HdBA
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Country study of discourses, policies, and actors

An investigation of nine European countries: France, Portugal, Spain, the Netherlands, the United Kingdom, Sweden, Norway, Poland, and Slovakia

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Working Paper

of the Specialist Group on Sociology and Labour Market Policy of the HdBA

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Sustainable work in Europe – Survey of a disparate political landscape.
Purpose and outlook

Today's work-oriented societies are going through several transformational processes at once: In many places, work is becoming more digital and flexible in parallel with trends such as globalisation, demographic shifts, and migration. How to "transform work" (Kommission Arbeit der Zukunft - Commission on the future of work, 2017) is broadly discussed. However, there is one central gap in this discussion: the ecological aspects of specific kinds of work, and their consequences for labour, the labour market, and administration, largely go unmentioned. At the same time, ecologically-oriented sustainability discourses focus on consumers and companies as the central actors – while workers and their activities are usually not taken into consideration.

In contrast, national discourses in academics and in civil society are endeavouring to make work the focus of sustainable development, particularly as work is considered the medium for satisfying individual and social needs, and is one framework upon which society is built (Brandl and Hildebrand 2002; Jochum et al. 2019). Likewise, international documents such as the report on "Arbeit und menschliche Entwicklung" (Work and human development - UNDP 2015) or some of the United Nations Sustainable Development Goals (SDG, UNO 2015; UNDP 2015: 20) refer to a global perspective for facilitating humane labour that promotes development through sustainable work, and for linking this goal with the goal of safeguarding the natural and social contexts that will be needed for work in the future. Sustainable work in this context is not a fixed concept (Jochum et al. 2019): On both a national and global level, rather, the objective is to make the socially, ecologically, and economically productive and destructive potential of all work visible.

However, in the international academic workshop on "Sustainable Work" in fall 2019 at the HdBA in Schwerin, the topic met with a decidedly mixed reception among the participating European countries. As a result, the starting hypothesis formulated for this country study was that sustainable work is primarily understood outside of Germany as a commitment to justice during the transformation ('just transition') as 'good work' or, as the ILO and UN put it, 'decent work'. Furthermore, it became clear that the respective civil society, trade union, and state perspectives on sustainable work are often unrelated, and that there are country-specific development paths for fulfilling EU standards.

Therefore, it was clearly evident that more information is needed on how work is addressed in national sustainability discourses, if there was to be any hope of upholding the UN goals and coming to a cross-national understanding of the importance of work in Europe. To address this issue, on behalf of the HdBA, Dario Azzellini has explored the question of what perspectives on the topic of sustainable work are represented among political, civil society, and trade union actors in nine European countries. The source-based country studies followed the welfare state typology of Esping-Andersen, with the addition of southern European and transitional states. The focus was on how the nexus between sustainability and work is discussed in the individual countries, what structural requirements (and obstacles) exist to implement the guiding principles of sustainable work, and what strategies relevant actors are pursuing. The investigation centred on comparing political

and specific actors' perspectives on the topic of sustainable work, leading to an initial attempt to systematically address country-specific discourses on work and sustainability (chapter 11).

The results of this investigation are now available. We would like to thank Dario Azzellini for his work in many areas. He went above and beyond our expectations to painstakingly track the relationships between work and sustainability in the different countries, without being bogged down by inconsistencies in language, definitions of terms, nor by heterogeneous available sources nor the very different ways the topic is addressed in different nations and by different actors. He has presented a detailed, comprehensive dossier on the subject, and used this material to outline further interpretations.

Overall, his study makes clear that Europe is not unified on the subject; instead, sustainable work is rarely addressed explicitly, and in many cases is talked about in a highly specific manner. The first hurdle (see chapter 1) to researching sustainable work lay in the term itself. It is still only used in the countries examined to a marginal extent. Finding sufficient sources required searching for other terms not used in sustainability discourses, such as 'green jobs', 'just transition' or 'circular economy'. However, through this the study brought to light that, thus far, on the official governmental level and in national sustainability strategies, any (critical) reflection on work and the actors or dynamics of value creation or destruction involved does not go beyond the material and energy-related causes of climate change. The social organisation of work, other forms of work or other value orientations are not addressed, or addressed only in reference to the SDGs. Technology and its benefits, in contrast, play a central role – with (legitimating) references often made to its (limited) potential to create jobs.

Furthermore, the UNDP report, SDGs, and EU strategies serve as stimuli and points of reference for national discourses. To realise them, countries continue to focus on implementing innovative technologies for reducing energy and resource use in business, as countries transition to a green economy. The comparison between countries also makes clear that the roles of labour administration and social security remain marginal in discourses and programs. At most, discourses may address supporting and implementing programmes for professional qualification that focus on ecological aspects.

Below the level of national sustainability strategies and programmes, there are some regional instances, and mainly instances in civil society and in trade union environments where other labour values are certainly addressed. Broader approaches that seek to expand the capitalist and anthropocentric narrowing of the concept of paid labour are rarely seen. Discussions of (individual) aspects of sustainable work focus primarily on the precarious status, in particular, of younger workers in the labour market, and on the predictable consequences of structural change accelerated through political means as a response to climate change, similar to the coal commission or trade union positions on e-mobility in Germany.

Beyond commitments to basic values of sustainability (generational and gender justice), they only call for a social recognition of unpaid work and critique different valorisations of work. Often, all this consists of is a reference to the SDGs and an emphasis on equal participation in the workplace by all genders. Although there is fundamental criticism of the reigning model of labour in some

sectors, this criticism has little relevance in terms of concrete action; any valorisation of unpaid labour seems very far away indeed. Any comprehensive, social and ecological transformation of the work-oriented society remains simply a claim of overlapping academic and civil society debates, and in some cases in trade union discourses and initiatives as well.

Therefore, discourses on sustainable work take place in relatively enclosed environments, and at most serve as a resource or stimulus for future transformational processes. Thus far, there does not seem to be majority support for any broader recourse to these ideas in Europe, nor are they necessary for capitalist exploitation in terms of production policies (Brandl 2019). Any push to talk about individual aspects of sustainable work comes from employees with precarious positions and their representatives on the one hand, or on the other from environmental associations, civil society, and trade unions, when the focus is on transformation due to climate change or on sustaining prosperity. Elements of sustainable work can have different functions in this context: As the means to social stability and as a reference to equal opportunity and distributive justice, as a reference for basic values in the sustainability discourse (generational and gender justice).

It is clear that concepts of sustainable work from civil society actors or from academia have found their way into publications such as those from the UNDP, drawing from the research on sustainable work, although this work is limited in many ways and focused on nationally-specific issues. Overall, however, these concepts are still considered more as a potential or as a resource. A diffusion process has certainly begun. We would like to see this analysis by Azzellini help to expand discussions on aspects of sustainable work on the European level. It also provides stimuli for academic discussion across national borders. The initial typification of the countries set forth here, as well as the further areas of research derived from the analysis, can foster this discussion (chapter 11). Ideally, the content of this work would serve as a starting point to establish a European research network on sustainable work, labour and labour market (administration).

Dario Azzellini

1. Introduction

This investigation on discourses of sustainable work is composed of nine source-based country studies. Discourses, policies, and actors relevant to the topic in France, Portugal, Spain, the Netherlands, the United Kingdom, Sweden, Norway, Poland, and Slovakia are identified, summarised, and analysed. By doing so, this paper hopes to go beyond the individual studies to facilitate empirical comparisons between countries.

After the 17 Sustainable Development Goals (SDGs) were formulated at the UNO Sustainable Development Summit in 2015 and signed by all of the world's governments (United Nations - UN 2015), sustainable work and sustainable development were supposed to be included in global, EU-wide, and national sustainability programmes and sustainability policies. The UNDP report "Labour and human development" calls for a transition to sustainable work, and

> "defines this as work that promotes human development while at the same time reduces or excludes negative external impacts that may be experienced in a variety of geographic and temporal contexts. It is not only essential for the preservation of our planet, but also to ensure that future generations continue to have work". (UNDP 2015, 45)

The UNDP report primarily concentrates on the development of innovative technologies to create more energy and resource efficient forms of labour and production as we transition to a green economy. Eco-innovations, as they are called, are certainly important for sustainable work and production. However, as both the UNDP definition and the formulation of the SDGs make clear, it is essential to understand sustainable work as a comprehensive social and ecological transformation of the work-oriented society. Sustainable work, accordingly, includes not only technological and economic innovations, but also aspects of ecological sustainability, human dignity, meaningfulness, and much more. The SDGs and the UN do not provide a fully realised concept, but rather a framework which can be filled with meaning and content through political, academic, and public discourse, in order to develop, implement, and promote relevant practices. In light of the different contexts, conditions, possibilities, missions, and needs at play, there clearly also needs to be space here for different answers.

The research: Methods and criteria

Literary research was conducted online starting in the fall of 2020, and completed in May of 2021. Research was generally conducted using the search engine Google, in academic portals, and using academic search engines such as Google Scholar, researchgate.net and Semantic Scholar, as well as in the catalogues of the university libraries of Cornell University, Ithica, USA and the University of Amsterdam. First, the terms "sustainable" work, jobs, and employment were used to conduct searches in English, German, Spanish, Portuguese, French, and Catalan. Because results were fairly sparse, the research was expanded to add the terms green jobs and green employment in the above languages. In addition, after a partial review of the literature, the terms "climate jobs" or "low carbon jobs" were also used to search in specific languages, as they are sometimes used interchangeably with green jobs. Then, additional documents and articles were searched for and added

as needed in the course of completing the paper. Some of these were found using bibliographies of existing texts, and some with further targeted online research using the keywords indicated above (or new keywords) in the relevant national languages and on the websites of governmental institutions, trade unions, and NGOs.

During my initial review of the literature, I found that – as I had assumed from the start – there is no common definition of the term sustainable work in Europe, nor is there any academic discussion on what sustainable work means, or why and how such a concept could be made useful for the labour market and labour market administration on the European level. The terms sustainability and work play a very small role or no role at all in most European nations investigated here, or they are used differently than they are in Germany. Sustainable employment in France, for instance, means long-term or "permanent" employment, while the term sustainability is almost always used in relation to public budgetary planning and expenditures in Poland and Slovakia. The most advanced states in terms of implementing topics, indicators and instruments for a more comprehensive social and ecological perspective on sustainable work in political programs in the employment sphere – although these are still restricted, and use other terminology – are Spain (especially in the Basque region and in Catalan, to a limited extent) and Scotland.

Overall, it is notable that most nations attempt to align the rhetoric surrounding their programmes to the specifications of EU documents and resolutions, and primarily their funding programmes (vgl. Europäische Kommission 2018; European Commission 2020). If they do not do this (Poland and, to some extent, Slovakia seem to show a certain stubbornness in not doing so), their programmes are returned with comments by the EU Commission, and they add the missing terminology after the fact. However, it should also be noted here that terminology surrounding sustainable work is still not even widely used in EU institutions. Even the European Centre for the Development of Vocational Training (Cedefop), European Union agencies, and the EU European Centre for the Development of Vocational Training continue to write only about green jobs in their own publications (Cedefop 2019a, 22, 75).

Therefore, it makes sense to consider first working towards defining the central terms of sustainable work, green jobs, and just transition. Further differentiations among any nationally-specific interpretations of the different terms are addressed in more detail in the individual country chapters.

What is meant by sustainable work?

Based on the guidelines of the UNDP and the expanding debate on the link between ecology and work in Germany (Brandl and Hildebrand 2002; Littig 2012; Diefenbacher et al. 2016; Barth, Jochum, and Littig 2016; WSI-Mitteilungen 2019), we can formulate some central aspects of the model of sustainable work:

1) Sustainable work does not reduce development to economic or technological aspects. Sustainable work is linked to the model of decent work from the ILO (ILO 2016). Work should start from the needs and potential of the subject, and not only provide social and economic security, but also opportunities for personal development. The goal is to lay the foundations for humane work and maintain these over the long term. As the UNDP puts it: "work can enhance human development when policies expand productive, remunerative and satisfying work opportunities, enhance workers' skills and potential and ensure their rights, safety and well-being(UNDP 2015, 1).

2) Humane work that promotes development is only possible if the reproduction of labour and life are ensured (Barth, Jochum, and Littig 2016). This means that the goal of work must be to be ecologically sustainable. It may not endanger the (re)productivity of nature, and must ensure that ecological systems are capable of bearing the strains placed on them (UNDP 2015, 162), as this is the only way to guarantee the possibility of humane work that promotes development for future generations. This means not only minimising the negative ecological consequences of work for the future but, in light of the way ecological systems are being overloaded and the way many renewable resources are being over-exploited, it also means a general "back-pedalling" in many areas.

3) The model of sustainable work is based on an expanded understanding of work that goes beyond paid labour. The artificial separation of productive and reproductive, commodified and non-commodified, formal and informal work is eliminated, and all activities should be oriented towards the model of sustainable work. The UNDP report refers to the fact, that, "from a human development perspective, the notion of work is broader and deeper than that of jobs or employment alone" and "fails to capture many kinds of work that have important human development implications —as with care work, voluntary work and such creative work as writing or painting" (UNDP 2015, 3). In the course of transforming the work-oriented society, it is essential to question not only the separation but also the hierarchisation of these kinds of activity, and to analyse their interdependencies.

4) The economy, social issues, and ecological issues should be considered together as a whole in the model of sustainable work. This means that sustainability cannot be applied individually to each of the three allegedly separate spheres. Above all, this means that economic sustainability cannot be considered in isolation, and that a viewpoint focused only on value creation and generating added value is limited because it does not encompass the economy as a whole. Under an expanded understanding of work, the goal of sustainable work in a sustainable economy is generally to maintain opportunities for (re)productive interaction between people and between people and 'nature'.

What are green jobs?

There is no generally recognised or generally shared definition of green jobs (Kułyk et al. 2019, 572). Generally, green jobs mean paid labour associated with a green economy, which in a European Commission context means that it uses resources efficiently and produces low levels of CO2 emissions. According to the UN environmental programme definition, green jobs are any paid labour that has a positive effect on the environment. Such paid labour helps to protect and sustain ecosystems and biodiversity, reduce the consumption of material resources, water, and energy by using high-efficiency strategies, thereby achieving a high level of production efficiency and ultimately reducing CO2 emissions (UNEP 2008, 3; UNEP 2011, 17).

