged (Rockström et al. 2009). The international community is therefore mobilising to stop this continuous increase in global temperatures, generated as a by-product of human economic activities. In particular, through the 2016 Paris Agreement, countries around the world have committed to limit the global temperature rise to 2 degrees Celsius above the pre-industrial level, aiming at 1.5 degrees (United Nations 2015: Article 2). To that end, under the Paris Agreement, countries are expected to set national targets to cut their greenhouse gas emissions.

At the industrial level, curbing climate-altering emissions is effected through a process referred to as decarbonisation, or low-carbon energy transition. Although this expression has now become popular in both academic and political circles, its meaning is not necessarily immediately clear and, hence, needs to be clarified. Decarbonisation could be seen as a particular kind of energy transition which, in turn, constitutes a type of socio-technical transition. Socio-technical systems are networks of multiple interconnected elements – particularly including actors, institutions and technologies – that provide certain services to societies and individuals, such as energy, as well as transport, housing and food (Markard et al. 2012; Kuzemko et al. 2016; Köhler et al. 2019). These systems are said to be transitioning whenever a process consisting of interconnected, multi-level changes gradually, but continuously, modifies their core structures (Rotmans et al. 2001; Kuzemko et al. 2016). Thus, an energy transition is defined as 'a change in sources of energy supply, conversion, infrastructure, or energy use from one technology to another' (Sovacool et al. 2021: 2). It is a co-evolutionary process that occurs not only at the technological level, but also at the socio-political and socio-economic levels, hence involving changes in energy markets, as well as in related policies and institutions (Cherp et al. 2018).

If oriented towards achieving some environmental goals, energy transitions can be labelled as sustainability transitions, that is to say processes where 'established socio-technical systems shift to more sustainable modes of production and consumption' (Markard et al. 2012: 956). However, the term

'sustainability' has arguably grown into a contested concept over the years, so much so that this expression is now lacking universal conceptual clarity. Although not a synonym for a sustainability transition (Cherp et al. 2018), decarbonisation provides a more precise term to refer to an environmentally-oriented energy transition, which occurs at industry level and aims specifically to cut climate-altering emissions (Sovacool et al. 2021). Decarbonisation hence entails replacing carbon-intensive technologies and practices with low-carbon ones across several economic activities (Green and Gambhir 2020). A notable feature of decarbonisation is its pronounced political dimension, which has traditionally received relatively little attention in the reference literature (Meadowcroft 2011; Kern and Rogge 2018; Cherp et al. 2018; Lindberg et al. 2019). As a matter of fact, 'transitions are inherently political processes, in the sense that different individuals and groups will disagree about desirable directions of transitions, about appropriate ways to steer such processes and in the sense that transitions potentially lead to winners and losers' (Köhler et al. 2019: 6).

The importance of politics in decarbonisation becomes strikingly evident when different countries' climate and decarbonisation efforts are compared. Table 1 below provides a summary of such efforts across the EU, using data from a 2018 report by the Climate Action Network (CAN 2018), which ranked where EU countries stand in the fight against climate change, in terms of both ambition and progress in reducing carbon emissions so as to comply with the targets of the Paris Agreement. The scores – in percentage terms – attributed to each EU country by the CAN report are reported in the 'CLIM' row of Table 1 below. While the report warns that all EU countries are off-target, it also shows a high level of heterogeneity across Europe. Indeed, we can distinguish countries according to their relative climate policy performance, which is found to be (i) good (score higher than 50) for Portugal, France, the Netherlands, Luxembourg and Sweden, the highest ranking state; (ii) mid-to-high (score between 40 and 50) (DE, DK, FI, HR, IT, LT, LV); (iii) mid-to-low (score between 30 and 40) (AT, BE, CZ, EL, ES, HU, RO, SI, SK); and, finally, (iv) low (score less than or equal to 30) for Bulgaria, Cyprus, Estonia, Ireland, Malta and Poland, the lowest-ranking state in the whole of the European Union.

EU countries also differ widely when it comes to their efforts in decarbonising the productive sector of their economies, which is the key component of climate mitigation that this paper is specifically interested in. In this respect, different sectors are expected to undergo different decarbonisation experiences. At the forefront of the energy transition in Europe right now is the coal sector. Although increasingly lower – with a fall of 24% in total use from 2010 to 2018 – hard coal and lignite still represent major components of electricity generation (19.2% in 2018) and, hence, emissions in the EU (Galgóczi 2019). Several European countries have committed to decarbonising their energy sector by phasing out coal. These commitments, however, are very heterogeneous across Europe. Building on recent data by Europe Beyond Coal (2022), the 'COAL' row of Table 1 shows the date of announced coal phase-outs across the EU. As is evident, most countries have pledged to phase out coal

before or by 2030, while Bulgaria, Czechia, Germany, Croatia, Romania and Slovenia have set late phase-out targets. Table 1 also reports which countries are already coal-free (indicated by an 'F' in the 'COAL' row). Among them, Austria, Belgium, Portugal and Sweden stand out, since they have managed to phase out coal from their energy mixes after signing the Paris Agreement, hence relatively recently. Poland is once again a negative outlier here, as the only remaining EU Member State where a coal phase-out is not even under discussion.

Table 1 **EU Member States' climate and decarbonisation efforts**

	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK
CLIM	37	35	26	30	33	45	49	24	32	35	42	65	43	32	21	41	42	56	41	30	58	16	66	33	77	34	34
COAL	F	F	38	F	33	38	28	F	25	30	29	24	33	25	25	25	F	F	F	F	29	-	F	32	F	33	30

The data reported in Table 1 provide only partial indications about EU countries' climate and decarbonisation performance. While coal is evidently playing a central role in decarbonisation, other fossil fuels are also being phased out across the old continent, including Estonia's oil shale and Irish and Finnish peat. Furthermore, beyond energy generation, energy-intensive industries, like iron and steel, should also undergo processes of low-carbon restructuring. The EU is the biggest steel producer worldwide after China and hence a major contributor to global emissions from this sector (Skoczkowski et al. 2020). A low-carbon transition for the iron and steel industries might prove to be extremely challenging, not just because their production processes and technologies are currently heavily dependent on fossil fuels, but also due to the peculiar characteristics of their market, 'characterised by strong economies of scale, high upfront capital intensity, high global concentration and a low degree of vertical integration compared with many other commodity industries' (Skoczkowski et al. 2020: 2).

3. Just transition: a literature review

As seen in the previous section, decarbonisation by definition entails an environmental dimension. However, it also has considerable economic implications. Indeed, the decarbonisation model promoted by the EU not only strives to cut greenhouse gas emissions, but is also supposed to rely on a green growth approach (Laurent 2021; Sabato et al. 2021). This means attempting to sustain economic growth through ecological modernisation (Dryzek 2013), ultimately fostering decoupling, that is to say 'divorc[ing] economic growth from its ecological impact' (Fletcher and Rammelt 2017: 450). On the other hand, far less investigated than the economic and environmental dimensions are the social implications of low-carbon transitions. Climate change is expected to be the catalyst for new social risks, as the most vulnerable people are predicted to be the most severely impacted and the least financially able to cope with the costs of ecological devastation (Gough et al. 2008; Gough 2017). Moreover, indirect social risks could also arise from the potentially socially regressive nature of climate policies and of decarbonisation, which can lead to unjust outcomes (Laurent and Pochet 2015).

In the context of low-carbon energy transitions, addressing the social implications of climate change primarily means tackling the 'jobs versus environment dilemma' (Räthzel and Uzzell 2013). This expression, coined within the field of industrial relations studies, refers to the challenges faced by workers employed in industries undergoing decarbonisation or other environmentally oriented restructuring. While, according to the OECD, the aggregate net employment impact of decarbonisation is expected to be limited worldwide (Botta 2018), the structural changes it brings about are likely to affect people, including workers, and communities disproportionately (Thomas and Doerflinger 2020). Substantial job reallocations and redundancies will be faced by workers employed in emission-intensive sectors, which are normally concentrated in peripheral and often economically disadvantaged areas. For instance, in the coal sector, potential job losses from phasing out could amount to 35 000 units in the period between 2020 and 2025 (Galgóczi 2019). Energy-intensive industries and their employees are also facing a similar reality, but a different kind of challenge: 'although some energy-intensive industries will not be completely displaced, tighter environmental regulations may require changes in production, possibly affecting employment or leading to an offshoring of emission-intensive activities' (Thomas and Doerflinger 2020: 386). Beyond carbon-intensive sectors, the labour market as a whole will undergo structural changes due to decarbonisation, potentially leading to unforeseen vulnerabilities and new

needs, for instance in terms of skills and access to opportunities. Besides employment challenges, other social risks generated by decarbonisation include 'the need for enterprises, workplaces and communities to adapt to climate change to avoid loss of assets and livelihoods and involuntary migration' and 'adverse effects on the incomes of poor households from higher energy and commodity prices' (ILO 2015: 5). Therefore, many people, including workers, and communities will be exposed to new social risks and might end up becoming the 'losers' of decarbonisation.

Against this backdrop, the concept of just transition is becoming increasingly popular in both academic and political circles in addressing the above-mentioned 'jobs versus environment divide' and, more generally, the social implications of decarbonisation. Historically, this concept first originated within the North American trade union movement. In point of fact, American trade unionist Tony Mazzocchi is credited with coining the expression as a way of demanding financial support for workers formerly employed in polluting firms (Galgóczi 2020; Stevis et al., 2020). In its genetic phase, just transition was not yet associated with decarbonisation or with climate or energy policies, but rather designed to address the occupational consequences of localised environmental issues – such as toxicities – and to put workers at the forefront of the environmental debate (Stevis et al. 2020). In the middle of the first decade of the 21st century, the idea of a just transition underwent a resurgence and a global spread (Stevis et al. 2020).