The ILO has added the dimension of decent work to the definition as well (ILO 2016). Kees van der Ree provides a discussion and definition of the term green jobs in the sense of the ILO which includes the category of decent work (2019). This discussion is based on the definition of the ILO (2016) which, van der Ree says, defines green jobs as jobs that contribute to

> "- Improving energy and raw materials efficiency
> - Limiting greenhouse gas emissions
> - Minimizing waste and pollution

> - Protecting and restoring ecosystems
> - Adapting to the effects of climate change"
> (van der Ree 2019, 252).

The ILO, however, also includes "decent work" in this definition. This is said to be the differentiating feature. Likewise, van der Ree also illustrates the contradictions among ILO members (G77 versus other employers or employees, etc.). However, he does attest that the ILO has achieved a high level of internal agreement over the years on the definition of the term and on how it is applied. In his conclusions, van der Ree specifically notes that achieving the goals set forth in the 2015 Paris Accord will require fundamental structural changes to consumption and production. This, in turn, will result in structural shifts in the economy. The resulting consequences for workforce size and structure will have unequal impacts in different sectors. This, alongside the need for new skills, will make the question of jobs more than just a simple mathematical equation. (van der Ree 2019, 262).

Likewise, he warns

> „A more systemic approach must embed environmental aspects in all areas of work in order to further enhance the ILO's relevance to the future world of work and its appeal to constituents and funding partners. This would certainly apply to employment promotion, sustainable enterprise development, entrepreneurship promotion and skills upgrading, etc. But new boundaries will need to be crossed to shape social protection policies and mechanisms in the context of vulnerabilities to climate change, for example, and enlarge the scope and outreach of safety and health in existing hazardous work—such as waste management—and new green economy occupations." (van der Ree 2019, 263)

Therefore, green jobs normally do not encompass any dimension beyond paid labour, nor any consideration of the social and ecological implications of work, nor the structural transformation of the work-oriented society. Green jobs are usually linked to ecological modernisation and presentations of a technological fix, solving climate change and ecological problems through technological progress, or jobs are added to the figures that are already focused on nature conservation or avoiding waste. These might range from park rangers to employees at a water or waste water management or waste disposal plant. Therefore, the term can be used not only to describe how to green the economy, but also, if it is not concretely defined, how to artificially inflate numbers to produce positive statistics. The term green jobs is interpreted in such elastic and different ways that, for instance, the United Kingdom even includes jobs in the nuclear industry and the national nuclear power academy in its green jobs statistics, as well as traders in emissions certificates and employees at institutions and companies providing "green accounting".

What is the just transition?

Just transition was, on the one hand, the term used by the global climate movement to call for worldwide climate justice (between the north and south), and on the other hand was the term used by environmental and trade union movements to develop their joint demands and fights related to the transition to an ecologically and socially sustainable economy and society, as well as preventing that transition from being carried out at the cost of workers or the socially disadvantaged. Today, the term has also become prevalent in EU declarations and accordingly in national policies and programmes. It is primarily used in the sense of compensating for social disparities in the energy

transition, in relation to finding new jobs for those who lose their jobs in the course of the transition. In Europe, just transition is currently being used primarily in conjunction with the discontinuation of coal mining and coal-fired generation. However, there is no uniform definition for just transition. McCauley and Heffron do provide a useful definition:

> "The just transition is defined here as 'a fair and equitable process of moving towards a post-carbon society'. This process must seek fairness and equity with regards to the major global justice concerns such as (but not limited to) ethnicity, income, gender within both developed and developing contexts. By its very nature, this transition must take place at a global scale, whilst connecting effectively with multi-scalar realities. It involves the development of principles, tools and agreements that ensure both a fair and equitable transition for all individuals and communities." (McCauley and Heffron 2018, 2)

This definition includes the key aspect of the global dimension. This is precisely one of the biggest weak points in different national practices and governmental programs labelled as part of the just transition. However, as this investigation shows, in many other respects they do not even fulfil the generally recognised criteria for a just transition.

The investigation

This investigation provides an overview, based on research of the literature, of whether and to what extent the nexus between sustainability and work is discussed in the individual countries: a) Is there a debate on sustainable work, and what is the status of that debate? b) Are the calls for sustainable work formulated in the SDGs reflected in policies surrounding social and ecological transformation? What topics related to the subject of sustainable work are being addressed in the countries investigated here? In what social context is that discourse taking place, and what conflicts are there? C) What actors play a role, how do they position themselves, and what are their strategies?

The investigation pays particular attention to national developments in their singularity: What is the status of the transformation in the individual countries, what structural preconditions (and obstacles) for implementing the model of sustainable work are there, what problems on the labour market, in the area of sustainable business, and in light of the social situation are shaping the respective debates.

The lack of generally recognised definitions - which, of course, do not need to be rigid and exclusive, but instead can function as guiding principles based on shared basic values and assumptions - results in large differences in calculation methods and, in turn makes comparisons difficult on a methodological level. This is the case not only between countries, but also within countries themselves, between different regions or at different times. However, we can identify basic attitudes and developmental tendencies, in order to map out commonalities and differences. Unfortunately, from the outset it is important to note that the policies and measures which are either already in force or which have been resolved neither implement the SDGs with respect to sustainable work, nor do they appear sufficient to achieve the goal of a climate-neutral Europe by 2050 set by the European Commission.

2. France: Initial situation, policies, debate, and actors

France is already being heavily affected by climate change. Its coasts are impacted by rising sea levels and erosion, more flooding is occurring throughout almost the entire country, and rising temperatures endanger many agricultural growing regions, especially the wine production industry for which France is famous around the world. The average temperature from January to June 2020 was 12.5° C. This was the hottest six months ever measured, and the temperature increase compared to the average since weather recordings began was 1.8° C.[1]

My online research found that the term sustainable work (*travail durable*) is rarely used in France, or, when it is used, generally means long-term or stable employment.[2] It appears primarily in criticism of governmental programmes and measures, in critiques that jobs that are either planned or that have been created are not long-term, permanent jobs. The public discourse and debate focus mainly on green jobs (*emplois verts*). Governmental institutions, parties, business, research, and trade unions (such as the *Confédération Générale du Travail*, CGT, the *Union Syndicale Solidaire*, the student union *unef* and the farmer's union *Confédération Paysanne*), various civil society organisations like climate and environmental protection organisations, and social movements (right to housing to climate movement) take part in this discourse. The discussion surrounding green jobs and the ecologically sustainable transformation of the economy and society are highly controversial. Trade unions and movements criticise governmental policies as not being ecologically or socially sustainable. The green jobs strategy neglects the quality of work and qualified training, and is likewise critiqued for not being comprehensive enough. Because the French administrative system is both centralised and highly decentral, however, there are also many local projects from independent civil society organisations, local administrations, and businesses.

2.1 Statistical data on the economy, population structure, and employment

2.1.1 Population (overall population and age structure 2020)

France had 65.3 million inhabitants in 2020. The percentage of those over 65 was in the mid-range for comparable nations. The percentage of 0-14 and 10-24-year-olds was 17.7, the highest of any nation. Therefore, the population is not expected to age excessively quickly, although there will be a comparatively higher pressure on the labour market.

Total population (in millions)	Annual population growth %	Population structure (age)			
		0-14 (%)	10-24 (%)	15-64 (%)	65 + (%)
2020	2015-2020	2020	2020	2020	2020
65.3	0.3	17.7	17.7	61.6	20.8

For statistical purposes, the data for France do not include French Guiana, French Polynesia, Guadeloupe, Martinique, Mayotte, New Caledonia, Réunion, Saint Pierre and Miquelon, Saint Barthélemy, Saint Martin (French part) or Wallis and Futuna Islands. (UNFPA 2020, 144)

[1] Worldwide, this was the second hottest first six months of the year since temperatures began to be recorded. https://www.daswetter.com/nachrichten/wissenschaft/klimawandel-historische-hitze-in-frankreich.html
[2] The term sustainability in the German sense is used in Canada and Belgium, as well as in international texts.

2.1.2 GDP, economic growth, and economic structure

The per capita GDP in France has grown continuously since 2011, and was US$ 46,242 in 2018, placing France in the mid-range of nations in the stud, after Norway, the Netherlands, and Sweden, and just barely behind the United Kingdom (Germany, in comparison: 54,955; OECD 2021[3]). Economic growth in 2011 was just 2.2 percent, and increased in the two subsequent years by just 0.3 and 0.6 percent. From 2014 through 2016 it was 1-1.1 percent annually, 2.3 percent in 2017, and 1.7 percent in 2018. The public administration, defence, education, health, and social work sectors made up the largest portion of value creation in 2018 at 22.4 percent (this data for 2018 was included in the 2020 OECD statistics only as estimates). Trade, repairs, transportation, and hotel and hospitality followed with 17.8 percent, as well as professional, scientific and support services with 14 percent – the highest percentage among the nations compared, after the Netherlands, and the only country showing continuous growth, while the percentages held by all other sectors remained relatively constant or dropped slightly. Industry, including energy, made up just 13.4 percent, the lowest of any nation in the study. The real estate sector was also significant with 12.9 percent, the second highest figure just slightly behind the United Kingdom (OECD 2020a).

2.2 Labour market policies, workforce, employment, and labour market

In contrast to other EU states, workfare policies are rarely implemented in France. Current labour market policies are focused on "insertion" in a social and professional context, and have therefore developed in parallel to social support. This means that many individuals are included in the programmes who would potentially be available to the labour market, even if they have never worked (such as young unemployed persons under 25 years of age, who benefit from the RMI, the *Revenu Minimum d'Insertion* which, in turn, is also designed be more stimulating since the 2009 conversion to the RSA, *Revenu de Solidarité Active*). The structure of providers, decision-makers, and funders is organised in a comparatively less market-like manner, and the providers of retraining and workforce integration programmes are often non-profit organisations that focus more on needs and poverty than on integration into the labour market at any price (Fretel 2013; Schulte et al. 2018). Various French governments have attempted to implement a stronger national orientation towards workfare, and since 2000 they have advanced more controlling mechanisms, target agreements for the unemployed, expanded contracts for integration measures to profit-oriented companies, and combined social support with the need to look for work *Pôle emploi* (the public employment portal). However, the employment offices are controlled by local authorities and not heavily integrated into the national structures; meaning they make poor instruments for implementing nation-wide measures. This is not considered a disadvantage in the professional literature. There are no sanction measures, or they are rarely applied. The goal of most measures is to ensure permanent, socially insured jobs, if possible, with an unlimited term. In some cases, this is financed through *contrats aidés* (state subsidised employment agreements for qualified positions). (Berthet, Bourgeois, and Languin 2016; Schulte et al. 2018).

[3] Diagram attached

2.2.1 Labour market data

Table 1. Labour force

Annual average estimates

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Labour force, thousands										
All persons	28 236	28 248	28 482	28 625 |	29 403	29 496	29 565	29 619	29 745	29 682
Males	14 808	14 793	14 916	14 934 |	15 270	15 303	15 304	15 345	15 371	15 292
Females	13 428	13 455	13 566	13 691 |	14 133	14 194	14 261	14 273	14 374	14 390
Unemployed, thousands										
All persons	2 505	2 489	2 677	2 840 |	3 026	3 054	2 968	2 786	2 682	2 506
Males	1 287	1 262	1 408	1 500 |	1 609	1 648	1 565	1 449	1 381	1 300
Females	1 217	1 227	1 270	1 340 |	1 417	1 406	1 403	1 337	1 301	1 206
Employment, thousands										
All persons	25 731	25 759	25 804	25 785 |	26 376	26 442	26 597	26 833	27 063	27 176
Males	13 520	13 531	13 508	13 434 |	13 661	13 655	13 739	13 897	13 990	13 992
Females	12 210	12 228	12 297	12 351 |	12 715	12 788	12 858	12 937	13 073	13 184
Employment (%)										
Males	52.5	52.5	52.3	52.1 |	51.8	51.6	51.7	51.8	51.7	51.5
Females	47.5	47.5	47.7	47.9 |	48.2	48.4	48.3	48.2	48.3	48.5
Unemployment rate (% of labour force)										
All persons	8.9	8.8	9.4	9.9 |	10.3	10.4	10.0	9.4	9.0	8.4
Males	8.7	8.5	9.4	10.0 |	10.5	10.8	10.2	9.4	9.0	8.5
Females	9.1	9.1	9.4	9.8 |	10.0	9.9	9.8	9.4	9.0	8.4

(OECD 2020j, 1)

France has a relatively high unemployment rate which, at 8.4 percent in 2019, was just slightly below the value of 8.9 for 2010. In the meantime, it has risen to 10.4 percent, then dropped again. The only factor to emphasise here is that the unemployment rate among women is slightly less than that for men. The only other countries where this is the case are the United Kingdom and Norway, while the genders were equal in the Netherlands.

The youth unemployment rate is very high at 20 percent, although this figure did drop by five percentage points between 2016 and 2019. However, whether this success will continue in the long term is questionable. In addition, many young people have precarious employment, and the high percentage of (male) young people in unqualified or poorly qualified green jobs, which make up the largest percentage of new green jobs (see below) makes clear that the reduction in youth unemployment is due primarily to a devaluation of work.

Table 2. Unemployment rates by age

Annual average estimates, percentage

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
All persons										
15-24	23.3	22.7	24.4	24.9	24.2	24.7	24.6	22.3	20.8	19.6
25-54	8.0	8.1	8.6	9.1	9.2	9.3	8.9	8.5	8.1	7.5
55-64	5.9	5.9	6.4	7.2	7.5	7.4	7.2	6.5	6.9	6.8
65 and over	1.9	1.0	1.2	2.8	2.9	1.9	2.6	3.2	2.1	2.6
15-64	9.3	9.3	9.8	10.4	10.3	10.4	10.1	9.5	9.1	8.5

(OECD 2020j, 2)

Reviewing the detailed employment data from the OECD makes clear: The total workforce grew from 25,730,900 in 2010 to 27,176,100 in 2019. It dropped in agriculture, hunting, and forestry during the same period from 744,500 to 678,300, and in industry from 5,688,400 to 5,469,100. In the service sector, in contrast, it increased from 19,298,000 to 21,028,700. The sectors that saw the biggest increase were human health and social work (from 3,368,000 to 3,966,600), professional, academic, and technical activities (from 1,276,800 to 1,629,200) and education (from 1,751,300 to 2,032,000). A higher percentage increase, although this was less relevant in absolute number terms,

was seen in the sectors of information and communication (from 736,300 to 874,200), administration and support services (from 923,900 to 1,057,800) and art, entertainment, and leisure (from 344,000 to 468,500). Employment in private households and activities for personal use, in contrast, dropped from 603,300 to 335,200 (OECD 2020j, 3).