Especially in the past decade, this concept has found its way into the climate policy debates within the United Nations. One early milestone in this respect was the final agreement of the Conference of the Parties in Cancún in 2010, which stressed the need to ensure a just transition with decent, high-quality jobs for workers during low-carbon transitions (United Nations 2010). A further, defining moment in the history of the concept came through the work of the International Labour Organization (ILO), which, in 2015, published the 'Guidelines for a just transition towards environmentally sustainable economies and societies for all', a set of principles and recommendations for the implementation of a just transition framework (ILO 2015). Shortly afterwards, the Preamble of the Paris Agreement stated that the international effort of reducing global warming should take into account 'the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities' (United Nations 2015). More recently, the Solidarity and Just Transition Silesia Declaration was signed by the Heads of State and Government at the 24th Conference of the Parties in Katowice (United Nations Framework Convention on Climate 2018). This declaration, besides referring to the International Labour Organization's Guidelines, 'reaffirms the political commitment towards just transition already taken in Paris and highlights the need to work further in that direction' (Sabato and Fronteddu 2020: 9). In its global expansion, the just transition debate has gained the support of a number of civil society actors (Newell and Mulvaney 2013). Yet again, trade unions and, in particular, the International Trade Union Confederation (ITUC) have placed themselves at the forefront of this debate at the international level, so much so that the

ITUC even launched a dedicated Just Transition Centre in 2016 (Newell and Mulvaney 2013).

As the concept has been developed and reworked by several different actors over time, defining what constitutes a just transition can be a rather difficult task, and the reference literature mirrors this difficulty. At its core, just transition is meant to challenge the 'jobs versus environment' dilemma and to turn the spotlight on the social justice implications of environmentally oriented transitions. In the specific context of decarbonisation, just transition has been defined as 'a fair and equitable process of moving towards a post-carbon society' (McCauley and Heffron 2018: 2). It implies considering both '"outcomes" (how the new employment and social landscape in a decarbonised economy should look) and "process" (how we get there from present socio-economic realities)' (Galgóczi 2020: 369). As such, just transition adds a social dimension to decarbonisation, featuring (i) distributive justice, which is concerned with how the transition (re)shapes the allocation of resources; (ii) procedural justice, which is concerned with participation and engagement in the governance of the transition; and, finally, (iii) recognition justice, which is focused on the impact on vulnerable groups (McCauley and Heffron 2018; Sovacool et al. 2021). As was the case for sustainable development, the risk is that, with increased popularity, just transition may become a contested concept, i.e. one to which different actors assign different meanings (Stevis et al. 2020). The contested nature of just transition is related to its multifaceted and multidimensional essence.

Just transition constitutes a *multifaceted* concept in that it has been framed in numerous different ways. In this respect, Wang and Lo (2021: 1) identify five principal 'faces', or themes, of just transition in the literature: '(1) just transition as a labour-oriented concept, (2) just transition as an integrated framework for justice, (3) just transition as a theory of socio-technical transition, (4) just transition as a governance strategy, and (5) just transition as public perception'. The first theme reflects the importance of trade unions as core ideologists and promoters of the concept. It is investigated through environmental labour studies (Räthzel and Uzzell 2013), which focus on trade unions' climate positions (Thomas and Doerflinger 2020; Clarke and Lipsig-Mummé 2020) or just transition visions (Tomassetti 2020; Stevis and Felli 2015). The second theme instead focuses on just transition as a normative concept, presenting the latter as a suitable framework to bring together energy, climate and environmental justice scholarships (McCauley and Heffron 2018). The third research strand links just transition to the socio-technical literature, hence focusing on assessing the actual – just or unjust – outcomes of socio-technical transitions (Sareen and Haarstad 2018). The fourth face of just transition concerns its governance. Studies in this field are especially interested in the (lack of) engagement of stakeholders and citizens in the management and politics of transitions (Newell and Mulvaney 2013; Cha 2020). Fifth and finally, we find studies that explore people's and stakeholders' attitudes towards decarbonisation (Gugushvili and Otto 2021), presenting public opinion as a crucial driver to ensure the political legitimacy and fairness of decarbonisation itself.

As well as being multifaceted, just transition is also a *multidimensional* concept. This means that different, opposite interpretations can stem from the same concept. First, several authors tend to distinguish narrow and broad conceptions of just transition (Pinker 2020; Eisenberg 2019; Galgóczi 2020; Sabato and Fronteddu 2020), depending on the scope – i.e. the spatial-temporal reach and the breadth – of the challenges considered (Stevis and Felli 2020). Narrow conceptions, closer to the original demands by American trade unions, concern the management of the most pragmatic and urgent consequences of transitions, for instance those faced by coal regions and workers. Broad approaches to a just transition, on the other hand, are closer to the more recent ILO Guidelines, which promote a whole-economy approach that is intended to target long-term, context-sensitive, yet global, social risks, hence beyond the most urgent needs associated merely with fossil fuel phase-out. Just transition conceptions can also be differentiated according to the depth of the justice demands they bring forward (Stevis and Felli 2015, 2020). Accordingly, studies have distinguished between affirmative and transformative approaches, depending on whether or not they assume that a just transition can be attained within the current socio-economic model, based on capitalist modes of production and consumption. This second distinction allows us to differentiate between various just transition demands, which, depending on their orientation towards economic growth, can range 'from a simple claim for jobs creation in the green economy to a radical critique of capitalism and refusal of market solutions' (Barca 2015: 392).

4. Eco-social policy mixes for a just transition: towards an analytical framework

Among the various faces of the multifaceted just transition concept, one has so far received little attention in the literature, despite its self-evident relevance: just transition as a policy objective. To the author's knowledge, only a limited number of studies have investigated this aspect of just transition. For instance, Cha (2020) and Mertins-Kirkwood (2018) refer to 'just transition policies', while Green and Gambhir (2020) propose a 'transition assistance policies' concept. However, there is a general lack of studies applying the just transition concept to empirical policy analyses.

This paper presents just transition as a policy objective for eco-social policy mixes adopted in the context of low-carbon energy transitions. Broadly speaking, eco-social policies are public policies pursuing both ecological and social goals through policy integration (Gough 2017). This paper is interested in a particular variant of eco-social policies: those explicitly addressing the social implications of industrial decarbonisation – including job losses and displacement, training and education needs, and other (re)distributive issues. These particular eco-social policies hence systematically integrate a social dimension into decarbonisation policies. Therefore, making the low-carbon transition socially just is their ultimate goal, either manifestly or implicitly.

The policies that this paper is concerned with can be well described by building on the conceptual frameworks of policy integration and policy mixes (Candel and Biesbroek 2016; Rogge and Reichardt 2016; Geels 2019; Rogge et al. 2017). Policy integration, in this case, represents the defining feature of eco-social policies. In order to systematically add a social dimension to decarbonisation, complex policies are required. Therefore, the concept of policy mixes allows us to understand the complex construction of integrated policies. Policy mixes are composed of three main dimensions: (i) a strategy dimension, comprising the overarching objectives and plans of action to achieve them; (ii) an instrument dimension, entailing a mix of different policy measures; and (iii) a governance dimension, establishing institutional and/or participative structures or procedures. For a policy mix to be comprehensive, it should comprise all three of these dimensions, since these constitute the building blocks of the mix. Specifically, eco-social policy mixes for a just transition comprise the strategies, instrument and governance mechanisms to address the social implications of decarbonisation.

Besides concentrating on their constitutive dimensions, we can also elaborate on how to distinguish different eco-social policy mixes for a just transition. In particular, building on insights from the literature presented in the previous section, two criteria can be used to differentiate among just transition objectives and, consequently, among the policy mixes attached to them. First, policy mixes for a just transition can be either *narrow* or *broad*, depending on the spatial-temporal scope of the challenges that they address. When the scope is narrow, policy mixes for a just transition perform a *reactive* function, thus intervening to address some urgent, localised and/or short-term social impacts of decarbonisation, such as those related to fossil fuel phase-out. Alternatively, these policy mixes can instead serve a *preventive* function, hence addressing broad, i.e. long-term and widespread, challenges with a whole-economy and forward-looking approach. Second, eco-social policy mixes for a just transition can either be growth-oriented or unrelated to economic growth. On the one hand, when a just transition is growth-oriented, eco-social policy mixes will follow an *investment* approach, striving to enhance individuals' capabilities to participate in a green economy and society and thus actively contribute to economic growth. Typical investment-oriented policy instruments include active labour market policies, training and economic development measures. On the other hand, eco-social policy mixes can rather serve a *protective* function and hence aim primarily at cushioning the social costs experienced by the agents affected by a transition, through traditional social protection means like monetary compensation or the supply of public services.

Table 2 below summarises the proposed analytical framework to map and assess eco-social policy mixes for a just transition.

Table 2 **Eco-social policy mixes for a just transition: proposed analytical framework**

(i) The constitutive dimensions of the policy mix		
Strategy	Instrument	Governance
(ii) Varieties of just transition objectives		
	Growth-oriented	*Unrelated to growth*
Broad scope	Preventive investment	Preventive protection
Narrow scope	Reactive investment	Reactive protection

5. Mapping and analysing the EU eco-social policy mix for a just transition

This section, by applying the analytical scheme presented above, provides an overview of the existing policy mix of the European Union addressing the social consequences of industrial decarbonisation. First, to set the scene, a brief overview of the EU's current decarbonisation framework is also provided.

5.1 Setting the scene: The EU's decarbonisation framework

The European Green Deal (EGD) is the current growth strategy of the European Union. It sets long-term objectives for the Union in different policy fields and enlists the measures and sectoral plans to implement such objectives. The ultimate aim is 'to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases (GHG) in 2050 and where economic growth is decoupled from resource use', as well as 'to protect, conserve and enhance the EU's natural capital, and protect the health and well-being of citizens from environment-related risks and impacts' (European Commission 2019a: 2). In stark contrast with previous EU grand strategies, the EGD gives key priority to environmental objectives, which should be pursued in line with economic growth. All in all, it endorses a green growth approach to the low-carbon transition, which gives key centrality to boosting economic-environmental synergies (Mandelli et al. 2021; Sabato et al. 2021).

In connection with the EGD, the European Commission has proposed a roadmap of key policies and measures (European Commission 2019b) to deliver on the main strategy, some of which are particularly relevant when it comes to decarbonisation and a just transition. One notable example is the European Climate Law (European Commission 2020e), intended to enshrine a couple of decarbonisation targets in legislation: carbon neutrality by 2050 and the 55% reduction in greenhouse gas emissions by 2030. Also interesting for the purpose of this paper are the EU New Industrial Strategy for Europe, which is intended to provide the conditions for 'Europe's industry to lead the twin transitions and drive [...] competitiveness' (European Commission 2020f: 1); and a new Circular Economy Action Plan for a 'regenerative growth model' (European Commission 2020g: 2). Together, these strategies represent the EU's principal plans for the low-carbon transition of European industrial

facilities, fostering once again a green growth approach in an attempt to decouple production growth from its ecological footprint.