This indicates some of the fundamental problems in the debate surrounding green jobs, that the quality of the new jobs is not being taken into consideration: In which sectors did jobs actually increase? Is more than one old job being replaced? Is the increase in employment a long-term increase? How socially sustainable, therefore, are the new jobs?

Philippe Quirion wrote the following in 2014 in the academic journal of Attac France:

> "Due to historically high unemployment, the energy and climate policies will be evaluated - rightly or wrongly - based on their impacts on employment. Henri Proglio, CEO of EDF, said that if France stopped using nuclear energy, a million jobs would be endangered' […]. Conversely, proponents of eliminating nuclear energy emphasise how many jobs this policy would create [...]. To a certain extent, the differing results stem from the different parameters that are applied: Just like each sector-specific policy, energy and climate policy creates jobs in relation to certain activities, and destroys them in others. To calculate the net effect on employment, therefore, both the jobs that are created and those that are destroyed must be taken into account". (Quirion 2014)

The ILO highlighted this problem back in 2011, but assumed that significantly more new jobs would be created in the renewable energy sector and in the production of electric and hybrid vehicles than was actually the case (Strietska-Ilina et al. 2011, 300–301). In reality, the energy sector is where the most new "green jobs" have been and are projected to be created; in 2019, this sector had 217,900 employees, for the first time reaching its 2010 level once again, when the sector included 214,800 workers (in 2013, the figure was 233,500) (OECD 2020j, 3). Therefore, there seems to have been no meaningful growth in jobs beyond those jobs which were eliminated. In 2010-2019, the sector of water supply, waste water, waste management and waste avoidance - which is often also named by the government and investigated - recorded a fairly moderate increase from 185,200 to 209,100 employees. There was a significant increase, as described above, in the sectors of professional, academic, and technical activities, education, and activities related to human health and social work. Employment in the latter two fields, however, has been stagnant since 2014/2015. How many of the employees are, furthermore, green jobs, cannot be determined (OECD 2020j, 3).

2.3 Green jobs – Emplois verts

France had 107 points on the EU-28 Eco-innovation scoreboard in 2019, placing it just above the EU-28 average of 100. Performance with respect to employment in *eco-industries* is better, at 121 (European Commission 2020). Both of these values, however, are far below the impression given by the government's self-assessment of the situation.

According to the French Labour Ministry, between 2010 and 2014 almost four million jobs in France were green jobs or "greening jobs"[4]. The workers in green or "greening" jobs are primarily

[4] According to the Labour Ministry's definition, "green jobs" include "all jobs that could be impacted by taking environmental concerns into consideration".

male, and relatively young. The majority of them have no qualifications, or have a CAP-BEP diploma[5], which is due to the high percentage of workers. 144,000 jobs, or 0.5 percent of the total labour force, are green jobs in the sectors of renewable energy and water supply (45 percent), waste water disposal (35 percent) and nature and environmental conservation (20 percent). The 3,761,000 "greening jobs", in contrast, make up 14.1 percent of the overall workforce, and are located in the construction industry (39.5 percent), transportation (19.4 percent), research (8.9 percent), agriculture and forestry, and park maintenance (6 percent) (Ministère du travail, de l'emploi, de la formation professionnelle et du dialogue social 2017).

Detailed information is provided in a summary of statistical data from the professional education network Topformation. According to this summary, in 2017 almost 560,400 job advertisements were published for green economy jobs, 26,400 of which were for green jobs and 534,000 of which were for "greening jobs". 80,000 employees under 30 years of age work in the green economy, primarily in energy generation and distribution (20 percent) and natural conservation (30 percent). While women make up only 16 percent of all jobs in the green economy, they hold over a quarter (28 percent) of natural and environmental conservation professions, the most feminised and highest qualified types of employment among green jobs ('Infographie: les métiers de l'environnement' 2019).

The problem of obtaining transparent and reliable data and definitions is clear here. In relation to the many programmes, measures, and the extensive funding provided, the resulting surplus of new jobs seems fairly weak, and their quality is lacking. Marie-Béatrice Levaux and Bruno Genty from the social, economic, and environmental committee established by the government in 2014 stated the following in a comprehensive and interesting report from 2015 regarding employment in the ecological transition:

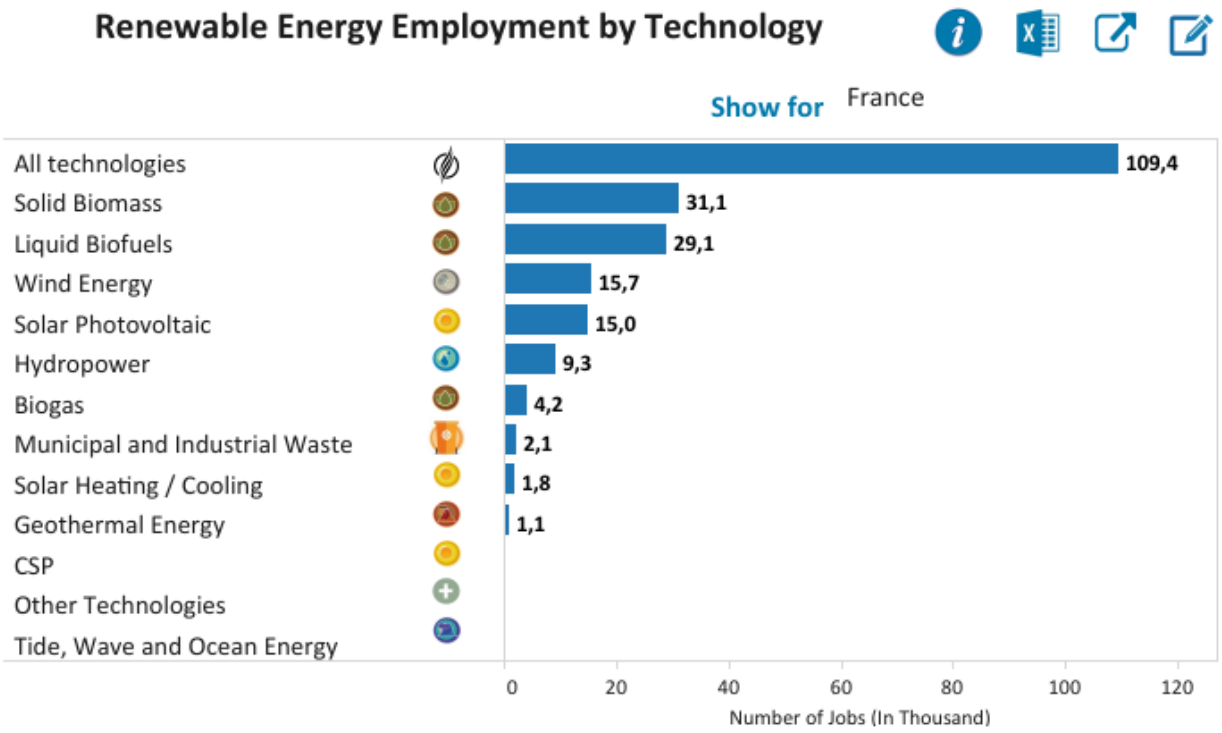
> "Employment is not merely a consequence or a mere adjustment variable of the environmental transition but also determines the success of the latter. […] From a quantitative perspective, assessing the effects of the environmental transition on employment should not be limited to recording the number of people employed in the 'green economy' sector. It should, however, encompass all of the activities affected by the measures designed to radically alter our production and consumption patterns." (Levaux and Genty 2015)

The majority of the criticism – it later turned out – however, is directed towards the fact that the government's policy does not take any of these aspects into account, especially not the radical change in production methods and consumption habits, but instead the government's reports and descriptions are mainly focused on highlighting quantitative aspects in individual sectors.

[5] The Certificat d'aptitude professionnelle (CAP) and Brevet d'études professionnelles (BEP) are professional qualifications in different career fields which are granted after attending the Lycée professionnel (professional grammar school) for two years full time, or after a 2-year apprenticeship in a dual system attending a vocational school - the Centre de Formation d'Apprentis (CFA).

2.3.1 Employment in the renewable energy sector

Employment in renewable energy was relatively low, and over half of employees were in each of the areas of solid biomass and liquid biofuels. This once again shows how small the growth in employment actually is.



Source IRENA jobs database. Figures provided are the result of a comprehensive review of primary information sources by national entities such as ministries and statistical agencies, and secondary data sources such as regional and global studies.This is an ongoing effort to update and refine available knowledge. Totals may not add up due to rounding.'Other Technologies' include jobs which are not technology specific.

(IRENA 2020b)

2.3.2 Public policies and measures

There is no national sustainability strategy, defined as such. On the governmental level, the *National Observatory for the Effects of Global Warming* was created by law in 2001, in order to formulate recommendations for preventing and limiting climate change and adapting to climate change. A round table (*Grenelle de l'Environnement*) involving government officials, parliamentarians, actors from civil society, trade unions, and employer associations in 2009 led to the development of a *National Adaption Plan 2011-2015* (to climate change) for various sectors, which was enacted in 2011. It serves as a supplement to existing measures for limiting the impacts of climate change. A second national plan for adaptation, the *Plan national d'adaptation au changement climatique 2* (PNACC-2) (Ministère de l'Écologie et du Développement durable 2018) for 2018-2022 was enacted in December of 2018. The goal of this plan, which included COP21 results,

> „is to better prepare the French society to climate change, involving the main sectors of the economy (agriculture, industry, tourism) and territories. Based on the recommendations of the assessment of PNACC 2011-2015, the development of PNACC-2 was based on a national consultation that mobilized over 300 representatives from civil society, experts and representatives of local authorities and ministries." (Climate ADAPT 2018)

Alongside the France National Low-Carbon Strategy of 2018, this serves as the foundation for the sustainable ecological transformation, as well as for associated employment (Ministère de la Transition écologique et solidaire 2018). Sustainable employment is not mentioned at all. Instead, it speaks of green jobs and jobs in the green economy. The National mobilisation plan for jobs and professions in the green economy, formulated in 2010, and the National observatory for jobs and professions in the green economy founded based on the plan are responsible for green jobs as part of the overall strategy (Onemev 2020).

The limited overview available based on the sources discovered in my research and listed here shows that the discourse is focused heavily on the quantitative aspect of employment. This mainly centres on renewable energy, water and waste water management, and natural conservation and park maintenance. Alongside Germany and the United Kingdom, France is one of three EU countries which (by 2013) had created the most green jobs in the renewable energy sector (Pociovălișteanu et al. 2015, 9237–38). However, the data is complex and difficult to interpret. Governmental institutions and programmes continuously lay out different figures on the numbers of jobs which have been or are being created. Even the terms "green jobs" and "greening jobs" are imprecise. With respect to the latter, it is unclear to what extent a transformation is planned, has already started, or has already taken place. The actual quality of the work itself is likewise not examined.

There is no clear difference between different governments in how they formulate their intention for an ecologically sustainable transformation of economy and society, and therefore how they address the question of employment. François Hollande from the Socialist Party (PS) was President of the French Republic from 2012 to 2017. Emmanuel Macron has been the president since May of 2017.[6] The National Low-Carbon Strategy, formulated under Hollande in 2015 by the *Ministry of Ecological Transition* (abbreviated SNBC in French) (Ministère de la Transition écologique et solidaire 2015), which was revised under Macron in 2018 (Ministère de la Transition écologique et solidaire 2018), although (seemingly) without any major or fundamental changes, serves as the central point of orientation for the sustainable ecological transformation.

Nevertheless, the reforms and reductions Macron has championed and introduced, insofar as can be concluded from his governmental practice, indicate that implementing measures - which have been criticised in any case by academics, trade unions, left-leaning parties, and environmental associations as insufficient - will be more difficult to achieve. Macron rejects the traditional practice of social dialogue which is widespread in France, and cooperation between trade unions and business associations facilitated by the state. He uses his presidential power to implement reform projects quickly. These include further deregulation of labour law, massive tax reductions for large French companies, eliminating over 100,000 jobs in the public sector, and transferring the state

[6] Macron was a PS member from 2006-2009, and was the Economic Minster serving under Hollande from August 2014 to August 2016. He ran for election in 2017 on allegedly liberal positions, with his newly founded party La République En Marche (LREM, The Republic on the Move!). He entrusted right-leaning liberal actors with economic and financial policy when forming his government, however.

railway SNCF into a private corporation, as well as opening up passenger railway transit to private companies.

30 billion euros were dedicated to the ecological transition in the recovery plan *France Relance* of the 100 billion euros provided in September of 2020 to restart the French economy after the Covid-19 pandemic. According to the Environmental Ministry, "ecology should be made the primary lever for recovery and transformation" for the French economy (Ministère de la Transition écologique 2020b). The French Green Party criticises the plan as incoherent and as simply window dressing. They say there is nothing in the plan reflecting the government's promises surrounding greening and a paradigm shift in the economy. Instead, they say the economy will simply be re-started in the same old-fashioned way. They feel the ecological components are far below what is needed (Europe Écologie les Verts 2020).

France is also heavily reliant on nuclear power. It has over 50 active nuclear power plants, and produces over 70 percent of its electricity with nuclear power, the highest percentage in the world. Since 32 of the reactors are already so old that they will be shut down in the coming years, and only one is in construction, it looked as though France had already started to move away from nuclear power. However, in late February of 2021, the French government decided to extend the service lives of the 32 old reactors from 40 to 50 years, and declared that using nuclear energy was part of its strategy to reduce CO2 emissions (Balmer 2021).[7]

2.3.2.1 SNBC for Stratégie Nationale Bas-Carbone

The *Stratégie Nationale Bas-Carbone* (Nationale Low-Carbon Strategy, SNBC) represents the French plan for transitioning to a low-carbon and sustainable circular economy in all sectors (Ministère de la Transition écologique et solidaire 2015). The circularity rate[8] in France was 19.6 percent in 2018, well above the EU28 average of 12.2 percent (eurostat 2021a), yet well below the target for a circular economy.

The climate plan of July 2017 stepped up the reduction target for CO2 emissions even further and resolved, based on EU guideline values, to achieve net CO2 neutrality by 2050. Short-term and medium-term goals were also set to achieve this. The revised version of the SNBC, published in November of 2018, includes the new emissions target, and was supplemented with a Multiannual Energy Plan (PPE) for 2019-2028, which lists some measures to achieve the goal. Closures of the last four remaining coal-fired power plants are also planned. They have only around 1,000 direct employees, and are responsible for a very small percentage of electricity production. The lack of a convincing plan for the employees and the region (according to the CGT, 5,000 direct and indirect jobs are affected) has already resulted in strikes in December 2018 (Galgoczi 2019, 35–36). The agreed date for the closure has now been set at 2023.

[7] The fact that a recent study by the Scientists for Future found that nuclear power is not a sustainable path forward seems problematic in this context (Scientists for Future 2021).
[8] The indicator measures the percentage of material that is recovered and fed back into the economy - by doing so, saving the extraction of primary raw materials - out of total material usage. Therefore, the circular use of materials, also known as the circularity rate, is defined as the ratio of materials used in a circular manner out of total material usage (eurostat 2021a).

2.3.2.2 Training for Green Jobs

The French government focuses on training for green jobs. In 2009, the Environmental Ministry issued the National mobilisation plan for jobs and professions in the green economy. It focuses on "adapting professions and skills to the ecological transition and the energy transformation [...] The goal is to think about the skills that will be necessary for the environmental and energy transformation, and to define priorities that must be implemented in public policy in order to anticipate, support, and accelerate changes. (Ministère de la Transition écologique 2020a). To do so, needs have been identified in different sectors alongside the actors involved, pilot projects have been launched, and special programmes have been developed and initiated for specific regions.

The national report on France by the European Centre for the Development of Vocational Training, published in 2018, is a key document, providing an overview of activities related to vocational training for green jobs in France (Cedefop 2018a). It contains a presentation and analysis of the French context, and measures taken by the French government (before Macron). According to the report, France's strategy is based on

> „(a) good social dialogue on these issues, institutionalised at all levels, and which includes collaboration between the government and the social partners (employees and employers) in identifying skills needs and designing training programmes; (b) an invitation to continually upgrade certifications and systems accreditation, passing through the professional committees managed by the Ministry of Education; (c) a training offer designed to meet anticipated or identified skills needs; (d) a close monitoring and evaluation of education and vocational training programmes." (Cedefop 2018a, 32)

The "Skills for green jobs European synthesis report" contains several examples and case studies from France (Cedefop 2019b, 27, 32, 35, 39). Regional institutions have been establishing training programmes for ecological construction and ecological building renovation since 2009, in response to a lack of trained professionals that persisted despite state and private business commitments to create more training opportunities (OECD 2012).

Other examples refer to the possibility of converting previously automated production processes back to using human workers. This would help to create jobs. In addition, using people in some production processes is actually much more effective than using machines. This is the case at the company Actes, which is active in Bordeaux and in the French Basque region, and which is considered "disability friendly". The company recycles many different kinds of plastic, and manufactures disposable Styrofoam and polypropylene cups out of recycled materials. They have developed a manual sorting process for plastics alongside the University of Bordeaux. Waste materials are delivered and separated by hand. The process has proven to be more precise and effective than mechanical separation (Guyot Phung 2019). However, apart from the positive results and the manual work, as well as the fact that many of the plastic products – such as disposable cups – should not even be produced in the future, instead of recycling them, this example also brings up the question of the quality of work.

ADEME (*Agence de la transition écologique*, Agency for ecological transition)

The ADEME (*Agency for ecological transition*, originally known as the *Agency for the environment and controlling energy consumption*) was created in 1992 from the merger of the AFME

(French Energy Management Agency), ANRED (National Waste Authority) and AQUA (National Air Quality Authority). It is organised under the Environmental Ministry and the University and Scientific Ministry. The ADEME is responsible for implementing public policy in the areas of the environment, energy, and sustainable development. It offers companies, local authorities and municipalities, governmental institutions and the general public professional expertise and advising to support them in defining and consolidating their ecological policies and initiatives. The ADEME also supports project funding from research to implementation in the following areas: Waste management, soil conservation, energy efficiency and renewable energy, air quality, and fighting noise pollution.

Since 2010, the ADEME has been responsible for implementing "Investment in the future" programmes, which are dedicated to financing environmentally-friendly innovations by supporting pre-industrial experiments and projects with renewable energy, as well as "green" chemistry, carbon-free vehicles, intelligent networks, and the circular economy. The ADEME has 1,000 employees and over 26 regional national branch offices, three offices in France's overseas territories, and one office in Brussels. The annual budget in 2014 was € 705 million.

According to the ADEME, the sectors involved in the ecological transformation have more than doubled their market share in the last ten years. It states that the number of direct jobs in all sectors has grown between 2006-2017 by 75 percent, to more than 370,000 employees. The ADEME documented 52 initiatives, projects, and companies supported or funded by the agency in 2019. Some of these were initiated externally (by citizens, local and regional actors, and business), and some were initiated by ADEMA; they involved the areas of energy renovation, circular economy and waste, the development of carbon-free hydrogen, citizen projects for renewable energy with local governance, participative research, energy autonomy in overseas territories, air quality, and support for innovation through the Future Investments Program (PIA) (ADEME 2020).

2.3.3 Advising boards and other official actors

Observatoire national des emplois et métiers de l'économie verte

In 2010, the National observatory for jobs and professions in the green economy (Onemev) was created as part of the National mobilization plan for jobs and professions in the green economy. It creates reference methods, calculations, and cost analyses that can be useful for spreading knowledge on employment and professions in the green economy (Onemev 2020). Onemev prepares an annual report on its activities. Sustainable work is not Onemev's focus; instead, its goal is to facilitate an ongoing, systematic approach to greening the economy. Its core purposes include identifying jobs that are directly linked to activities in the green economy, analysing developments in employment and the labour market, analysing the interactions between job training and employment in the green economy, analysing the macroeconomic effects of the green economy on employment, and coordinating and discussing these topics with regional actors in employment and education (Omenev 2014, 7).[9]

[9] The report summarises the definitions, concepts, and parameters introduced by Onemev, and illustrates the results of the observations and measurements of employment according to two categories: by company activities, and by work carried out by individual persons. A description of the labour market is provided to supplement the results. The applied methods are listed individually in the attachment.

TETE Territories – emplois (Territories – employment)

The TETE is an instrument for estimating the number of jobs that will be created on the territorial level for each year between now and 2050 through ecological transition policies. It was developed by the Climate Action Network and Ademe. However, the website only lists three projects (TETE 2020).

2.4 Criticism and other actors

In light of experience drawn from the Covid-19 pandemic, left-leaning trade unions, civil society organisations such as the ATTAC, and debates in academic circles are all urging a fundamental democratic involvement of the affected, working population in the ecological and sustainable transformation of the economy and society, as the joint 34-point plan makes clear (see below). Alexis Cukier, philosopher and activist at Attac and member of a CGT Union of university and research institutions, wrote:

> "Their [employees and precarious workers in so-called system-relevant types of work] initiatives are more relevant than those of public or private leaders, who are not able to place the needs of public health above those of accumulating profit and maintaining the order that supports their own rule, which have made it possible to satisfy the basic needs of the population despite everything. Ultimately, this time has certainly increased awareness of the inseparable articulation between ecological and social questions on the left, specifically by continuing the discussions started in conjunction with the last IPCC report in 2018, and in particular through the questions posed by recently formed, new ecological and social movements. These debates and observations serve as a solid foundation for spreading the idea represented in this article: The knowledge, initiatives, and responsibility of employees are what are most fundamentally important, not those of the state or well-meaning activists, to carrying out a transformation of the production system within the framework of an ecological and social revolution". (Cukier 2020)

Philippe Gouin and Patrick Roturier question green jobs, specifically "their capability to positively support the transition. They highlight the complexity of the processes that determine their type and scope, in particular with respect to professional "bridge" jobs and democratic handling of the change. They emphasise the necessity of anchoring green jobs in the territories, in order to convert them into long-term employment through industry policy, with a focus on renewable energy". (Gouin and Roturier 2015)

Different think tanks have published papers on the energy transformation. *Le Réseau Action Climat* has developed suggestions for creating jobs in the energy revolution (Le Réseau Action Climat et al. 2014). The association *négaWatt* develops suggestions and strategies for the energy transition, with the goal of achieving zero greenhouse gas emissions and 100 percent renewable energy by 2050. The NGO Think Tank was founded in 2001. It includes around 20 energy sector experts with comprehensive practical experience, and is supported by over 1,200 individuals. négaWatt does not focus on sustainable work, nor on the quality of work (The négaWatt Association 2020). In 2011 and 2017, négaWatt published a scenario for the ecologically sustainable transformation of the economy and society in France (Association négaWatt 2017).

2.4.1 Parties

The positions of the PS, LREM, and other conservative parties primarily reflect the government's policy, with only minor differences. Statements from the parties Parti Communiste Français (KPF) and La France Insumisse (LFI) support the positions of the large coalitions, and their representatives are active in trade unions, foundations, movements, and associations involved in these coalitions and take part in developing and supporting funding decisions. The French Green Party, which was previously not a major actor, saw significant success in 2019 when it drew 13 percent of votes in the European elections, then again in 2020 in the municipal elections, a reflection of the growing concern with the climate and the environment in France. Their positions are considered very moderate, and remain behind calls from large coalitions and the KPF or LFI, including in light of climate policy and green jobs. As the French environmental movements have gained steam since 2019, *Marine Le Pen*, head of the far-right *Rassemblement National* (RN) political party, suddenly began making ecological statements. The RN had previously dismissed climate change and placed no importance on climate policy. After the success of the Greens in the 2019 elections, Le Pen declared she had completely rethought her position, and now believed environmental policy was just as important as jobs. Le Pen couched the discursive shift, which was not followed up by any action, in conjunction with positions against globalisation and the EU.

2.4.2 Trade unions, grassroots organisations, and social movements

Although France's trade unions, including the CGT, were long considered defenders of old industries and energy production methods (such as nuclear power and coal), for over a decade they have been undergoing a continuous process of rethinking and shifting their positions. Bernard Saincy, himself active in the CGT and a participant in the Round Table described, wrote the following on the question of trade union engagement: "The original interest of the trade union movement in the environment disappeared during the post-war boom, and subsequent years of de-industrialisation. Since the 2000s, the climate crisis and its social consequences, as well as events such as the *Grenelle de l'environnement* [Round table on the environment] have changed the situation in France. Despite some difficulties, situation of the environment as a trade union concern is well under way." (Saincy 2015).[10]

In light of the broad coalitions in which trade unions take part, their essential positions are presented in the outline of the just transition coalitions. They differ from the governmental position primarily with respect to two overarching sets of issues. Firstly, they believe that the government's commitment has been nowhere near sufficient in terms of the extent and speed of ecological and sustainable transformation needed; therefore, they call for much heavier investment of public funds in order to create many more jobs in a shorter time period. Secondly, they expressly link ecological and social questions by placing value on the quality, security, and wages received for work, and by presenting the ecological and sustainable transformation in the context of democratisation of property and administration of the means of production.

Therefore, the active participation by the CGT in the broad coalitions alongside environmental and social associations is the result of a long process initiated by the former KP trade union (which is

[10] For more on the status of the discussion in French trade unions and developments in their positions up to 2013, see also (Rosemberg and Saincy 2014)

in large part an industrial trade union) focused on class struggles and activism for more and better jobs. In contrast, it is notable that the French Democratic Trade Union Association (CFDT, Confédération Démocratique du Travail) (Le Monde 2019), which was named up to 2019 as a supporter of the broad coalition for a million jobs through a socially and ecologically sustainable transformation of society is now no longer named on the website in conjunction with the campaign. Instead, the *Le plan de sortie le crisis* from the CGT in 2020 has been added.

In 2020, the CFDT 2020 responded positively to suggestions from EU Commission President Ursula von der Leyen in May 2020 (CFDT 2020a) and welcomed the suggestions of the citizen climate convention to the Minister of Ecological Change in June of 2020 (CFDT 2020b). The formerly Catholic, then briefly radical left CFDT, currently states it has no ideological tenets and instead is consensus-oriented. Macron uses the party as a contact in order to legitimate the reforms. The CFDT overtook the CGT in the last Works Council elections (partially due to the ongoing change in the structure of the workforce). However, the results are unlikely to be permanent, since social sentiment has turned against Macron, and the CFDT policy, which is reliant on a good relationship with Macron, has failed as Macron refuses to enter into any kind of negotiations with the CFDT. However, the CFDT is not engaged in any labour disputes and is not mobilised.

2.4.3 Coalitions for a just transition and a national sustainability plan (although this is not titled as such)

In recent years, multiple broad coalitions and alliances have been formed of trade unions, environmental and social associations, and other NGOs and have presented extensive catalogues of measures among their demands which have the character of a national sustainability strategy. These are supported by numerous intellectuals. The most important catalogues of demands are the Jobs-Climate platform declared in 2016 (Plateforme Emplois-Climat 2016) and the *Le plan de sortie le crisis* of 2020 (Attac France, CGT, Oxfam France et. al. 2020), which is discussed in more detail below. The demands of the coalition initiatives include promoting a shortening of working hours to 32 hours per week at full wages and without making work hours flexible, as well as absolute gender parity. This is justified both based on the need to create jobs and on ecological arguments, in light of the multiple crises that are currently ongoing. According to the coalition, these are "a necessary part of a post-productive economy' (Jobs-Climate Platform 2016, 10).

Plateforme emplois-climat: *un million d'emplois pour le climat*

The 'Jobs-Climate' platform is an open forum for exchange, debate, and suggestions on topics that connect the challenges of the ecological transformation with those of employment, retraining, and education. It consists of around 20 civil society organisations, groups, and trade unions. These are almost the same ones as joined the *Le plan de sortie le crisis* of 2020. The platform prepares reports and carried out a campaign for "a million jobs for the climate". By doing so, its objective is to combine the "social and ecological" transition (Plateforme Emplois-Climat 2016).