Another important initiative, adopted before the EGD specifically for the decarbonisation of the energy sector, was the 2016 'Clean Energy for all Europeans' legislative package. It includes EU-wide climate targets and regulations for decarbonisation and for energy efficiency and renewable energy (European Commission 2016). It also establishes a governance framework to coordinate Member States' activities in this field through instruments known as National Energy and Climate Plans (NECPs) (discussed in more detail below) (European Union 2018b).

Energy-intensive industries are another key sector for the EU's low-carbon transition efforts, so much so that the European Green Deal recognises how 'energy-intensive industries, such as steel, chemicals and cement, are indispensable to Europe's economy, as they supply several key value chains. The decarbonisation and modernisation of this sector is essential' (European Commission 2019a: 7). The principal instrument for the reduction of greenhouse gas emissions from industrial facilities has historically been the European Emissions Trading Scheme, first established in 2003 (European Union 2003) and later amended (European Union 2018a). This economic instrument for climate regulation is based on annually decreasing, tradeable permits for greenhouse gas emissions provided to industries either for free, in the case of sectors prone to carbon leakage, or via auctions (de Bruyn et al. 2020).

More recently, two key initiatives have also been proposed to advance the EU's policy framework for decarbonisation. First, Next Generation EU – a strategy for the recovery from the Covid-19 crisis (European Commission 2020h) – and the related Recovery and Resilience Facility (European Union 2021) – are intended to contribute to the climate and energy objectives of the EGD. Accordingly, the National Recovery and Resilience Plans, detailing Member States' reforms and investments related to the Recovery and Resilience Facility, are to allocate a minimum of 37% of the resources in support of climate objectives, and they must also comply with a 'do no significant harm' principle, in an attempt to prevent any negative environmental impact (Sabato et al. 2021). Second, the 2021 'Fit for 55' package 'consists of a set of inter-connected proposals, which all drive towards the same goal of ensuring a fair, competitive and green transition by 2030 and beyond' (European Commission 2021b: 3). This package aims to reform eight existing legislative measures – notably including the European Emissions Trading Scheme and some of the provisions in the 2016 'Clean Energy for all Europeans' package – and proposes five new initiatives. The 'Fit for 55' package cross-cuts different sectors and policy areas, and it encompasses different types of policy instruments, including carbon pricing, regulations and support measures.

5.2 The EU's eco-social policy mix to address the social implications of industrial decarbonisation

After the brief presentation of the background strategies and instruments for decarbonisation above, the following paragraphs turn attention to the EU's eco-social policy mix addressing the social implications of industrial decarbonisation. Thus, the paper assesses the policy mix along the three dimensions outlined in the previous section: strategy, instrument and governance.

First, it is important to present *which* social implications of decarbonisation the EU is actually focusing on. To identify them, the European Green Deal represents the reference framework. The EGD highlights the interconnections between its objectives. Although the Commission presents the areas of action of the European Green Deal as mutually reinforcing, synergies are not always taken for granted or presented as automatic. The Commission itself instead recognises how 'careful attention will have to be paid when there are potential trade-offs between economic, environmental and social objectives' (European Commission 2019a: 4). This is in part also valid for the interweaving of social and environmental issues in the EGD.

Specifically, the European Green Deal and related documents highlight the challenges of the transition for vulnerable consumers and for employment. This paper is interested in the latter set of challenges, since they concern more directly the decarbonisation of the productive sector. Focusing on the social challenges of decarbonising industries primarily entails, for the EU, a focus on the regions, sectors and workers that are deemed to be the most exposed to the structural changes of the transition. While the transition is repeatedly presented as an opportunity for job creation, the EGD acknowledges how workers employed in carbon-intensive firms – including mainly coal, other fossil fuels and heavy industries – might be exposed to risks such as job losses and displacements. Moreover, the communities that these workers belong to, which are often highly dependent on carbon-emitting firms, are also deemed vulnerable to industrial restructuring, with potential side effects on local socio-economic development (European Commission 2020b). All in all, the scope of the social issues connected to decarbonisation considered by the EU is *narrow* and hence limited to few sectors, actors and groups that are expected to be the most severely impacted by the transition.

5.2.1 The strategic dimension

With respect to the strategic dimension of its eco-social policy mix, the European Green Deal defines the main priorities and objectives of the EU. In this respect, the EGD contains a social dimension by explicitly endorsing a just transition approach, in an attempt to leave 'no one behind' (European Commission 2019a). This entails addressing the social risks arising from the transition, while also ensuring that the transition itself enjoys high social acceptance.

In practical terms, this mainly means targeting the (narrow) social issues identified above. Furthermore, the just transition approach proposed by the EGD is markedly *investment-oriented*. This entails a focus on activation and, especially, on skills development, which is also stressed by another strategic document related to the EGD, the European Skills Agenda for Sustainable Competitiveness, Social Fairness and Resilience (European Commission 2020j). This Agenda, which comprises a set of training targets and guidelines, explicitly acknowledges the need to provide people with 'green' skills as a way to enable their participation in a decarbonised labour market, advocating the development of a 'European competence framework on education for climate change, environmental issues, clean energy transition and sustainable development' (European Commission 2020j: 13).

Finally, the just transition notion proposed in the European Green Deal is also anchored to another relevant EU grand strategy, the European Pillar of Social Rights (European Commission 2017). This strategy was issued in 2017 by the Juncker Commission, and it comprises a set of 20 rights and principles, jointly providing a common compass to steer Member States' social and employment policies.[1] The 2020 Commission Communication, 'A strong social Europe for just transitions' (European Commission 2020a), and the 2021 European Pillar of Social Rights Action Plan (European Commission 2021a) build a bridge between the Pillar and the EGD. The Pillar is, in fact, presented as the core EU 'social strategy to make sure that the transitions of climate-neutrality, digitalisation and demographic change are socially fair and just' (European Commission 2020a: 2). Hence it provides general principles on the social standards that should be guaranteed in the decarbonisation process.

5.2.2 The instrument dimension

As for the instrument dimension, the main EU policy measures adopted to tackle the issues identified above and to implement the just transition goal set up at the strategic level is the Just Transition Mechanism. This was proposed as part of the 2020 Sustainable Europe Investment Plan, which was intended to mobilise, enable and support private and public investments to deliver on the objectives of the European Green Deal, including through the use of the EU budget and cohesion funds (European Commission 2020b). The Just Transition Mechanism aims to mobilise financial resources to tackle the social costs of the low-carbon transition for the sectors and regions that the

1. The 20 principles of the European Pillar of Social Rights are: 1. Education, training and life-long learning; 2. Gender equality; 3. Equal opportunities; 4. Active support to employment; 5. Secure and adaptable employment; 6. Wages; 7. Information about employment conditions and protection in case of dismissals; 8. Social dialogue and involvement of workers; 9. Work-life balance; 10. Healthy, safe and well-adapted work environment and data protection; 11. Childcare and support to children; 12. Social protection; 13. Unemployment benefits; 14. Minimum income; 15. Old age income and pensions; 16. Health care; 17. Inclusion of people with disabilities; 18. Long-term care; 19. Housing and assistance for the homeless; and 20. Access to essential services (European Commission 2017).

EU Commission presents as facing the most serious challenges. It comprises three pillars.

The first is the Just Transition Fund. As the name indicates, it consists of a fund for 'the economic diversification of the territories most affected by the climate transition and the reskilling and active inclusion of their workers and jobseekers' (European Commission 2020c: 2). Its geographic scope identifies eligible areas according to the share of employment in fossil fuel – namely coal and lignite, but also oil shale and peat – and energy-intensive industries. The initial Commission proposal envisaged a €7.5 billion envelope coming from the EU budget. After an attempt to increase the Fund to €40 billion, the interinstitutional negotiations between the European Parliament and the Council ultimately led to an agreement on a €17.5 billion budget, with €10 billion additional resources coming from the Next Generation EU programme (European Commission 2020l).

The other two pillars of the Just Transition Mechanism are (i) a 'public sector loan facility' mobilising public investments, including through loans from the European Investment Bank (European Commission 2020i); and (ii) the 'InvestEU Just Transition scheme' dedicated to the mobilisation of private investment (European Commission 2020b). In addition to the three pillars of the Just Transition Mechanism, other EU funds are presented as suitable tools to address the vulnerabilities generated by decarbonisation, including cohesion funds, the Modernisation and Innovation Funds, and the newly-proposed Social Climate Fund (for more information, see European Commission 2021b).

All in all, the Just Transition Mechanism could be seen as the main eco-social policy instrument for a just transition at the EU level. In addition to economic diversification, according to the European Commission, financial tools are to be mobilised for the upskilling and reskilling of employed workers and for job-search assistance and active inclusion of jobseekers (European Commission 2020d). More recently, in December 2021, the European Commission came out with a new Proposal for a Council Recommendation on ensuring a fair transition towards climate neutrality, which aims 'to ensure that the Union's transition towards a climate-neutral and environmentally sustainable economy by 2050 is fair and leaves nobody behind' by inviting Member States 'to adopt and, in close cooperation with social partners as relevant, implement comprehensive and coherent policy packages, addressing the employment and social aspects to promote a fair transition across all policies' (European Commission 2021c: 24).

5.2.3 The governance dimension

Finally, when it comes to the governance dimension, EU coordination and engagement mechanisms still seem to be limited, and they relate to the above-mentioned policy instruments. The Territorial Just Transition Plans are intended to be the main outcome of a multilevel governance process –

involving supranational, national and regional/local authorities, as well as different stakeholders – to underpin the delivery of the Just Transition Fund. Through these Plans, Member States are required to identify beneficiary territories, assess their vulnerabilities and outline the characteristics of the projects that they wish to finance (European Commission 2020c).