The campaign promotes public investment and measures to re-orient the private sector and training, in order to create a million new jobs. It encourages investment in: "renewable energy, building renovation, support for owner renovations, identifying and supporting households affected by energy precarity, ecological agriculture, sustainable traffic infrastructure, recycling, repair, and reuse,

supporting small and mid-sized as well as very small businesses and communities in implementing ecological transition policies, clarifying the challenges associated with the ecological transition, adapting to the impacts of global warming, etc." (Plateforme Emplois-Climat 2016). They emphasise that the investments are possible and can be financed, although political will is lacking. Their goal is a million net new jobs, based on seven key measures and orientations:

> "1. Creating 250,000 subsidised jobs designated under the 'ecological transition'."
> 2. Creating 100,000 jobs for the 'ecological transition' in the public sector.
> 3. Investing in the private sector of the ecological transition in order to create 650,000 jobs.
> 4. Resolving the contradiction between protecting the climate and the loss of jobs in the weakened sectors through pre-emptive retraining and adapted educational services in specific territories.
> 5. Ensuring the quality and social protection of jobs in a just ecological transition.
> 6. Initiating structural changes to adapt jobs to the framework of the ecological transition.
> 7. Making support mechanisms for the private sector dependent on creating high-quality jobs, in particular in areas of the ecological transition.
>
> The public and private expenditures and investments needed to successfully handle these challenges will be up to 105 billion EUR per year, if they are fully implemented". (Plateforme Emplois-Climat 2016)

With these measures, they have succeeded in bringing together a broad coalition of social forces, beyond just trade unions and environmental associations. This is expressed in the breadth of their demands, and the explicit naming of claims related to gender and migration. The only other coalition to make similar calls is the VK in Portugal, and, with some limitations, in Spain as well.

Le plan de sortie le crisis (2020)

In May of 2020, a total of 18 civil society organisations and associations published a 34-point plan outlining paths out of the crisis (Attac France, CGT, Oxfam France et. al. 2020). The plan combined some of the most important grassroots actors and organisations from different sectors, including the trade union association CGT and the Union syndicale Solidaire, the student union unef (Union nationale des étudiants de France – France's largest and oldest student association), as well as major farmers' union Confédération paysanne (member of the European Farmer's Coordination, CPE and the Via Campesina), the French branches of Attac, Greenpeace, Oxfam, Youth for climate and 350.org as well as other organisations. The trade unions and associations had already been meeting regularly for months, in order to agree upon the joint reaction, they felt was needed to the social and ecological crisis. The pandemic intensified the multiple crises, which the participating organisations saw as further evidence of the need for systematic change. This further accelerated the formation of an unprecedented joint coalition.

Its action plan states that a complete "ecological and social transformation of activities" is needed, and calls for the "transformation of our production, mobility, and consumption habits". It calls for measures designed to bring about a comprehensive, sustainable, ecological, and socially just transformation of the economy and society. Its suggestions range from supporting small and mid-sized ecological agriculture to achieving nutritional sovereignty and expanding alternative energies, with the objective of complete CO2 neutrality to an environmentally-friendly industrial conversion (Attac France, CGT, Oxfam France et. al. 2020).

In the conclusions, the plan states:

> "Active participation by employees in the reconversion of the economy will be key in the transition from a short-sighted financial economy exposed to cyclical crises, to an economy that thinks far into the future, and that is territorialised and planned based on ecological and social objectives. The logic of collective loss and privatisation of profits must be replaced by a search for the social and ecological benefit of all of our activities, starting with the immediate valorisation of professions that provide public benefit. In the industrial sector, employees must receive more control of the means of production and a transition to moderation must be fostered, instead of the short-term profitability of financial markets. The quality of work, planning jobs, the reorganisation of hierarchical structures and the impacts of activities on health and the environment must be the focus of this new socially and ecologically sustainable approach. In order to break the vicious cycle of production and consumption, these political measures must be based on collective struggles and the development of alternative practices". (Attac France, CGT, Oxfam France et. al. 2020)

As Aurélie Trouvé from Attac specified in a joint interview with representatives of Greenpeace and the CGT:

> "The ecological transformation is complementary with creating hundreds of thousands of jobs. We aim for a professional reconversion that makes it possible to retain existing jobs while creating new ones – and they must be high-quality jobs! The plan to end the crisis will rightly require planning. This is necessary in order to avoid introducing another non-sustainable model, and in order to make social and ecological requirements complementary". (Le Monde 2020)

The broad coalition achieved and broad agreement on the catalogue of demands in 2016 were retained in the Coalition for an alternative crisis plan of 2020. However, it should be noted that, beyond listing joint demands, thus far no effective joint mobilisation has been developed in order to lend any weight to these demands.

2.5 Preliminary conclusions

As my online research and the materials presented, including comprehensive plans, programmes, measures, and investigations from different governmental institutions, show, the term sustainable work plays very little or no role in the discussion. The key driver behind the discussion and of plans in France is primarily the debate on climate change, and – in this context – primarily the national perspective on its concrete consequences for France. The international dimension comes into the discussion – primarily from the government, but in general discourse as well – in terms of wanting to play a leading international role in this area. References to the EU may play a certain role in justifying institutions, however they are not particularly relevant either as drivers behind these measures or their focus, nor in the public debate, for instance.

Public discourse, and in particular institutional action in France, are focused mainly on green jobs. Although there is a continuity in governmental policies across party lines, economic discourses are again and again postulated as a reaction to external impulses (such as a reaction to the election success of the Greens or as part of a climate summit). The government's plans focus on the sectors

of agriculture, industry, and tourism as the three sectors where adaptation to climate change is needed (Climate ADAPT 2018). However, reports from governmental institutions always name the sectors of energy production and distribution, water supply, and waste water disposal as well as park maintenance and natural conservation as the three sectors where the majority of new jobs are being created and should be created in the future. Nevertheless, the numbers show that the number of new jobs created is not significantly greater than the number eliminated. In addition, critics of governmental measures find fault with the measures because they are not anchored long-term in the territories. The category of "greening jobs" creates further confusion, as the government's statistics do not indicate which jobs, or how many, are actually undergoing a process of transformation (and, if so, transformation into what).

In the case of France, it is notable that I found few explicit declarations and initiatives from private businesses. Various state enterprises in water supply and waste water disposal, as well as in the energy sector, in turn, underscored their allegedly central role in the ecological and sustainable transformation. All we can do is speculate on why these issues are less often addressed in the private economy or by corporate interest lobbies. It could be linked to the fact that they are ultimately satisfied with the government's policies and funding (for instance through co-financed jobs), or that they share the belief in progress (for instance in nuclear power) which is traditionally very strongly anchored in the French psyche.

No national sustainability strategy exists. The demands of the broad coalitions come closest to the dimension of sustainable work (Attac France, CGT, Oxfam France et. al. 2020; Plateforme Emplois-Climat 2016), and clearly refer to the international debate on the *just transition*.

Overall, two major camps have emerged within France. On the one hand, there is the governmental camp, which not only includes Macron's government, but also large swaths of the conservative and social democratic spectrum (past governments, of every stripe, simply solidified a realpolitik approach) that is supported by the economy. On the other, there is a broad coalition of trade unions and associations supported by left-leaning parties and public intellectuals.

3. Portugal: Initial situation, policies, debate, and actors

Due to its geographic location, Portugal is impacted particularly strongly by current and, above all, future consequences of climate change. These include rising sea levels, heat waves, flooding, and droughts.

The public debate utilises the term *green jobs* (*emprego verde*). The term, however, is defined more narrowly than in other countries, and means ecologically sustainable employment. Since around 2014, the discourse has focused on the need to transition to a circular economy – in line with the discourse of the EU. Governmental institutions, parties, business, research, trade unions, and numerous civil society organisations are involved in the public debate and in initiatives, ranging from lobbying groups (such as for farmers) to climate and environmental protection organisations. The discussion surrounding green jobs and the sustainable transformation of the economy and society seems to have been long driven by the EU, and is concentrated on government declarations and economic plans which are not particularly concrete. The economic discourse generally engages with the possibilities of industrial development. Therefore, the aspect of employment is not often addressed. Above all, concrete and local suggestions and projects from civil society actors acting on their own initiative, and from local administrations are lacking. However, in recent years there has been increasing pressure from a growing environmental movement, social movements, and trade unions. They have also brought aspects into the discussion that are closely linked to the concept of sustainable work, without actually using the term itself.

3.1 Statistical data on the economy, population structure, and employment

3.1.1 Population (overall population and age structure 2020)

Portugal had 10.2 million inhabitants in 2020, and the highest negative population growth among all comparable nations. With 22.8 percent of its population over 65, the lowest percentage of 0-14-year-olds, a low percentage of 10-24-year-olds (slightly lower than Spain and Poland, and equal to Slovakia) and a fairly high percentage of 15-64-year-olds, the society is expected to age more quickly than others.

Total population (in millions)	Annual population growth %	Population structure (age)			
		0-14 (%)	10-24 (%)	15-64 (%)	65 + (%)
2020	2015-2020	2020	2020	2020	2020
10.2	-0.3	13.1	15.3	64.2	22.8

(UNFPA 2020, 145)

The age structure and negative population growth are caused to a large extent by the migration of young people for economic reasons, primarily to other European countries, as well as to low birth rates due to the economic situation and migration.

3.1.2 GDP, economic growth, and economic structure

The per capita GDP in Portugal has increased continuously since 2012, but in 2018 was above Poland and Slovakia at US$ 34,272, placing Portugal in the lower range among comparable nations. Economic growth dropped in 2011 by -1.7 percent, and was reduced by a further -4.1 percent in 2012, then another -0.9 percent in 2013. It only recovered starting in 2014 (+0.8 percent), increased once again, reached up to +3.5 percent, and was +2.4 percent in 2018. Household income in Portugal, however, dropped precipitously due to the crisis, and never recovered to its previous levels. The drops were -4.2 percent in 2011, -3.9 percent in 2012, -1.5 percent in 2013, and -1.2 percent in 2014. The sectors of trade, repairs, transportation, and hotel and hospitality made up the largest share of value creation in 2018 (this data for 2018 was included in the 2020 OECD statistics only as estimates) at 24.8 percent (constant since 2012), followed by public administration, defence, education, health and social work with 19.1 percent (a figure which has dropped since 2013) and industry, including energy at 18 percent (this figure increased from 2011 to 2015 from 16.6 to 18.3 percent, and has dropped slightly since that time), then the real estate sector at 12.5 percent (this percentage has stagnated since the increase, between 2011-2013, from 10.8 to 12.4 percent). The sector of professional, academic, and support services makes up 7.8 percent (6.8 percent in 2011), the next to lowest percentage above Norway. The shares made up by the construction and finance and insurance sectors, in contrast, have dropped continuously, while the sectors of agriculture, forestry, and fishing, as well as information and communication, have not fluctuated significantly (OECD 2020e).

3.2 Labour market policies, workforce, employment, and labour market

From a methodological standpoint, we can divide the labour market in Portugal into two phases in the decade from 2010 to 2019. The phase lasting up to 2015, under a right-leaning government, was impacted by the effects of the financial crisis (economic and social). The country pursued a rigid policy of austerity and implemented it through structural adjustment programmes negotiated with the Troika. The second ("post Troika") phase, which lasted at least until the start of the Covid-19 pandemic under a centre-left government, is characterised by a search for alternative pathways and an attempt to reduce the negative consequences of the financial crisis and austerity agenda.

During the first phase, Portugal suffered a labour market crisis of unprecedented proportions. Unemployment reached historic highs, precarity and poor-quality work increased, labour and working conditions were devalued, and income from work dropped. The labour market policies that were implemented were subject to major, frequent changes, and represented a labyrinth of measures, accompanied by outsourcing programmes and measures to private companies. They were not very effective, and securities and social safeguards were likewise low, resulting in frequent abuse by companies. Most young people left programmes designed to fight youth unemployment before completing them. No financing was provided to fill gaps in the social safety net. The market was expected to solve everything, according to a strict, neo-liberal logic. Funding was funnelled primarily to the private economy, and laws were focused mainly on this sector. Public labour market policies were also disqualified discursively. The failure of these labour market policies, alongside a drop in social security and protection, is clear even in just a few select figures: Total expenditures for unemployment in December of 2009 were 1.954 billion euros, with an official count of 517,700

unemployed persons. By December of 2015, the ranks of the unemployed had grown to 646,500, although total expenditures for unemployment had dropped to 1.76 billion euros (Caleiras 2019).

During the second phase starting in 2015, the economic and social situation did improve markedly under the centre-left coalition, accompanied by a dropping unemployment rate and significant recovery of the labour market. However, it should be noted that there remain significant deficits in the quality of work (Caleiras 2019). In addition, the recovery of the economy began in 2015, shortly before the new government was elected. In reality, many of the social cuts made during the previous conservative government were reversed under the new one. However, this was primarily done by greatly reducing state investments, in order to continue fulfilling the goal of cutting the budget deficit.

3.2.1 Labour market data

Table 1. Labour force

Annual average estimates

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Labour force, thousands										
All persons	5 490 |	5 428	5 383	5 285	5 226	5 195	5 178	5 219	5 233	5 253
Males	2 847 |	2 837	2 791	2 725	2 681	2 657	2 652	2 667	2 661	2 658
Females	2 643 |	2 591	2 591	2 560	2 545	2 538	2 526	2 553	2 572	2 594
Unemployed, thousands										
All persons	591 |	688	836	855	726	647	573	463	366	339
Males	278 |	350	434	436	362	323	291	224	175	154
Females	314 |	338	402	419	365	324	282	239	191	185
Employment, thousands										
All persons	4 898 |	4 740	4 547	4 429	4 500	4 549	4 605	4 757	4 867	4 913
Males	2 569 |	2 487	2 357	2 288	2 319	2 334	2 361	2 442	2 486	2 504
Females	2 329 |	2 253	2 190	2 141	2 180	2 214	2 244	2 314	2 381	2 409
Employment (%)										
Males	52.5 |	52.5	51.8	51.7	51.5	51.3	51.3	51.3	51.1	51.0
Females	47.5 |	47.5	48.2	48.3	48.4	48.7	48.7	48.7	48.9	49.0
Unemployment rate (% of labour force)										
All persons	10.8 |	12.7	15.5	16.2	13.9	12.4	11.1	8.9	7.0	6.5
Males	9.8 |	12.3	15.6	16.0	13.5	12.2	11.0	8.4	6.6	5.8
Females	11.9 |	13.0	15.5	16.4	14.3	12.7	11.2	9.4	7.4	7.1

(OECD 2020m, 1)

In 2019, Portugal had a moderate unemployment rate at 6.5 percent. The consequences of the crisis did result in increasing unemployment through 2013 - the figure that year reached 16.2 percent. However, the working-age population shrank from 5,490,000 in 2010 to 5,253,000 in 2019. The reasons for this include not only the age structure described above, but also immigration due to the crisis. By 2016, the working-age population had actually shrunk to 5,178,000, and it increased only slowly afterwards as the economic situation improved. Youth unemployment has dropped by more than half since its peak levels in 2012 and 2013, but is still very high at 18.3 percent.

Table 2. Unemployment rates by age

Annual average estimates, percentage

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
All persons										
15-24	22.8	30.3	37.9	38.1	34.8	32.0	28.0	23.8	20.3	18.3
25-54	10.7	11.9	14.7	15.5	12.7	11.2	10.0	7.9	6.1	5.7
55-64	8.9	10.8	12.7	13.7	13.5	12.5	11.0	8.6	6.5	6.2
65 and over	0.5	1.0	1.6	1.3	1.8	2.5	2.0	2.5	1.8	2.0
15-64	11.4	13.3	16.3	17.0	14.5	12.9	11.5	9.2	7.3	6.7

Note: Detailed metadata at:http://metalinks.oecd.org/lfs/20200831/71aac

(OECD 2020m, 2)

In light of the development of the working-age population, total employment increased from 2010 to 2019 by only 14,700, from 4,898,400 to 4,913,100, as the detailed data from the OECD shows. However, when we examine the sectors, we can see a more comprehensive transformation under way. In the agricultural, hunting, and forestry sector, the total number of employees dropped by more than half between 2010-2019 from 548,500 to 270,100, and this drop has continued without any counter-tendencies in sight. In industry, employment dropped from 1,335,100 to 1,212,400, however, this sector reached the lowest employment level in 2013 at 1,049,700. Since that time, industrial employment has increased once again, although it has never again reached its previous high. It should be noted that employment in the manufacturing industry has increased slightly once again (from 801,700 to 836,000, after hitting a low of 705,000 in 2013). The construction industry saw the biggest drop (from 466,800 to 304,600, reaching its low in 2013 at 275,800) (OECD 2020m, 3).

Overall, there is a clear shift to the service sector, which had 3,014,900 employees in 2010. Total employment in services dropped to 2,912,000 in 2012, but has been increasing continuously since that time to 3,430,600 in 2019. As in France, the sectors that saw the biggest increase were human health and social work (continuously increasing from 347,400 to 475,300), professional, academic, and technical activities (from 154,500 to 221,900) and education (from 366,100 to 416,600). Employment increased in almost all service sectors. There was an increase, for instance, in transportation and storage (from 174,000 to 218,600), hotel and hospitality (from 287,000 to 320,800), information and communication (from 103,500 to 134,100), culture, entertainment, and leisure (from 36,300 to 68,300), real estate (from 27,600 to 52,200), administrative and support services (from 152,800 to 171,400) and finances and insurance (from 86,600 to 99,000, however there were significant fluctuations in this area, which in 2018 was as high as 113,000). In the biggest sector of public administration, defence, and social security, employment increased only marginally (from 307,200 to 309,000). Employment dropped in only two service sectors: wholesale and retail, vehicle repairs (from 719,000 to 706,400) and employment in private households and activities for personal use (from 146,400 to 114,800) (OECD 2020m, 3). This indicates major transformations in the structure of production and in the labour market that could be more wide-ranging than in many comparable countries.

3.3 Green jobs – Emprego verde

In 2008, green jobs were estimated to make up 0.4 percent of total employment in Portugal (Cox and Foley 2013, 4). An initial comprehensive study on green jobs was developed and published by researchers at the company for energy consulting CEEETA-ECO and the Department of Science and Research at the *Universidade Nova de Lisboa* for the *Cabinet for Strategy and Planning* (GEP) and the *Ministry of Labour and Social Solidarity* (MTSS) in 2009 (Prata Dias et al. 2009). The study was also officially published in a governmental series in 2010 (GEP und MTSS 2010). It reviews the current situation, investigates the training situation for green jobs, discusses the future potential of green jobs, and makes a series of policy recommendations.

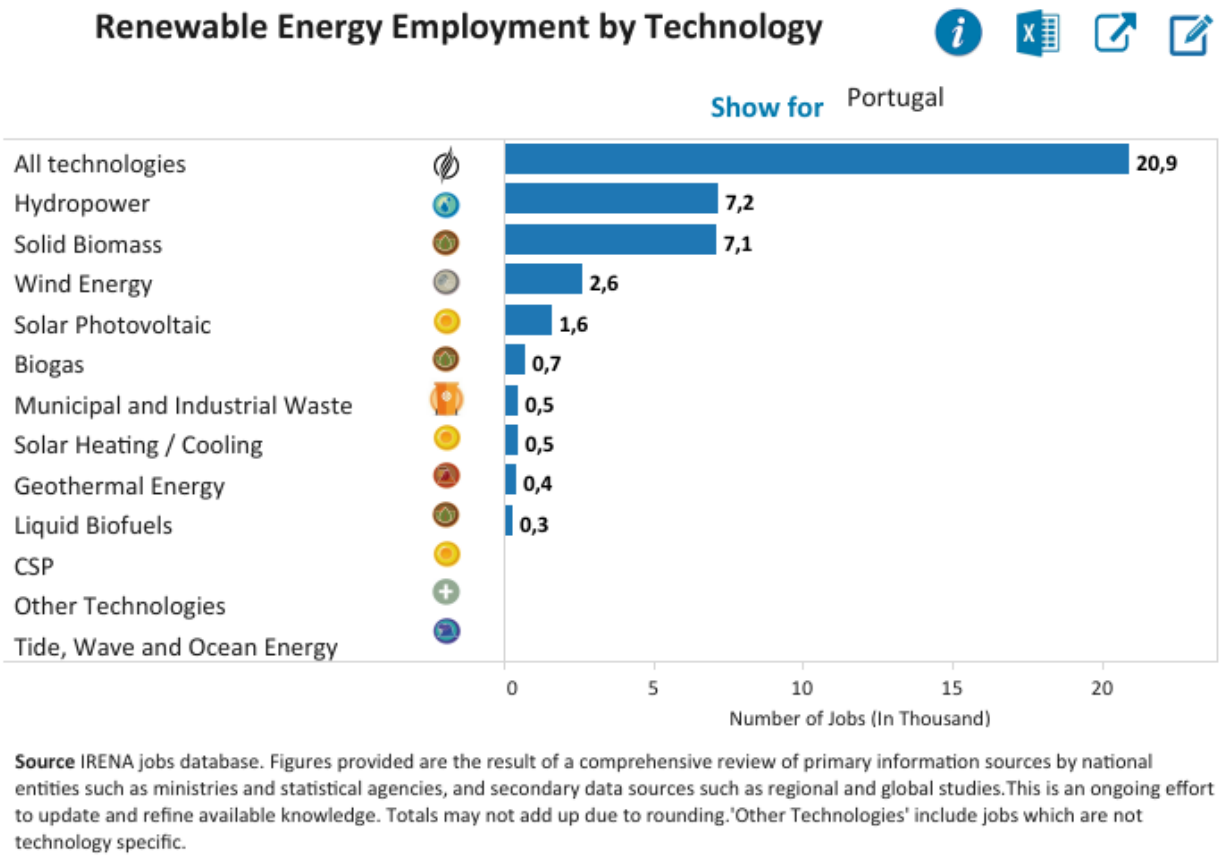
The investigation found, among other things, that "a significant portion of employees engaged in environmental jobs had a level of schooling below a secondary school-leaving certificate" (Prata Dias et al. 2009, 5). However, there was a significant increase in degrees and professional certificates in the environment and sustainability field in the higher education context. The study noted this was the case initially in public institutions, followed shortly by the private sector.

The report was based on a concept of green jobs that stands for integrating the pillars of sustainable development in all activities, beyond the strict boundaries of the environmental dimension and taking social equality, economic efficiency and effectiveness, environmental protection and environmental management, good governance, and institutional dynamics into account. The study identified a growing sector of green jobs, while verifying that the percentage of overall employment made up by green jobs was still low. It noted a large amount of potential in wind and solar energy, and in associated technology (GEP und MTSS 2010, 8–9). The national energy strategy expects to see a growth in employment in green jobs to 2-2.5 percent of total employment, or 100,000-130,000 jobs by 2020 (Prata Dias et al. 2009, 5). According to the National Institute for Statistics, there were 105,463 green jobs in the country in 2016 (Instituto Nacional de Estatísticas 2019, 1; siehe auch 3.3.2.1). Although the calculation methods are different and difficult to decipher, preventing a direct comparison, there is a clear tendency here.

Portugal was exactly in the middle of EU28 countries in the 2019 EU-28 Eco-innovation scoreboard. However, with respect to employment in *eco-industries*, the country was well above the average of 100 (European Commission 2020). Jobs have been created, therefore, although less than expected. Employment in the sectors of electricity, gas, steam, air conditioning increased between 2010 and 2020 (from 15,800 to 19,500, although there were major fluctuations during this time), as well as in water supply, waste water, waste management and avoidance (31,500 to 39,000) (OECD 2020m, 3).

3.3.1 Employment in the renewable energy sector

Most employees in the renewable energy sector work in hydropower and solid biomass. There is also evidence of a high potential for wind energy, in particular offshore wind energy, although under different conditions than in the North Sea. Thus far, there are two different EU-financed projects in Portugal on using prototypes with innovative foundation solutions. Other projects are currently in progress.



(IRENA 2020b)

In the research, there are concepts being discussed that are projected to "generate significant investment in new, expanded capacity and economic advantages for added value in the industry, and in more than 20,000 jobs by 2030" (Vieira et al. 2019).

3.3.2 Public policies and measures

Since 2008, the changing governments have commissioned multiple investigations on the sustainable transformation of the Portuguese economy, and prepared and resolved several different action plans. The action plans were discussed alongside various established social actors, then adopted by the government. There seems to be a continuity here extending beyond the political alignments of the changing governments. The government, special interest lobbies, and highly institutionalised NGOs have attempted to reconcile the aspects of creating jobs, sustainable industrial transformation and development, and a sustainable societal transformation alongside actors from business and research.

The first strategic plan was prepared and adopted in 2010 by the Cabinet for Strategy and Planning alongside the Labour and Social Ministry under a coalition led by the Social Democrats with a right-leaning liberal partner (GEP und MTSS 2010). The same institutions and the Environmental

Ministry were also involved in developing the two other governmental plans in 2015 and 2017 (Ministry of Environment Spatial Planning and Energy 2015; Ministério do Ambiente 2017). The second plan in 2015 was created under a conservative government. The network created for this purpose, and the goals formulated in the plan, however, have been retained up to the present under the second centre-left government. The action plan from 2017 was developed and resolved under a centre-left government. All three plans base their concrete data and numerous fascinations almost exclusively on EU documents on green jobs and the sustainable transition. None of the three mention quality or the social protection of work. Trade union representatives are missing from accompanying initiatives – whether this is the cause, or the consequence of the focus is unclear. There is no clear position or initiative from the Portuguese labour administration on green jobs in these documents.

3.3.2.1 Plan Green Growth Commitment

The *Green Growth Commitment* (GGC) strategic plan enacted in 2015 formulates 14 concrete goals in the areas of growth, efficiency, and sustainability, to be achieved in two stages – by 2020 and by 2030. Under this plan, the goal is to increase the number of green jobs from 75,500 in 2013 to 100,400 in 2020 and 151,000 in 2030 (Ministry of Environment Spatial Planning and Energy 2015).

The strategy was created in consideration of discussions and suggestions from a series of conferences by the *Coalition for Green Growth*, a network that will advise the government on implementing the GGC and policies to promote green growth. It should also promote the participation of and coordination between public and private institutions relevant for the measures. Around 100 actors from 16 sectors are to take part in the coalition. They range from representatives of private business, science, and finances, to public administration and research, to foundations and NGOs (however, there are no trade unions or explicitly left-leaning NGOs).[11] Representatives from the Environmental Ministry, the regional planning authority, and the areas of energy, finances, agriculture, ocean, innovative agriculture, innovative economics, transportation, tourism, and the sciences take part on behalf of the government. The *coalition* still exists, and continues to work on and participate in reviews for implementing and carrying out projects.

To what extent a comprehensive strategy on sustainable social transformation has actually been implemented with the participation of local institutions, however, is questionable - at least through 2016. An investigation of local administrations comes to the conclusion that climate change is not a key issue for the local agenda for most people, and that local administrations are not effectively involved in implementing climate change policies (Campos et al. 2017).

An initial evaluation of the implementation was conducted in 2018, under the leadership of the coalition. However, the results are not very meaningful, since the most current available figures were from 2016. The National Institute for Statistics (INE) implemented new accounting methods and data sets in 2018 for the first time on three productivity targets that were formulated in the GGC and have now been updated as follows 1) increasing "green" gross value creation; 2) increasing "green" exports; 3) creating green jobs. "Green" gross value creation is the percentage of overall gross value creation corresponding to the calculation of environmental goods and services

[11]A list of participants can be found on the Coalition's website: https://www.crescimentoverde.gov.pt/coligacao-cv/membros/

(Contas do Setor de Bens e Serviços Ambientais, CSBSA). This should make it possible to evaluate the extent to which the economic system reflects environmental protection goals.

In 2018, the INE published data for the first time on the three categories from 2014 and 2015, and published the data for 2016 in 2019. According to that data, a small amount of growth was seen in all areas. In 2016, green jobs made up 2.4 percent of the total workforce. That corresponded to 105,463 employees, an increase of 5.9 percent over 2015.

	2014	2015	2016	Increase in %
Employees in the environmental goods and services sector	91,812	99,564	105,463	5.9
Total workforce in Portugal	4,246,668	4,327,478	4,419,870	2.1
Percentage of the sector for environmental goods and services	2.2%	2.3%	2.4%	

(Instituto Nacional de Estatísticas 2019, 1)

However, the annual increase between 2014-2016 in the percentage of green jobs in the overall workforce was just 0.1 percentage points (Coligação para o Crescimento Verde 2018).

3.3.2.2 Action plan for the circular economy

In 2018, Portugal had a circularity rate of 2.1 percent (it was actually slightly higher in 2013, at 2.5 percent). This is roughly a fifth of the EU28 average for 2018 (eurostat 2021a) and would be simple to increase. In 2017, *Leading the transition. [Action plan for circular economy in Portugal: 2017-2020]* (Ministério do Ambiente 2017) was developed by an inter-ministerial governmental commission, presented in public hearings, discussed by the Council of Ministers, and enacted. It is focused on suggestions for establishing a circular economy, although these remain fairly general. It does discuss creating additional jobs, but the term "green jobs" is not used. Instead, it refers directly to the SDGs, and repeatedly speaks of sustainability and sustainable development. Concrete figures are included only in the preface and introduction, with reference to the overall EU. Only one concrete figure is named in relation to Portugal, regarding the conversion of the northern region of the country and the Alentejo into a "smart bio-region". This "could generate € 2.9 - 3.4 million in annual income and create more than 70,000 jobs" (Ministério do Ambiente 2017, 47).