The European Commission has already provided Member States with some tailored guidelines on the preparation of the Territorial Just Transition Plans through Annexes D to the 2020 Country Reports of the European Semester (European Commission 2020d). From reading these Annexes, it becomes apparent that the focus is once again mostly on regions and territories highly dependent on fossil fuel mining, extraction and energy production. However, territories dependent on carbon-intensive industries have also been identified as potential beneficiaries of the Just Transition Fund in several countries. These include sectors such as metals (AT, FR, IT, SE, SK, RO, EE, LU); chemicals (DE, AT, RO, HR, FR, CZ); cement (DK, LU, DE, CY, HU, HR, RO, SK); and fertilisers (RO, LT).

Also relevant to the governance dimension is the Just Transition Platform. This is intended to assist local and regional governments in gaining access to the resources of the Just Transition Mechanism, supporting Member States in preparing their Territorial Just Transition Plans and providing different stakeholders with a platform to exchange best practices and build capacity. This Platform is built upon and enlarges the scope of the previous experience of the Initiative for Coal Regions in Transition, established in the context of the 'Clean Energy for all Europeans' package (European Commission 2016).

5.2.4 Conclusions: the EU's narrow and growth-oriented just transition approach

All in all, the EU is explicitly embracing a just transition approach to address the social consequences of decarbonisation. First, the just transition notion promoted by the EU is *narrow* in scope, hence targeting only a few actors and territories facing what are deemed to be the most urgent challenges. A whole-economy, forward-looking and overall broad understanding of the social dimension of decarbonisation is noticeably absent. Second, another key element of the EU's understanding of a just transition is its marked *investment-oriented* character, in that the EU eco-social policy mix aims to contribute positively to economic growth through a preference for active labour market instruments, such as education, training and job creation. The main rationale behind this approach is to enhance people's participation in the green economy, as opposed to concentrating on cushioning for decarbonisation-related social risks through more traditional social protection measures, which are noticeably absent (Sabato et al. 2021).

There are a few signs that the European Union might move towards a broader and more protection-oriented understanding of just transition. First, the

European Pillar of Social Rights is presented as the social 'benchmark' of decarbonisation, promoting at least general attention to universal social principles, including social protection (Sabato et al. 2021). Second, the recent Commission Proposal for a Council Recommendation on ensuring a fair transition towards climate neutrality (European Commission 2021c) underlines how different sectors, regions and groups – not just coal and carbon-intensive industries – are going to face challenges in the green transition. Moreover, this Proposal also invites Member States to design 'policy packages for a fair green transition' that should entail not only active labour market and training initiatives, but also social protection measures and social services. In conclusion, however, the extent to which the European Union could actually influence policy design at the national level remains to be seen. Currently, the EU just transition policy mix does not comprise any binding instrument, and the main funds and tools offered to Member States promote, as has been said, a narrow, investment-oriented approach, which might not be sufficient to deal properly with the whole range of social risks that countries may face in the context of climate change and decarbonisation.

6. A just transition across Europe: comparing eco-social policy mixes

The present section is dedicated to mapping EU Member States' eco-social policy mixes to address the social implications of decarbonisation, using the final National Energy and Climate Plans (NECPs) as reference documents.

6.1 Methodological premises: National Energy and Climate Plans

Introduced under the Regulation on the Governance of the Energy Union as part of the 'Clean Energy for all Europeans' package (European Union 2018b), the NECPs are integrated multiannual plans for the period between 2021 and 2030. They are intended to monitor national performance with respect to the targets of the Energy Union, mainly in the areas of decarbonisation, energy efficiency and renewable energy. Member States were asked to submit draft NECPs by the end of 2018 and a final version in late 2019, taking stock of the Commission's recommendations. The NECPs have been chosen here as the reference documents for the analysis because they are supposed to contain – among other things – indications about how Member States address, or are planning to address, the social impacts of their climate/energy policies, mainly in terms of employment, skills and distributional challenges. In this respect, recital 19 of the Regulation on the Governance of the Energy Union states that 'a socially acceptable and just transition to a sustainable low-carbon economy requires changes in investment behaviour, [...] taking into consideration citizens on whom and regions on which the transition to a low-carbon economy could have adverse impacts', and, hence, the final NECPs should 'address the social and territorial implications that the clean energy transition can have' (European Commission 2020k: 14). Specifically, sub-section 5.2. of each NECP contains an analysis of 'employment and education, skills and social impacts, including just transition aspects (in terms of costs and benefits as well as cost-effectiveness)'.

A systematic mapping of both existing initiatives and commitments announced, cited in the NECPs as a means to address the social implications of decarbonisation, has been performed through a manual qualitative textual analysis of the final NECPs. As a cross-check, this was complemented by an analytical reading of the 27 Staff Working Documents with which the European Commission assessed each final NECP, with a special focus on the parts regarding Member States' responses to the European Commission's

invitation 'to develop clearer strategies and objectives through a cross-cutting approach to identify and measure the social, employment and skills consequences and other distributional impacts of the energy transition and give proper consideration on how to address these challenges' (European Commission 2020k: 14). The country-specific outcomes of this mapping exercise are reported in Annex 2 to this paper.[2]

Although, as it has just been shown, the NECPs are relevant documents when it comes to analysing eco-social policy mixes, an assessment limited solely to these documents inherently has major shortcomings. First, despite having been published only a couple of years ago, the NECPs might already be outdated in some respects, hence not capturing more recent developments in a political field that is evolving at a very fast speed. Second, since the European Commission did not give precise binding guidelines to Member States on how to draft their NECPs – especially with respect to their social dimension – it is possible that the information reported in the NECPs is not exhaustive, potentially lacking important details or omitting relevant information. Third and finally, the mapping exercise performed here only considers national initiatives and proposals as described in the NECPs. Therefore, the information reported here has not been cross-checked by reading the actual national documents mentioned in the NECPs.

A set of criteria, described in detail in Annex 1, has been used to operationalise the analytical framework and to guide the mapping exercise. A score of 2 was given to a country when its NECP mentions eco-social policies that have already been adopted, a score of 1 when policies mentioned are only provisional and will be adopted in the future and, finally, a nil score when eco-social policies are proven to be missing.

6.2 Mapping EU Member States' eco-social policy mixes addressing the social implications of industrial decarbonisation

Table 3 summarises the main findings of the mapping exercise, indicating whether the NECPs mention existing or proposed national strategies ('STR'), instruments ('INS') and/or governance mechanisms ('GOV') to address the social implications of decarbonisation.

2. The full list of the 27 final NECPs and the 27 individual assessments by the Commission of the final NECPs analysed (in the English version) is not included in this paper's reference list. Nevertheless, these documents are available for consultation on the website of the European Commission: https://ec.europa.eu/info/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans_en

Table 3 **EU Member States' eco-social policy mixes for a just transition by dimension (NECPs)**

	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK
STR	-	-	-	-	2	2	-	1	2	2	-	1	-	1	2	-	-	-	-	-	2	1	1	-	-	1	2
INS	-	1	-	1	2	2	1	1	2	2	-	1	-	1	2	2	1	-	1	-	2	2	1	2	-	1	2
GOV	-	-	-	-	2	2	-	-	2	2	1	2	-	-	2	1	-	-	-	-	2	-	1	-	-	-	-

6.2.1 The strategic dimension

The strategic dimension (corresponding to the 'STR' criterion in Table 3) is measured by checking whether countries have explicitly integrated a social objective – as well as a plan of action to pursue this objective – into their national climate or energy policies. Only seven out of 27 EU countries have done this, most of them by integrating a social dimension into their coal phase-out strategies (CZ, DE, EL, ES, SK), while Ireland, Spain and the Netherlands have instead added a social dimension to climate policies. Throughout Europe, Spain is the only country where a just transition is pursued with an ad hoc Just Transition Strategy, as opposed to being incorporated into climate or energy policies. However, Ireland and Portugal have also committed to follow a similar path in the future. A just – or 'fair', or 'equitable' – transition is mentioned by 13 NECPs, although some countries have not explicitly translated this objective into any strategy (DK, FI, LV, RO), like Spain, Greece and Ireland have, or, like other countries (EE, HU, FR, PT, PL, SI), have committed to do so in the future. While they have integrated social objectives into their climate or energy strategies, Czechia, Germany, the Netherlands and Slovakia did so without relying expressly on the just transition notion.

Importantly, the strategic scope of eco-social policy mixes varies considerably across European countries, as strategies can be either broad ('BRO' in Table 4), or narrow ('NAR' in Table 4). Table 4 below divides existing and proposed eco-social strategies into these two categories. Among all EU Member States, only Spain has adopted both a broad, whole-economy strategy – through the national Just Transition Strategy – and a narrow, sector-specific one – through the Urgent Action Plan for Coal-mining Regions and Power Plant Closures. Ireland, the Netherlands and France have set broad social objectives in their climate action plans, although, in the case of France, the NECP does not provide any descriptive detail on these objectives. Besides Spain, strategies with a narrow scope can be found in coal-intensive countries, where governments have integrated a social dimension into sector-specific or territorial strategies, respectively for the Ústí, Moravian-Silesian and Karlovy Vary regions in Czechia; Western Macedonia and the municipality of Megalopolis in Greece; Upper Nitra in Slovakia; and various coal regions in Germany. In these countries, eco-social strategies aim at cushioning job losses and displacements, enabling the transition towards a transformed labour market and ensuring territorial and social cohesion. The Estonian, Hungarian, Polish and Slovenian NECPs also mention the countries' intentions to develop narrow just transition strategies for decarbonising their fossil fuel sectors in the future. Among all the existing and proposed narrow strategies,

only the Portuguese and Dutch proposals are not exclusively dedicated to the extractive sector. Most narrow strategies address challenges related to the phase-out of fossil fuels, mainly coal and lignite, but also peat in Ireland and oil shale in Estonia. Attention to social objectives in other sectors is limited, if not absent.