3.3.3 Jobs and economic growth in bio-industries

There are multiple comprehensive investigations by governmental institutions and private entities on "bio-based industries". Comprehensive activities in the agricultural sector, forestry, and fishing, as well as manufacturing cork and leather products, would create a huge amount of unused leftover materials that could be used by bio-industries. The quantity would justify the construction of multiple bio-refineries (RINA Consulting 2018). Indeed, the Portuguese Council of Ministers enacted a national plan to promote bio-refineries in 2017. By building 14 bio-refineries by 2030, the coordinator of the Department for Bioenergy at the National Laboratory for Energy and Geology (*Unidade de Bioenergia do LNEG – Laboratório Nacional de Energia e Geologia)* expects 420

qualified direct jobs, and over 4,200 new jobs to be created, primarily in regions in the country's interior (GPP 2019, 64).

In March of 2019, the governmental Cabinet for Planning, Guidelines, and General Administration (GPP) dedicated an entire issue of its 124-page journal CULTIVAR, in which analyses are outlined and development perspectives are investigated, to the enormous potential of bio-industries (GPP 2019). Expanding bio-industries with the goal of developing a "circular economy" in the context of the strategy updated by the EU in October of 2018 would help create

> "A sustainable bioeconomy for Europe. Strengthening the connection between economy, society and the environment: updated bioeconomy strategy" gestellt. Der vorgeschlagene EU-Aktionsplan gehe über Investitionen in Forschung und Innovation hinaus, um „Wachstum und Beschäftigung auf lokaler Ebene zu stärken, den Bio-Sektor zu stärken, zur Modernisierung der Industrien beizutragen, die Umwelt zu schützen und das Funktionieren von Ökosysteme und Biodiversität aufzuwerten" (GPP 2019, 15).

Developing the bio-economy, it states, has a high potential to generate and maintain sustainable economic growth and prosperity, and create many high-quality jobs in rural and coastal areas (GPP 2019, 31).

3.4 Criticism and other actors

Green jobs in alignment with the goals of sustainable development promise inclusive and long-term growth, conservation of the Earth's ecosystems, and good work for all employees. They should also protect and promote the health of workers and reduce work-related illnesses and accidents. However, a broad-based investigation of green jobs in Portugal, based on a range of indicators for health and employment, found different results. A total of 2,780,686 employees in 281,124 enterprises were investigated. The study found that there were lower health and safety standards in green jobs compared to other types of jobs, that the number of work-related accidents was higher, and that those accidents were also more severe. The percentage of employees with low levels of professional qualification is also higher (Moreira, Vasconcelos, and Santos 2018; 2017).

From an ecological standpoint, the sustainability of some of the measures is also questionable, as is whether they are even sufficient to achieve the environmental targets that have been set. A detailed investigation of the effects of the environmentally-friendly transportation policies formulated in Portugal in 2019, for example, runs through different scenarios, and comes to the conclusion that emissions from transportation would not be reduced in Portugal by 2050, but would instead increase by at least 15% compared to 1990 (Nunes, Pinheiro, and Brito 2019).

Portugal's largest trade union association, the KP-aligned CGTP (Confederação Geral dos Trabalhadores Portugueses) is part of coalitions with environmental groups and other civil society organisations pushing for a sustainable transformation of the economy and society. Therefore, the positioning is clear in the coalition demands. No specific or relevant declarations on green jobs were found in the limited research available from the second largest trade union association, the social democratic UGT (União Geral de Trabalhadores).

3.4.1 Parties

The positions of the two largest Portuguese parties are clear from the policies of past governments. The social democratic PS (Partido Socialista), received 36.35 of the votes in the 2019 elections. It has been in power since 2015. It first ruled as a minority government supported externally by the electoral alliance CDU (6.34 percent in 2019) consisting of the KP and Greens, and the left block BE (Bloco de Esquerda) (9.52 percent in 2019), and since 2019 has ruled as a minority government without designated partners. Previously, the conservative-liberal PSD (Partido Social Democrata / social democratic party 27.76 percent in 2019) ruled with the conservative, right-leaning CDS-PP (Centro Democrático e Social – Partido Popular, 4.22 percent in 2019). The PS does purport to be focused more on sustainability and environmental protection than the previous, conservative government, however this has more to do with the expanded EU programs, EU orientations, and replenished EU funding available than an actually differentiated position. As illustrated above, there is a continuity over time throughout the ministries and governmental agencies that deal with matters related to sustainability.

The Communist Party of Portugal (PCP) has always run alongside the Greens in the CDU electoral alliance (Coligação Democrática Unitária) since 1987.[12] The left block BE (Bloco de Esquerda) likewise defines itself as socialist, ecological, and feminist, and espouses positions similar to the CDU, although it is more movement-oriented, while the PCP has a strong base in the labour force. In June 2020, the PCP issued a comprehensive legislative proposal setting out the foundations of an environmental and climate policy. The grounds stated:

> "The environmental situation in our country is characterised by the lack of an integrated and strategic policy, the privatisation of fundamental sectors like energy and waste, advancing commercialisation of nature and public services to deal with environmental problems, which suffer from a severe lack of funding and opportunity for action. (...) Portugal needs an integrated policy for development which is consistent with the environment. (...) Climate change and environmental protection were central to the public debate in 2019. However, the discussion on the level of national institutions and forums has been improperly overshadowed by the discussion on the current economic and social system, imbalances within and between nations, the model of production, and at the same time limited to individual behaviour and a false dichotomy between the economy and the environment, and has been a pretext for defending anti-populist policies and intensifying exploitation and inequality". (PCP - Grupo Parlamentar 2020, 1–2).

Obviously, climate policy is seen as an important, diverse field of political confrontation to which a strong social dimension is attributed. The public debate on these issues is seen as misdirected.

[12] The electoral alliance formally includes the PCP, Greens (PEV, Partido Ecologista Os Verdes), and the ID (Intervenção Democrática). The CDU has a communist, green, and eco-socialist orientation. The PCP is by far the strongest party; the Greens have around two delegates nationwide, and the ID no longer plays a role. The CDU almost always acts in a uniform manner, although the parties continue to be listed and to exist individually.

3.4.2 Plataforma Portuguesa das ONGD

An increase in precarity and poverty, as well as the devaluation of work, are also criticised by the Portuguese platform of the development NGOs in a document published in 2019, containing ten suggestions for reducing inequality(Plataforma Portuguesa das ONGD 2019) . Alongside the Portuguese Confederation of Organisations for Defending the Environment (CPADA), the platform is part of a network of 25 civil society organisations from 15 EU nations that form the *Projeto Europa no Mundo – Make Europe Sustainable For All* coalition. The goal of this coalition is the "ambitious implementation of the 2030 EU Agenda". The NGO platform document states:

> "In recent years, Portugal performed particularly well in lowering school drop-outrates (in 7 years, it fell 7 pp.) and decreasing unemployment (currently below 7% in comparison with 16.2%, in 2013). Education is a crucial factor for inequality in Portugal, as it is interlinked with job quality, wages and poverty. The improvement in educational levels and employment rates - in recent years above GDP growth - contrasts, however, with rising job insecurity and persistent high levels of temporary and labour market segmentation. Low wages and wage disparities are key to income inequalities" (Plataforma Portuguesa das ONGD 2019, 8).

In this perspective, the existing inequalities are not enough to advance sustainable work in Portugal.

3.4.3 Coalition for a just transition: "Empregos para o clima" (Jobs for the climate)

There is also a *Just Transition* campaign in Portugal, as launched by international trade union organisations. The goal of the *transição justa* is to create a sustainable strategy for creating jobs. The environmentally friendly transformation of the economy and society should not result in a loss of jobs, negative impacts on working conditions, or on the poor. In contrast to GB or South Africa, for instance, the initiative in Portugal was launched by environmental organisations, and not by trade unions. The campaign was initiated by the Climáximo movement for climate justice from Lisbon. Other key players in the campaign *Empregos para o clima* (Jobs for the climate) include other climate justice movements such as Colectivo Clíma from Porto, the trade union association CGTP, movements from the world of labour and the association against precarious employment *Precários Inflexíveis*, alongside environmental NGOs like the National Environmental Action and Intervention Group GAIA (Kenfack 2019, 226). In addition, numerous individual trade unions within the CGTP have also joined, alongside other smaller, left-leaning unions and labourer organisations, other environmental organisations and NGOs, as well as groups of climate activists.[13]

The just transition movement has two goals, which are also formulated as part of the Portuguese campaign. The first goal is to ensure that the CO2-intensive economy is converted to a low-CO2 or, if possible, a zero CO2 economy. The second goal, in contrast, impacts social justice and labour and environmental justice. To achieve this goal, the burdens of climate change must be distributed, along with profits from the transformation. The well-being of employees, the creation of safe, sustainable climate jobs, the participation of everyone involved in decision-making processes and the support of the government are all designed to ensure that the interests of capital do not outweigh concerns for the well-being of society, and above all the worker. The Portuguese campaign was

[13] An overview of the participating groups and organisations is provided on the coalition's website: http://www.empregos-clima.pt/.

initiated to put pressure on those in power to implement climate policies that create clean jobs and protect employees and their communities (Kenfack 2019, 226). In light of the continuing trend of work and labour relationships becoming more and more precarious and devalued in Portugal, the campaign is focused on the specific relationships and plans of the government, as well as gaps in those plans.

3.5 Preliminary conclusions

The formulations in the government's declarations rely heavily on EU specifications. This is certainly due in part to Portugal's reliance on EU funding. In reality, however, Portugal has a large potential to create ecologically sustainable employment. Whether this employment will be socially sustainable and of good quality is disputed. In recent years, however, there has been a growing debate within society and broad-based mobilisation to counteract the risk of further deregulation of labour relationships and growing precarious employment, and to achieve a just transition.

The ability of trade unions, social movements, environmental organisations and joint coalitions to mobilise on and intervene in these issues in Portugal should not be underestimated. They are powerful socio-political actors. In 2015, there were 15 approvals for transnational energy group companies for exploration and exploitation of fossil fuels. They were searching for oil and gas both on land and offshore. A large protest movement formed against this. A majority of members of parliament always voted in favour of terminating the contracts. Nevertheless, all of the companies involved exited their contracts over time. The last two of the original 15 projects were abandoned in September of 2020. Australis Oil and Gas forewent two approvals for extensive drilling to search for gas in central Portugal due to the high level of public pressure (Climáximo 2020).

4. Spain: Initial situation, policies, debate, and actors

As a Mediterranean country, Spain is impacted particularly strongly by climate change and its effects. The Mediterranean region is experiencing some of the greatest and fastest temperature increases in the world, roughly 20 percent faster than the global average. In comparison to pre-industrial eras, the temperature has already increased by an average of 1.5 degrees Celsius. Without further measures to prevent global warming, the rise is projected to be 2.2 degrees by 2040, and even as high as 3.8 degrees by 2100 in some regions. Within the Mediterranean region, Spain is the country with the highest risk of desertification. There is "serious risk of desertification" for over a third of its territory. In addition, extreme weather events and a rise in the level of the Mediterranean sea of up to one meter by 2100 will impact the country (Planelles 2019). Nevertheless, climate change played a minor role in Spanish media up to 2018, and reporting on climate change and sustainability had been the purview primarily of political, institutional, and scientific actors. This changed in 2018, when alarming reports from Spanish climate researchers gained more attention and media presence. Since that time, reporting on environmental problems and climate change has increased steadily, and civil society actors have enjoyed a greater media presence (Teso Alonso 2020, 905).

Discussion regarding employment in relation to climate change centres primarily on the term *empleo verde* (green jobs) (MITECO 2020b). Governmental institutions use the term, including in the titles of relevant publications (OSE und Fundación Biodiversidad 2010; Fundación Biodiversidad und Programa Emplea Verde 2019). In some cases, there is a differentiation between employment in the nuclear sector (*nuclear*) and direct or indirect green employment. However, as the EU agency *European Centre for the Development of Vocational Training* (Cedefop) states, "the boundaries between green and non-green employment have been blurred" (Cedefop 2019a, 22). In addition, as presented below, there are different ways of counting these employees. In relation to the transition from fossil fuels to nuclear energy, actors speak explicitly of a just transition (transición justa). Actors from trade groups, environmental movements, and research also address questions related to quality, social security, and the sustainability of work, and even of a transformation of the working society.

Spain has a large amount of ground to make up in order to achieve a sustainable transformation of the economy and society. "In order to maintain the competitiveness of its own business sector and fulfil international obligations, Spain urgently needs to make a drastic improvement in its environmental performance: In 2017, Spain's greenhouse gas emissions increased by 7.4 percent, and data on waste management and recycling are likewise negative. We only recycle 33.3 percent of waste, far below the EU percentage of 45 percent" (Martín and Sánchez 2018, 90).

The changing governments led by Social Democratic President Pedro Sánchez, who has been in office since 2018, have formulated a wide range of national plans and policies in numerous areas, and enacted framework plans.[14] These explicitly discuss sustainable employment. The coalition of the PSOE and the electoral alliance *Unidas Podemos* (consisting of the left-alternative *Podemos*, the socialist *Izquierda Unida* and left-leaning regional parties), which has been in power since January of 2020, boasts that it is working, after a decade of political disorientation, to "present a strategic framework for energy and climate policy that establishes a foundation for a path to

[14] His conservative predecessor Rajoy lost a vote of no confidence. The PSOE minority government, however, lost in the February 2019 budget vote, and new elections were held in April. Without a new majority, Sánchez was not able to form a government from May through September, and new elections were held in November of 2019.

decarbonise our society by the middle of the century in a cost-efficient manner, and with solidarity" (Carles 2019, 188). Environment and sustainability policies formulated since Sánchez came into power represent a sea change, compared to the former Rajoy government. These have not been detailed and implemented in many areas, therefore it is not possible to make a final assessment of these policies.

Furthermore, regional policies and measures were formulated and implemented in areas relevant to this investigation in the Basque region and the CAPV (Autonomous Community of the Basque Country)[15]. A description of these policies and measures would go beyond the framework of this limited investigation. However, specific policies will be addressed at several points.