Table 4 **EU Member States' eco-social policy mixes for a just transition by strategic scope (NECPs)**

	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK
BRO	-	-	-	-	-	-	-	-	-	2	-	1	-	-	2	-	-	-	-	-	2	-	1	-	-	-	-
NAR	-	-	-	-	2	2	-	1	2	2	-	-	-	1	-	-	-	-	-	-	1	1	1	-	-	1	2

6.2.2 The instrument dimension

With respect to the instrument dimension (measured through the 'INS' criterion in Table 3), it can be clearly seen from Table 3 that, almost everywhere in Europe, governments have developed, or are at least planning to develop, some measures to address the social impacts of decarbonisation. Notable exceptions include Austria, Bulgaria, Croatia, Finland, Luxembourg, Malta and Sweden. This result seems to indicate a positive trend with respect to the spreading of eco-social policy instruments for a just industrial transitions across Europe. Nevertheless, not all the instruments identified are described with much detail in the NECPs, nor do all NECPs cite existing measures, but often rather general commitments, which is why many countries have been attributed only a half score (i.e. 1 instead of 2 in Table 3). As is predictable, countries that score positively on the strategic dimension also do so on the instrument dimension, meaning that their NECP mentions policy instruments to deliver on the objectives set at the strategic level. However, the cases of Estonia, Italy, Poland and Romania show how policy instruments to address the social consequences of decarbonisation can exist in the absence of a strategy.

Table 5 below adds an extra layer to the analysis by grouping eco-social mixes by instrument type. The result is a high heterogeneity of instruments, which can be clustered in the following groups: (i) active labour market policies targeted at workers made redundant by decarbonisation ('ALM' in Table 5); (ii) passive labour market policies targeted at workers made redundant by decarbonisation ('PLM' in Table 5); (iii) funds for the socio-economic development of regions particularly badly affected by decarbonisation ('DEV' in Table 5); and (iv) education and training measures fostering the development of skills for green jobs in the whole population and/or workforce ('EDU' in Table 5).

The latter category of measures is prevalent across EU Member States (BE, CZ, DK, EL, ES, FR, IE, LT, NL, PT, RO, SI). Nevertheless, noticeably, these countries all put forward only proposals to improve education curricula or to develop training facilities for green skills in the future. Although a number of

other NECPs (AT, BG, CY, DE, EE, HR) do take into account green training and education, they do not set out any specific proposals (which is why they have been attributed a nil score for 'EDU' in Table 5). Active labour market instruments aim to improve or reorient redundant workers' skills and to facilitate jobseekers' relocation in a transformed labour market. Greece, Ireland, Italy and the Netherlands allocate financial resources to this end, while other countries (EE, ES, FR, HU, LV, PL) pledge to do so in the future. Among existing active labour market instruments, only the Netherlands provides funds that are not limited to workers of the coal sector but are targeted also at those employed in electricity, industry, agriculture, the built environment and mobility. Passive labour market instruments could be found in coal- or lignite-intensive countries (CZ, DE, ES, RO, SK), where governments provide – as part of state aid to the fossil fuel sector – direct financial compensation to workers. In many of these cases, state aid was originally meant to support and restore uncompetitive companies, whereas now it is supposed to accompany coal phase-out. Another widespread eco-social policy instrument implemented by some countries (CZ, DE, EE, EL, ES, IE, PL) and soon to be implemented in Romania is development funding for economic diversification and job creation in coal-dependent regions or territories. These funds are to be directed towards the economic diversification of these territories away from fossil fuels and consequent job creation. Finally, Table 5 also lists NECPs that recognise EU funds and facilities as sources to address the social consequences of decarbonisation ('EU' row in Table 5). These mainly include the EU Just Transition Fund and the Initiative for Coal Regions in Transition. Although these are not proper national initiatives, they are often presented as important instruments in the national mix.

Table 5 **EU Member States' eco-social policy mixes for a just transition by instrument type (NECPs)**

	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK
ALM								1	2	1		1		1	2	2			1		2	1					
PLM					2	2				2														2			2
DEV					2	2		2	2	2					2							2		1			
EDU	-	1	-	-	1	-	1	-	1	1		1	-	-	1		1				1	-	1	1		1	
EU			1	1	2	1		1	2					2	2				1			2	1	2			

6.2.3 The governance dimension

Finally, besides strategies and instruments, governance structures are another fundamental component of any eco-social policy mix for a just transition, as they are key to increasing social consensus and reducing conflicts around decarbonisation. To measure this governance dimension ('GOV' in Table 3), we have checked whether the NECP mentions established or planned institutional structures or stakeholder engagement mechanisms set up to address the social implications of decarbonisation.

Table 3 above shows the result of this mapping exercise. Most NECPs score low or nil in this measurement. Perhaps unsurprisingly, wherever there is a scarcity of eco-social strategies, governance schemes are also lacking. Conversely, Slovakia lacks any governance structure, despite having an eco-social strategy in place. To enable the preparation of eco-social strategies, Czechia and Germany have set up multi-stakeholder coal commissions; Greece and Spain have established interinstitutional coordination structures; and Ireland and the Netherlands have tasked their national Economic and Social Councils with providing recommendations on the social dimension of decarbonisation. Spain and Ireland have also set up governance mechanisms for the implementation of their eco-social strategies and policies, respectively a Just Transition Institute responsible for the governance of Just Transition Agreements and a Just Transition Commissioner. Other interesting examples of eco-social governance structures not related to any strategies or instruments can also be found in Italy, where sectoral working groups will be organised by the Ministry of Economic Development; France, with its National Council for Ecological Transition; and Finland, where the NECP reports the government's intention to establish a Working Group for the territorial and social fairness of the peat industry transition.

6.2.4 Conclusions: an underdeveloped field

Summing up, there seems to be a prevailing pattern across Member States when it comes to pursuing a just transition through eco-social policy mixes. Indeed, most eco-social policy mixes are *narrow* in scope, mainly targeting the social risks faced by fossil fuel workers and communities. Spain, Ireland and the Netherlands deviate from this pattern, by setting broader just transition objectives in their national strategies. Moreover, most of the existing instruments rely on a growth-oriented *investment* logic, which translates into a striking prevalence of active labour market policies, training and education targets and economic development funds over more traditional protection-oriented instruments. Moreover, where in place, passive labour market policies often accompany problematic state aids to the coal industry.

The most relevant finding of the analysis is that a considerable number of EU countries have not put forward any eco-social policy mixes to tackle the social challenges of decarbonisation. This might be explained by the fact that not all countries necessarily expect to face these challenges. Therefore, as a final step in the analysis, a new Table 6 juxtaposes Table 3 and its three dimensions – strategy ('STR'), instrument ('INS') and governance ('GOV') – with a new criterion 'ISS', measuring whether the NECPs acknowledge the negative social impacts of decarbonisation. As is evident, most EU Member States at least partially expect the energy transition to bring about some negative consequences (denoted with an 'X' in the 'INS' row). Conversely, most Nordic and some medium-to-small-sized European countries (AT, DK, FI, HR, LT, LU, MT, SE) do not acknowledge in their NECPs any significant negative social impact worth addressing, which most probably explains why none of these countries has yet adopted eco-social policies. In the rest of the EU, trade-

offs are mostly expected to arise in the extractive sector, in fossil fuel-based energy production, in energy-intensive industries and, less frequently, in other economic sectors, such as automotive, transport, agriculture and land use. Finally, many countries (BE, BG, CY, HU, LV, PT, SI), despite expecting some negative social impacts, have yet to adopt any eco-social policies to address such impacts.

Lastly, Table 6 also contains the criteria 'CLIM' and 'COAL', already presented in Section 2 and measuring countries' climate and energy performance. These are added to show how just transition policies are nested in countries' broader decarbonisation efforts. First, interestingly, in the group of six countries that have adopted a comprehensive policy mix for a just transition, there are climate leaders (the Netherlands and, to a lesser extent, Germany), but also stragglers (Czechia, Greece, Spain and, above all, Ireland). Moreover, several countries that are stragglers in coal phase-out commitments – Czechia, Germany, Romania and Slovenia – have adopted or committed to adopt policies to accompany the coal exit with attention to its social consequences. This fact is raising criticism about the use of the just transition notion, as it could be advanced as a pretext to actually slow down decarbonisation efforts, in the light of its socially disruptive effects. Perhaps this is nowhere as evident as in Poland, a country that is endorsing a just transition (as shown in this report) without actually even committing to phase out coal or to increase its poor climate aspirations.

Table 6 **Table 6 EU Member States' eco-social policy mixes for a just transition (NECPs) and decarbonisation indicators**

	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK
STR	-	-	-	-	2	2	-	-	2	2	-	1	-	1	2	-	-	-	-	-	2	1	1	-	-	1	2
INS	-	1	-	1	2	2	1	2	2	2	-	1	-	1	2	2	1	-	1	-	2	2	1	2	-	1	2
GOV	-	-	-	-	2	2	-	-	2	2	1	2	-	-	2	1	-	-	-	-	2	-	1	-	-	-	-
ISS	-	X	X	X	X	X	-	X	X	X	-	X	-	X	X	X	-	-	X	-	X	X	X	X	-	X	X
CLIM	37	35	26	30	33	45	49	24	32	35	42	65	43	32	21	41	42	56	41	30	58	16	66	33	77	34	34
COAL	F	F	38	F	33	38	28	F	25	30	29	24	33	25	25	25	F	F	F	F	29	-	F	32	F	33	30

7. Conclusions

Just transition is becoming an increasingly popular multifaceted and multidimensional concept to address the potentially detrimental social consequences of industrial decarbonisation. These include redundancies in carbon-intensive firms and losses of income and well-being in marginalised communities. However, the potentially important role of just transition as a policy objective has so far been greatly overlooked. The core aim of this study has thus been to assess whether and how EU and national policy documents speak about a just transition and/or about tackling the social consequences of industrial decarbonisation. To this end, building on a review of the reference literature, the paper has referred to the concept of *eco-social policy mixes for a just transition*. These were then mapped in their three constitutive dimensions – strategy, instrument and governance – and analysed according to their scope and their contribution to economic growth. This was done through a manual textual analysis of relevant EU documents and of 27 country-specific National Energy and Climate Plans.

The mapping exercise performed here has brought some interesting findings to light, both supranationally and nationally. At the EU level, the European Green Deal, together with the European Pillar of Social Rights, constitutes the main eco-social strategic framework, in that it explicitly endorses the just transition concept, while the most prominent EU eco-social instruments and governance procedures are related to the Just Transition Mechanism. At the national level, while most countries recognise how decarbonisation could lead to some negative social outcomes, eco-social instruments and governance procedures are still relatively rare across Europe. Only six EU countries (CZ, DE, EL, ES, IE, NL) have adopted comprehensive eco-social transition policy mixes, i.e. comprising strategies, instruments and governance mechanisms. Of these, only Spain has notably done so with an ad hoc national Just Transition Strategy.

With respect to what kind of just transition the EU and its Member States are promoting, we found two main characteristics that define this policy goal, as presented by most European policies. First, just transition most often has a *narrow* scope, mainly targeting challenges that are identified as the most urgent. This translates into almost exclusive attention to what can be seen as the 'low-hanging fruits' of decarbonisation – i.e. mostly coal, with a more marginal role for other fossil fuel sectors and energy-intensive industries. At the EU level, the European Pillar of Social Rights could represent a potential tool to broaden the scope of the narrow just transition notion proposed in

the EGD. At the national level, only Spain, Ireland and the Netherlands have adopted a broad strategic approach, committing to address – at least on paper – other social issues beyond the urgent challenges arising from the decarbonisation of their fossil fuel sectors.

Second, the current EU eco-social policy mix overstates the role of *investment*-oriented measures as the sole means to address the new social risks generated by decarbonisation. The comparative assessment of EU Member States' National Energy and Climate Plans has led to similar results. This means that most EU countries put forward active labour market policies, training and education policies and development funds. All in all, in Europe, investment-oriented instruments outnumber protection-oriented ones, as the main logic is primarily to enhance people's participation in a new decarbonised economy and society – hence directly contributing to green growth – as opposed to compensating people for the losses they might unfairly experience in the transition.

In conclusion, just transition provides an important normative objective for eco-social policies across the EU. However, to ensure that it is properly implemented, comprehensive policy mixes need to be more widespread. Moreover, while withdrawing from fossil fuels is arguably an enormous effort in itself, a broader understanding of just transition at the strategic level would be necessary so as to focus on other potential decarbonisation-related social risks. This would help to foster a preventive approach to just transition, which not only reacts to the emergencies of today, but prepares the ground to avoid other future social disruptions. Moreover, when it comes to instrument design, EU countries markedly prefer investment-oriented measures. These are undoubtedly an important means to accompany decarbonisation. However, training measures, development funds and active labour market policies alone cannot do all the work. New creative, protection-oriented measures, including income support and social services, would also be required as complements in order to fully guarantee that decarbonisation is ultimately just. Furthermore, the governance level should also be considered a key ingredient of eco-social policy mixes, to ensure not only the effective delivery of measures adopted, but also their social acceptance through broad stakeholder and citizens' participation.

Finally, in conclusion, we should point out how just transition is starting to raise some eyebrows, since it is increasingly endorsed by fossil fuel-intensive climate stragglers, like Poland. While this may seem like a nonsensical result, it can actually be explained by looking at the contested nature of the concept, which can assume different meanings for different actors. In the case of climate stragglers, just transition often ends up as a demand to slow down decarbonisation efforts, with the allegation that abandoning fossil fuels would be too socially disruptive. Thus, in these cases, there is going to be a mismatch between the declared eco-social intentions of policies for a just transition and their actual non-ecological – and sometimes also unjust – impacts. In short, the mere existence of policies pursuing a just transition – which was the object of study for this paper – is not sufficient to actually

underpin the delivery of an eco-social transition. Against these attempts to distort the original meaning of the just transition concept, going forward it would be important to make sure that just transition policies are attached to high climate ambitions, so that they could effectively contribute to attaining the targets of the Paris Agreement.

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All links were checked on 6 July 2022.

Annex 1

Criteria for mapping eco-social policy mixes for a just transition in EU Member States' National Energy and Climate Plans (with codes)

1. **The dimensions of the policy mix**
- Does the NECP mention existing/proposed strategies that set policy objectives to address the social implications of decarbonisation? **(STR)**
- Does the NECP mention existing/proposed policy instruments to address the social implications of decarbonisation? **(INS)**
- Does the NECP mention existing/proposed governance or participative structures? **(GOV)**

2. **Typology of just transition: instrument types**
- Do existing/proposed policy instruments include active labour market measures targeted at workers made redundant by decarbonisation? **(ALM)**
- Do existing/proposed policy instruments include passive labour market measures targeted at workers made redundant by decarbonisation? **(PLM)**
- Do existing/proposed policy instruments include funds for the development of regions particularly affected by decarbonisation? **(DEV)**
- Do existing/proposed policy instruments include education and training measures to foster the development of green skills in the population and/or workforce? **(EDU)**
- Are EU funds and facilities recognised as sources to address the social consequences of decarbonisation? **(EU)**

3. **Typology of just transition: strategic scope**
- Do existing/proposed strategies aim to address the social implications of decarbonisation in the whole economy? **(BRO)**
- Do existing/proposed strategies aim to address the social implications of decarbonisation in specific sectors or territories? **(NAR)**

4. **Control criteria**
- Does the NECP recognise the social risks or challenges generated by decarbonisation? **(ISS)**
- Is the country coal-free (F)? If not, when is the national coal phase-out target year? (**COAL**: data from Europe Beyond Coal 2022)
- How does the country rank with respect to climate ambition and progress? (**CLIM**: data from Climate Action Network 2018)

Annex 2

Mapping eco-social policy mixes for a just transition in EU Member States' National Energy and Climate Plans[3] (with country codes)

Austria (AT)

Issue dimension (ISS)	Employment impacts are recognised but not assessed. Impacts in construction, transport and power generation and supply are expected to be positive; the effect in manufacturing is more ambiguous.
Strategy dimension (STR)	–
Instrument dimension (INS)	There is a very generalised commitment to improve training for professionals and to include climate protection in learning curricula and technical training programmes.
Governance dimension (GOV)	–

Belgium (BE)

Issue dimension (ISS)	Employment impacts are recognised, but not assessed. The overall employment impact is said to be positive (in Wallonia and Flanders), with some possible negative downturns for specific territories, sectors and social categories (in Wallonia). A positive impact on employment is expected in the building sector (in Flanders), but a negative impact in the energy and transport sectors (in Wallonia).
Strategy dimension (STR)	–
Instrument dimension (INS)	There is a commitment to address skills-related aspects of several policies (through vocational training, support to jobseekers and climate-related education, especially for new sectors) through an 'Employment-Environment-Finance' Alliance. Moreover, the NECP states that a register of 'at-risk jobs' in all sectors will be created as part of the transition to a low-carbon economy and this will be analysed in the context of training and retraining needs.
Governance dimension (GOV)	–

3. For each country, two documents are used as references for the following country-specific tables: the final NECP received by the European Commission and the Commission's individual assessment of the final NECP, both in the English version. The full list of the 54 documents is not included in the reference list. Nevertheless, these documents are available for consultation on the website of the European Commission: https://ec.europa.eu/info/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans_en (accessed December 2021).

Bulgaria (BG)

Issue dimension (ISS)	Both positive and negative employment and skills impacts are recognised but not assessed. Negative employment impacts are expected in coal mining and energy-intensive industries.
Strategy dimension (STR)	–
Instrument dimension (INS)	There is a commitment to use EU instruments for carbon-intensive regions, both financial (EU funds) and non-financial (opportunity to join Coal Regions in Transition). There is a generalised commitment to improve digital skills for a socially-oriented transition.
Governance dimension (GOV)	–

Cyprus (CY)

Issue dimension (ISS)	The employment effects of decarbonisation are recognised and assessed. There is no consideration for skills. Positive employment impacts are expected mainly in the energy and regeneration sectors, but negative (albeit marginal) ones in the fossil fuel sector.
Strategy dimension (STR)	–
Instrument dimension (INS)	The opportunity to use the EU Just Transition Mechanism to support the most severely impacted territories and sectors is mentioned. There is a commitment to 'Developing New Skills and Enhancing/Upgrading Existing Skills' as one of the pillars of the New Industrial Policy for 2019-2030. This is, however, not explicitly related to green jobs.
Governance dimension (GOV)	–

Czechia (CZ)

Issue dimension (ISS)	The negative employment impacts of decarbonisation are partially recognised, mostly in the lignite mining sector.
Strategy dimension (STR)	The RESTART Programme (2015) is described in the NECP as a 'comprehensive framework for the restructuring of the Ústí, Moravian-Silesian and Karlovy Vary regions, which should contribute to the fair transformation of coal regions'. There are no specific instruments related to the Programme, which is a strategic framework, setting the government's long-term objectives, and providing for region-specific and periodic Action Plans. The Programme sets goals for the restructuring of the lignite sector, including 'Social Stabilisation'.
Instrument dimension (INS)	A 1992 plan to end coal mining in uneconomic underground mines and quarries is mentioned. This is meant to cover the social costs of phasing out mining activities (e.g. health benefits for miners) for workers and communities in lignite regions. There are government-approved periodic territorial development action plans to implement the RESTART Programme in the Ústí, Moravian-Silesian and Karlovy Vary regions, as well as financial envelopes attached to them. Three regions are involved in the EU Platform for Coal Regions in Transition. There is a cross-cutting target on education, training and awareness-raising in the National Action Plan for Adaptation to Climate Change.
Governance dimension (GOV)	A Coal Commission was established in 2019, chaired by the Minister of Industry and Trade together with the Minister of the Environment with the aim of (i) 'assessing the future needs of lignite' and (ii) analysing 'the possibilities of future diversion from coal'. The Coal Commission and its three working groups are composed of 19 members, including ministries and offices, trade unions, industrial associations, non-profit organisations, regions, the Chamber of Deputies and academics.

Germany (DE)

Issue dimension (ISS)	The employment and skills impacts of decarbonisation are recognised and partially assessed. The net employment impact is expected to be positive (with 185 000 more jobs in 2030), with skills impacts being negative, as there will be a shortage of skills in sectors undergoing the transition, especially the technical and construction sectors. The employment impacts are said to be negative in the energy, automotive and transport sectors.
Strategy dimension (STR)	The Final Report of the Commission on Growth, Structural Change and Employment encompass recommendations on how to phase out coal-fired power generation by 2038 in a socially responsible manner. When the final NECP came out, the German Federal Cabinet was in the process of converting the recommendations into a bill. A just transition is not explicitly mentioned in the NECP.
Instrument dimension (INS)	There are financial policy instruments for workers of hard-coal mining sectors and coal region communities: – 'Granting of transition monies to workers employed in the hard-coal mining sector' until 2027, i.e. 'subsidies for the early retirement of employees leaving the hard-coal mining industry', provided in the context of the arrangements for ending hard-coal mining; – Structural Development Act for the Coal Regions (2019) to channel funds to regions affected by the phasing-out of coal-fired power generation; – Attention to training and consumer awareness, but no specific measure; – Acknowledged opportunity to use the resources of the EU Just Transition Fund.
Governance dimension (GOV)	The Commission on Growth, Structural Change and Employment was established in 2018 by the government. It comprised several stakeholders and it was tasked with formulating recommendations on German energy policies, mainly on the coal phase-out.

Denmark (DK)

Issue dimension (ISS)	The employment and skills impacts of decarbonisation are recognised but not assessed, beyond the energy sector. They are seen as positive, provided that the government duly intervenes.
Strategy dimension (STR)	Fairness, justice and equality are mentioned in general terms in the NECP as objectives of the government in the energy transition, but there is no indication as to whether or how the government has translated these objectives into actual policies.
Instrument dimension (INS)	Existing policies address the educational and skills impacts of the transition through changes in study programmes in education and an initiative to improve skills in the building sector.
Governance dimension (GOV)	–

Estonia (EE)

Issue dimension (ISS)	The employment impacts of decarbonisation are recognised but not assessed. Different sectors are said to be experiencing different impacts: agriculture, transport, heating and building, and energy (oil shale mining) sectors.
Strategy dimension (STR)	The government states in the NECP that the country has signed the 2018 Solidarity and Just Transition Silesia Declaration and the NECP contains a commitment to supplement existing plans for the Ida-Virumaa County (where oil shale mining is concentrated) with just transition measures, for instance to re-employ redundant workers in green jobs.
Instrument dimension (INS)	There is a generic commitment to provide in-service training to employees. The EU Just Transition Fund is mentioned as a possible tool to assist impacted regions.
Governance dimension (GOV)	There were NECP-related discussions on the topic of a just transition and low-carbon technologies with 60 participants at the Ministry of the Environment on 18 October 2019. No permanent governance structure followed.

Greece (EL)

Issue dimension (ISS)	The employment impacts of decarbonisation are partially recognised and assessed as generally positive, especially in the renewables and energy efficiency sectors, but with some negative downturns for other sectors (mainly lignite). The skills impacts are recognised but not assessed.
Strategy dimension (STR)	The 'Just Development Transition Master Plan' (2020) is described as an 'integrated, multi-faceted and front-loaded' plan with financial and non-financial initiatives for workers and communities of lignite-dependent territories experiencing phase-out (Western Macedonia and Megalopolis), including: 'investment and tax incentives, new infrastructures, new technologies, utilising local natural resources, supporting agricultural production and tourism, retraining workers, securing existing jobs and creating new ones through flexible developmental transformation and through growth in all production sectors'.
Instrument dimension (INS)	To implement the above-mentioned strategy, the NECP cites the following initiatives: EU Just Transition Fund and other European funds; a National Fund channelling funds to lignite regions from the revenue from the auctioning of Emissions Trading Scheme allowances (albeit reduced); and several training initiatives (e.g. incentives for businesses to retrain their employees in the single-use plastic sector). The 'LIFE-IP AdaptInGR – Boosting the implementation of adaptation policy across Greece' project is expected to provide education and training for the human resources of the bodies responsible for implementing climate change adaptation actions and policies.
Governance dimension (GOV)	There is an Interministerial Committee (December 2019) coordinating and laying down the priorities for the Master Plan and there were coordinated procedures for drafting the Master Plan, open to local communities (regions, municipalities, chambers) and other stakeholders.

Spain (ES)

Issue dimension (ISS)	The employment and distributional impacts are recognised and assessed: a net increase in employment (+1.7% in 2030) is expected through investments in renewables, efficiency and networks. This positive employment impact will affect especially industries like trade and repair, manufacturing and construction, but also the service sector and electricity. The only negative employment impact foreseen is related to disinvestment in coal mining and quarrying.
Strategy dimension (STR)	There is a national Just Transition Strategy (2019) attached to the NECP, proposing, among other things, 'green employment policies, vocational training policies, better guidance for companies and the promotion of transition guidance plans for industry and other sectors'.
Instrument dimension (INS)	The measures contained in the Just Transition Strategy mainly target, for now, the coal mining and coal production sectors; these measures are: – a Framework Agreement for the coal sector (2018) and the subsequent 2019-2021 Urgent Action Plan providing technical and financial assistance to coal workers and regions; – Just Transition Agreements providing ad hoc guidance (with respect to available policy, projects and funding opportunities) for sectors and groups at risk. Finally, measures for training professionals in renewable energy and energy efficiency are proposed (under the responsibility of the Autonomous Communities).
Governance dimension (GOV)	A Just Transition Institute has been created within the Ministry for Ecological Transition. The administrative bodies responsible for the Just Transition Strategy are cooperating. These include the Ministry for Ecological Transition, the Ministry of Labour and Social Economy; the Ministry of Agriculture, Fisheries and Food and regional and local governments. Business organisations, trade unions and other social organisations were also involved in the design and implementation of the Just Transition Strategy. They are also actively involved in the Just Transition Agreements.

Finland (FI)

Issue dimension (ISS)	The employment impact of decarbonisation is only marginally assessed as positive (growth of 3% by 2030 compared to 2015).
Strategy dimension (STR)	There is only a generalised commitment by the government in the NECP, but no evidence of any national initiative explicitly encompassing this commitment: 'a fair transition is a guiding theme in the government's climate policy. Emissions reduction measures will be carried out in a way that is fair from a social and regional perspective, and that involves all sectors of society'.
Instrument dimension (INS)	–
Governance dimension (GOV)	A ministerial working group on climate and energy issues will be established to assess the climate impacts of legislation. A Round Table on Climate Policy in connection with the Sustainable Development Committee will bring together a variety of social stakeholders, making sure that climate measures are supported by the public. A broad-based Peat Industry Working Group will be established to ensure geographic and social fairness in the government's upcoming effort to halve the use of peat by 2030.

France (FR)

Issue dimension (ISS)	The employment impacts of decarbonisation are recognised and partially assessed. A positive employment impact (300 000-500 000 extra jobs by 2030) is expected in all sectors, especially the tertiary sector. A negative employment impact is expected in fossil fuel extraction, fossil-fired and nuclear power plants and road goods haulage. Skills needs are acknowledged but not assessed.
Strategy dimension (STR)	The NECP mentions 'a fair transition for everyone' among the cross-sectoral guidelines of the National Low-Carbon Strategy (SNBC). However, no detail is provided with respect to how this objective is or will be implemented.
Instrument dimension (INS)	The Skills Investment Plan includes a commitment to improve curricula, develop skills and provide targeted training to students, in-service workers (by professional discipline) and jobseekers in professions impacted by the energy transition.
Governance dimension (GOV)	The National Council for Ecological Transition ('including representatives of each group within civil society, e.g. representatives of workers and employers, consumer rights activists, environmental NGOs, local authorities and members of parliament') has highlighted through its 2019 Opinion 'the importance of the economic and social impacts of the guidelines outlined in the SNBC and the need for supporting measures'.

Croatia (HR)

Issue dimension (ISS)	The employment impact is recognised as positive but not assessed in detail. Employment increases are expected in construction, industries and the tertiary sector.
Strategy dimension (STR)	–
Instrument dimension (INS)	Training measures are mentioned, but not enough detail is provided on how these measures relate to the green transition.
Governance dimension (GOV)	–

Hungary (HU)

Issue dimension (ISS)	The employment impacts are partially recognised as negative but not assessed. Negative impacts ('the creation and retention of jobs, the indirect creation of jobs by related undertakings, and local tax revenues') are expected in relation to the decarbonisation of the lignite-fired Mátra Power Plant by 2030.
Strategy dimension (STR)	There is a commitment to pay attention to economic diversification and just transition aspects in the revitalisation of the lignite-powered Mátra Power Plant, including through dedicated just transition 'strategies' or 'agreements' for women and vulnerable social groups.
Instrument dimension (INS)	There are proposals for the just transition of the lignite-powered Mátra Power Plant: monitoring labour market impacts of the transition, improving employment prospects in the green economy, supporting opportunities for training and retraining, enforcing of equal opportunities for women and vulnerable social groups. A just transition is mentioned among the priorities of the Modernisation Fund.
Governance dimension (GOV)	–

Ireland (IE)

Issue dimension (ISS)	The employment, skills and distributional impacts of decarbonisation are recognised but not fully assessed. The macroeconomic impact in general is said to be positive. Negative employment impacts are expected, especially in the peat extraction sector. Skills needs are identified for sectors like retrofitting, new farming methods, soil remediation and the bioeconomy.
Strategy dimension (STR)	A just transition is an explicit objective of the national Climate Action Plan and Future Jobs Ireland, both adopted in 2019. Furthermore, the NECP contains a proposal for a five-year Just Transition Strategy for people affected by the transition.
Instrument dimension (INS)	There are specific measures to respond to the fallout from the cessation of peat harvesting by Bord na Móna in Budget 2020: the appointment of a Just Transition Commissioner; the establishment of a €6 million Just Transition Fund to support the retraining and reskilling of workers and assist local communities and businesses in the Midlands to adjust to the low-carbon transition; the allocation of €5 million for bog restoration and rehabilitation; and the provision of €20 million to deliver a new model for housing upgrades. Other instruments that will be proposed as part of the national Just Transition Strategy include: promoting information and capacity building, introducing training and support initiatives for communities, improving targeting of energy schemes, addressing the impact of carbon pricing on vulnerable people, and enhancing the capacity of the education and training system to support a just transition. Finally, Ireland is part of the EU Platform for Coal Regions in Transition.
Governance dimension (GOV)	A Just Transition Review Group (involving several stakeholders) has been established within the National Economic and Social Council, in charge of providing capacity building, periodic reviews and advice on a just transition. Moreover, a Just Transition Commissioner has been appointed to engage with all relevant stakeholders in the Midlands. At the local level, there is also a Midland Regional Transition Team. Finally, there are initiatives to improve citizens' involvement in the Climate Action Plan, including engagement capacity building and local community action.

Italy (IT)

Issue dimension (ISS)	The employment and skill impacts of decarbonisation are recognised and assessed. In particular, the NECP identifies the most severely affected occupations and the skills associated with them, while evaluating the importance of different skills. Different sectors are shown to be impacted either negatively or positively. Employment impacts in the coal sector phase-out are expected to be negative.
Strategy dimension (STR)	–
Instrument dimension (INS)	There are measures to counteract the impact on 3 800-plus direct and indirect full-time equivalent workers employed in electricity generation from eight coal-fired power plants: (i) Decree-Law 101/2019, establishing that, from 2020 to 2024, the amount exceeding €1 000 million of the proceeds from the auctions for the allocation of EU ETS quotas, up to a maximum of €20 million per year, will be channelled to a fund for vocational retraining in areas in which coal-fired power plants are located; and (ii) the public-private 'Futur e' project for the decommissioning of old thermoelectric power plants (including coal-fired ones) and for the retraining and redeployment of workers, industrial negotiations and conversion of sites.
Governance dimension (GOV)	Sectoral working groups will be organised by the Ministry of Economic Development to assess the technical and regulatory conditions, the necessary infrastructure and the best means of safeguarding jobs in industrial and carbon-intensive regions particularly affected by decarbonisation policies. These working groups will include several stakeholders, including operators, local authorities, Terna and the social partners.

Lithuania (LT)

Issue dimension (ISS)	The employment impacts of decarbonisation are recognised and assessed as positive (between 2020 and 2030, the employment rate is expected to increase by 1.56%). No consideration is given to employment impacts in specific sectors (especially carbon-intensive industries expected to reduce their emissions).
Strategy dimension (STR)	–
Instrument dimension (INS)	There are various commitments to provide training for environmental professionals.
Governance dimension (GOV)	–

Luxembourg (LU)

Issue dimension (ISS)	Employment impact is recognised (as positive) but not assessed.
Strategy dimension (STR)	–
Instrument dimension (INS)	–
Governance dimension (GOV)	–

Latvia (LV)

Issue dimension (ISS)	The employment impact of the transition is generally recognised as positive and assessed (with up to 4 600 new jobs and around 6 100 indirect jobs). Possible negative social impacts are recognised but not assessed. The positive employment impact will especially derive from energy efficiency and renewable energy development: building, industry and service sector. Conversely, possible negative impacts are expected in the agriculture, land-use and forestry sector, in the energy sector and in emission-intensive industries.
Strategy dimension (STR)	A 'fair transition' is mentioned in the NECP, but not translated into any national policy. The government's commitment to a just transition is hence too vague.
Instrument dimension (INS)	There is a commitment to put forward possible just transition policies for sectors in transition. This entails ensuring that employees' social situation should not be adversely affected by the transition, through training and reorientation of individuals' careers, and help with finding a job in another sector, including help with changing residence. There is also an invitation to use EU structural funds to support reskilling, the development of employees' skills or the mitigation of the impact of higher energy prices on the financial capacity of households.
Governance dimension (GOV)	–

Malta (MT)

Issue dimension (ISS)	The employment (job-creation) impact of the transition is recognised as positive and assessed, but there is a lack of recognition of possible trade-offs.
Strategy dimension (STR)	–
Instrument dimension (INS)	–
Governance dimension (GOV)	–

Netherlands (NL)

Issue dimension (ISS)	The employment impact of the transition is recognised and assessed as limited. However, some short-term negative impacts are recognised (like decreasing labour demand in fossil-intensive sectors). Skills needs are acknowledged but not assessed.
Strategy dimension (STR)	The government is committed to adopting an integrated approach towards the labour market and training issues related to the transition. In 2018, the Social and Economic Council put forward recommendations to boost the opportunities and absorb the social risks of the transition, which were then transposed into the national Climate Agreement. Also in the context of the national Climate Agreement, the government committed to establish sectoral (including in the electricity and industry sectors) educational and labour market agendas to be updated regularly. The concept of a just or fair transition, however, is not mentioned in the NECP.
Instrument dimension (INS)	The NECP states that the government will create a facility to address the employment effects of the energy transition by providing 'from-work-to-work' guidance and upskilling and reskilling (€22 million). This is not limited to workers in the coal sector, but also applies to those employed in electricity, industry, agriculture and land use, built environment and mobility. Furthermore, training and educational policy commitments are also mentioned.
Governance dimension (GOV)	A cross-sector Task Force within the Social and Economic Council was tasked with formulating recommendations for the Climate Agreement, representing a broad swathe of employers, employees, educational bodies and ministries. All in all, in the Netherlands, there was broad engagement of stakeholders and social partners in the development of above-mentioned policy measures.

Poland (PL)

Issue dimension (ISS)	The negative employment and skills impacts of decarbonisation are recognised, but not assessed. Negative employment and skills impacts are mainly highlighted for coal regions.
Strategy dimension (STR)	The NECP makes many references to the concept of a just transition, which the government declares that it supports. There is a commitment to develop a 'restructuring plan for hard coal and lignite mining areas' in 2020 to be cofinanced by EU funds, entailing an in-depth social, employment and skills impact assessment of the transition in mining regions.
Instrument dimension (INS)	There is also a commitment to promote regional development programmes, social and stakeholder dialogue and job-creation and requalification policies for coal regions, while also updating workers' skill profiles. The country is part of the EU Coal Regions in Transition Initiative with the Silesia, Lower Silesia, Wielkopolska and soon Małopolska regions. The government will also explore the opportunity to use the EU Just Transition Fund and other financial opportunities for coal regions. There is a 2017 national development Programme for Silesia and regional strategies for the transformation of coal regions: the Sudety Strategy 2030 in Lower Silesia; the Clean Air Programme in Małopolska; and ongoing work to prepare a document setting out the transition strategy for the Wielkopolska region. There is a commitment to develop 'comprehensive solutions concerning State Aid granted to cover losses in case of natural disasters and insurance systems covering risks caused by climate change'.
Governance dimension (GOV)	Generically, social dialogue is encouraged.

Portugal (PT)

Issue dimension (ISS)	Decarbonisation is deemed to have a positive employment impact, but this is not assessed. Positive spillovers concern new sectors, such as renewables, electric vehicles, hydrogen, urban rehabilitation, agricultural production and R&I. Employment and skills challenges are recognised but not assessed, mainly in the fossil fuel sector.
Strategy dimension (STR)	The NECP contains 'Action Strategy No. 8.1.' which is intended to 'ensure fair transition'. There is a commitment by the government to develop a 'Fair Transition Strategy' to highlight opportunities and risks associated with decarbonisation and identify possible sources of funding. There is also a commitment to developing specific Action Plans from the Strategy, such as the Action Plan to end the generation of electricity from coal.
Instrument dimension (INS)	There is a commitment to use EU Funds, including the Just Transition Fund. There is a commitment to 'promote capacity-building (education and training) to mitigate climate change, develop a low-carbon economy and improve air quality'.
Governance dimension (GOV)	There is a commitment to ensure that the Fair Transition Strategy envisaged is designed through a multi-stakeholder process, hence involving representatives of central and local governments, representatives from the energy and environment industries and academics.

Romania (RO)

Issue dimension (ISS)	The negative social effects of decarbonisation are identified (and regions affected mapped) but not assessed. They concern mining, coal-fired plants, heavy industries and related activities.
Strategy dimension (STR)	A just transition is cited in the NECP as a policy objective in the transition for carbon-intensive sectors; however, this remains too vague.
Instrument dimension (INS)	There are several measures for the mono-industrial region of Valea Jiului: – Government Emergency Order (2019) with 'monthly supplementary income to be granted as a social protection measure, which is received by the persons made redundant from the companies for which the granting of State aid was approved in order to facilitate the closure of uncompetitive coal mines'; – EU Platform for Coal Regions in Transition; – For the financial year 2021-2027, commitment to 'consider this region for Integrated Territorial Investment allocations'; – Private project for a retraining/training centre in Valea Jiului that is to be supported by EU funds; – Human Capital Operational Programme using EU Funds to improve professional competencies and increase the employment rate in the region. The EU Just Transition Mechanism (complemented by the Modernisation Fund and InvestEU) is seen as an important tool for coal-mining and highly-emitting (heavy) industries, as well as for areas where coal-fired plants are located. The investment priorities identified for the Mechanism are: regeneration and decontamination; technologies and infrastructure; SMEs; new enterprises; R&I; development of workers' skills and competencies; assistance to jobseekers; and technical assistance. The development of specific educational packages at all levels is mentioned among the objectives of the Energy Strategy.
Governance dimension (GOV)	–

Sweden (SE)

Issue dimension (ISS)	Employment impacts are generically acknowledged but not assessed.
Strategy dimension (STR)	–
Instrument dimension (INS)	–
Governance dimension (GOV)	–

Slovenia (SI)

Issue dimension (ISS)	The employment impact of decarbonisation is recognised and assessed as positive, with a 1.4% increase expected by 2030. There is a lack of assessment of negative employment implications, which are likely to affect coal and coke production, refined petroleum, transport and the metal and paper industries.
Strategy dimension (STR)	There is a commitment to draft a strategy for abandoning coal use and restructuring coal regions in accordance with the just transition principle by 2021 at the latest.
Instrument dimension (INS)	There is a commitment to promote and monitor training especially for the transition to a climate-neutral society and to integrate climate content into education programmes.
Governance dimension (GOV)	–

Slovakia (SK)

Issue dimension (ISS)	The employment impact of decarbonisation is recognised and partially assessed. There is going to be a positive employment impact, mainly in export-oriented and capital goods industries, and a negative one, mainly in consumer goods production industries.
Strategy dimension (STR)	The Upper Nitra Development Action Plan was approved by the Slovak Government in July 2019 to address, among other issues, the employment impacts of coal mining reduction and local development issues. The plan, however, does not mention a just transition, and there is a general lack of detail on its social dimension in the NECP.
Instrument dimension (INS)	There is state aid 'to cover extraordinary costs associated with the Hornonitrianske bane Prievidza a.s. Cigel' mine', covering, among other things, extraordinary costs for workers who have lost or will lose their jobs.
Governance dimension (GOV)	The Upper Nitra Development Action Plan 'was prepared by the Office of the Deputy Prime Minister of the Slovak Republic for Investment and Informatisation in cooperation with the Trenčín self-governing region, the Association of Towns and Municipalities of Upper Nitra and interested parties from the region concerned'.

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