4.1 Statistical data on the economy, population structure, and employment

4.1.1 Population (overall population and age structure 2020)

Spain had 46.8 million inhabitants in 2020, and saw a zero percent population growth over the last six years. With 20 percent of its population over 65 years of age, Spain has an older population than most comparable nations. The percentage of 0-14-year-olds was the lowest except for Portugal, and the percentage of 10-24-year-olds was actually the lowest among all comparable nations. The percentage of 15-64-year-olds, in contrast, was relatively high. This indicates that the population is ageing with above average speed.

Total population in millIons	Annual population growth %	Population structure (age)			
		0-14 (%)	10-24 (%)	15-64 (%)	65 + (%)
2020	2015-2020	2020	2020	2020	2020
46.8	0.0	14.4	15.0	65.6	20.0

Includes the Canary Islands, Ceuta and Melilla (UNFPA 2020, 146)

The age structure and stagnation of population growth are caused largely by the economic migration of young people, primarily to other European countries, as well as the low birth rate due to migration and high levels of unemployment and a poor labour market situation for young workers.

4.1.2 GDP, economic growth, and economic structure

Similar to the situation in Portugal, Spain's per capita GDP has increased continuously since 2012, and in 2018 was US$ 40,542, placing it above Poland, Slovakia, and Portugal, and in an average range compared to other comparable nations. However, economic growth in 2011 was -0.8 percent; in 2012, that figure was -3 percent, and in 2013 it was -1.4 percent. Growth recovered only after 2014 (+1.4 percent), reaching a high of +3.8 percent in 2015, and then becoming more moderate

[15] The CAPV consists of the three provinces of Gipuzkoa, Biskaya and Álava. Historically, the Basque region also included the province of Navarra in Spain, and the three provinces of the French Basque region Iparralde.

after that time. Most recently, the growth figure for 2018 was +2.4 percent. However, the consequences for household income were devastating. Household income dropped in 2011 by 1.4 percent, plummeted by 6.6 percent in 2012, then dropped another 1.3 percent in 2013 and 0.1 percent in 2014. Despite an increase in subsequent years, it has not recovered to its previous levels. In the data on how value creation was distributed in 2018 (the available data consists only of estimates), trade, repair, transportation, and hotel and hospitality made up the largest share at 23.8 percent (relatively constant since 2011), followed by public administration, defence, education, health, and social work with 18 percent (a slight drop since 2013), and industry, including energy at 15.9 percent (a slight decrease since 2011), followed by the real estate sector, at 11.6 percent (the same percentage as in 2011, with ongoing, minor fluctuations). The professional, academic, and support services sector has been growing slowly but continuously since 2011, and made up a share of 9 percent in 2018 (7.8 percent in 2011). The construction industry saw only a slight recovery from its lowest share of 5.7 percent in 2014, as it increased to 6.2 percent in 2018 - still well below the 7.5 percent it made up in 2011. All other sectors remain relatively constant (OECD 2020g).

4.2 Workforce, employment, and labour market

4.2.1 Labour market data

The Spanish labour market has been characterised by severe upheavals, at least since the 2008/2009 crisis.

Table 1. Labour force

Annual average estimates

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Labour force, thousands										
All persons	23 365	23 434	23 444	23 190	22 955	22 922	22 823	22 742	22 807	23 027
Males	12 959	12 858	12 740	12 521	12 359	12 320	12 214	12 172	12 207	12 273
Females	10 405	10 576	10 704	10 669	10 595	10 602	10 609	10 570	10 600	10 754
Unemployed, thousands										
All persons	4 640	5 013	5 811	6 051	5 610	5 056	4 481	3 917	3 479	3 248
Males	2 536	2 706	3 131	3 206	2 917	2 559	2 213	1 906	1 675	1 528
Females	2 104	2 307	2 680	2 846	2 694	2 497	2 268	2 011	1 805	1 720
Employment, thousands										
All persons	18 724	18 421	17 633	17 139	17 344	17 866	18 342	18 825	19 328	19 779
Males	10 424	10 152	9 608	9 316	9 443	9 760	10 001	10 266	10 532	10 746
Females	8 301	8 269	8 025	7 823	7 902	8 106	8 341	8 559	8 796	9 034
Employment (%)										
Males	55.7	55.1	54.5	54.4	54.4	54.6	54.5	54.5	54.5	54.3
Females	44.3	44.9	45.5	45.6	45.6	45.4	45.5	45.5	45.5	45.7
Unemployment rate (% of labour force)										
All persons	19.9	21.4	24.8	26.1	24.4	22.1	19.6	17.2	15.3	14.1
Males	19.6	21.0	24.6	25.6	23.6	20.8	18.1	15.7	13.7	12.4
Females	20.2	21.8	25.0	26.7	25.4	23.5	21.4	19.0	17.0	16.0

(OECD 2020o, 1)

Spain has long had a high unemployment rate, and an extremely high rate of youth unemployment. The crisis beginning in 2008 further increased those rates. They reached their highest point in 2013, with an unemployment rate of 26.2 percent, and youth unemployment (15-24-year-olds) at 55.5 percent. The unemployment rate dropped to 14.2 percent in 2019, while youth unemployment dropped to 32.5 percent. However, these were still by far the highest levels in all comparable nations.

Table 2. Unemployment rates by age

Annual average estimates, percentage

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
All persons										
15-24	41.5	46.2	52.9	55.5	53.2	48.3	44.4	38.6	34.3	32.5
25-54	18.4	19.9	23.3	24.5	22.8	20.6	18.2	15.9	14.0	12.9
55-64	14.2	15.1	18.0	20.0	20.0	18.6	17.0	15.3	13.8	12.6
65 and over	2.5	2.1	4.0	6.3	5.2	4.1	4.4	4.1	4.5	5.5
15-64	20.0	21.5	24.9	26.2	24.6	22.2	19.7	17.3	15.4	14.2

Note: Detailed metadata at:http://metalinks.oecd.org/lfs/20200831/71aac

(OECD 2020g, 2)

The working-age population increased between 2010 and 2019 from 23.365 million to 23.027 million, while the number of workers increased from 18.725 million to 19.779 million. At the same time, there were significant shifts between sectors. Employment in the industrial sector dropped from 4.3 million to 4.04 million, while it increased in the service sector from 13.637 million to 14.941 million. Job losses in the industrial sector were almost all in construction, which shrank from 1.651 million to 1.278 million workers (another 13,000 jobs were lost in the mining area). This was contrasted with a growth in employment in the production industry of 90,000 jobs, to 2.495 million; of 12,000 jobs to 91,200 in the electricity, gas, steam, and air conditioning sector; and of 24,800 jobs to 144,300 in the water supply, waste water, waste management and avoidance sector. In agriculture, hunting, and forestry, employment grew slightly between 2010-2019, from 786,100 to 797,300 (OECD 2020o, 3).

Employment increased in almost all service sectors; however, in contrast to other countries, Spain saw the largest increase in the hotel and hospitality sector (from 1.383 to 1.715 million), followed by human health and social work (with an increase from 1.397 to 1.681 million workers), professional, academic, and technical activities (from 874,700 to 1.022 million), education (from 1.211 to 1.374 million), transportation and storage (from 925,900 to 1.031 million), information and communication (from 527,700 to 602,600), culture, entertainment, and recreation (from 341,200 to 405,200), real estate (from 84,300 to 154,300, administration and support services (from 910,500 to 1.03 million). In contrast to Portugal, employment actually increased slightly in the wholesale and retail and vehicle repair sector (from 2.937 to 3.073 million). Employment decreased in only two service sectors: In the large sector of public administration, defence, and social security (from 1.439 to 1.346 million), employment in private households and activities for personal use (from 735,500 to 595,200), and finance and insurance (from 476,700 to 429,200, with an ongoing downward tendency) (OECD 2020o, 3). At first glance, therefore, the transformations in Spain have been less severe than those in Portugal, for instance.

4.3 Empleo verde

The term *Empleo verde*, or green jobs, is the one most often used. Recent publications have emphasised that employment must be ecologically, economically, and socially sustainable. As in other countries, there is a difficulty in Spain that *green jobs* are defined differently, and that there are different methods for counting these jobs that arrive at different results. There are at least three different ways of counting such jobs: (i) that of the state university Escuela de Organización Industrial (EOI 2011); (ii) the methodology often used by governmental institutions (OSE und Fundación Biodiversidad 2010); (iii) and that of the private company GHK Consulting (GHK Consulting

2007). The first two use different ways to count "core employment." This type of employment is generally higher quality, meaning that it is more stable, less likely to be temporary, more complex, and requires higher qualifications. The GHK, in contrast, counts "direct and indirect employment", which includes precarious work much more often. Overall, however, men clearly dominate in both categories (as well as in the renewable energy sector), and this dominance has only increased in core employment over time (Heras, Ares, and Carcedo 2016, 20–21).

The crisis beginning in 2008 resulted in a severe setback to the strategy for "greening" the Spanish economy. The crisis and its policy consequences lay the foundation "or blocking or delaying *greening*" and not a lack of skills, for instance, according to Cedefop. Nevertheless, "experts continue to assert very positive prospects for the *greening* of the Spanish economy", primarily due to "economic recovery, the activation of *greening* policies, an increase in environmental awareness among the population, and cheaper green technologies" (Cedefop 2018b, 33), as the optimistic assessment goes. Green jobs are also spoken of in public discourse as one potential solution for lowering high unemployment rates. Existing investigations, at least, do not confirm this as of 2018.

A variety of investigations from 2006-2010 showed that green jobs in Spain had seen strong growth, although only 2.2 percent of total employment was in this sector in 2010 (making up around 2.8 percent of GDP). Based on estimates, there was a high potential and the possibility of creating up to two million green jobs by 2020, if appropriate political measures were taken to do so (Martín and Sánchez 2018, 80–81). Depending on the counting method used, green jobs core employment during the second trimester of 2014 made up 2.3 percent of the total workforce, or 401,100 workers (OSE), or 2.1 percent, or 364,400 workers (EOI) (Heras, Ares, and Carcedo 2016, 20). A total of 7.7 percent, or 1.274 million workers were employed in green jobs either directly or indirectly (according to the GHK and its methodology) (Heras, Ares, and Carcedo 2016, 20). This is considered an indication that green jobs core employment "has withstood the changes brought about by the crisis", while indirect and direct employment in green jobs has dropped significantly, albeit less severely than in other economic sectors (Heras, Ares, and Carcedo 2016, 21). However, this assessment deserves to be questioned. The percentage of core employment in green jobs in 2014 was around the same as that in 2010 - however, total employment in Spain dropped from 18.75 million in 2010 to 17.344 million in 2014 (OECD 2020o, 3). In reality, the impacts of the crisis resulted in a wholesale destruction of jobs - and green jobs, which withstood the impacts of the crisis much better in other EU countries - were actually impacted by an above-average drop in Spain, due to the anti-ecological policies of the Rajoy government (December 2011 through June 2018) (Martín and Sánchez 2018, 90). Spain had 104 points in the EU-28 Eco-innovation scoreboard in 2019, just barely above the EU-28 average of 100. However, with just 43 points, Spain was one of the three worst-performing countries in terms of employment in *eco-industries* (European Commission 2020).

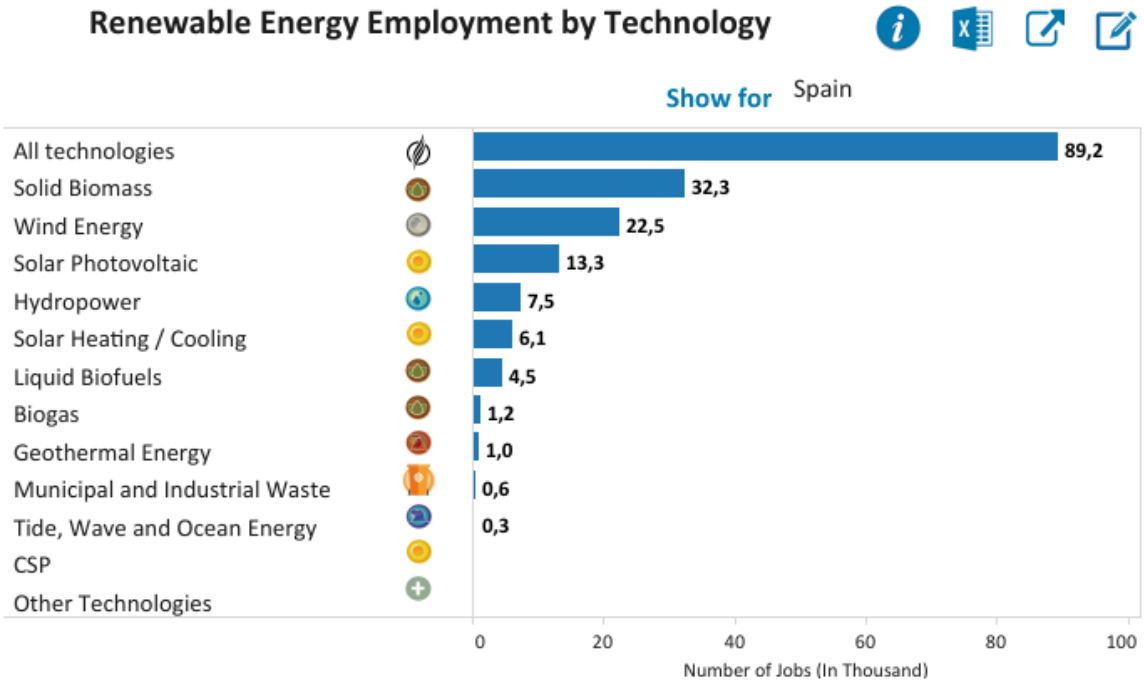
Since Pedro Sánchez came into office, there seems to have been a fundamental change of course, albeit a still insufficient one. One particular feature to note is the fact that governmental plans in Spain to create green jobs particularly emphasise creating new jobs in rural regions. This is linked to the "National strategy to manage demographic challenges", enacted in March of 2019 (MPTFP 2019), which is designed to counteract depopulation in rural regions. It includes "the promotion of renewable energy sources such as biomass or biogas, support or the bio-economic strategy to generate economic value by activating local markets for products and by-products, or revising the Spanish forest plan" (MITECO und SEEG 2019, 34).

4.3.1 Employment in the renewable energy sector

After six years of dropping employment in the renewable energy sector, levels stabilised again starting in 2015. However, with 76,150 workers, this sector had only just over half of the level of 144,300 in 2008. With 34,400 workers, most jobs were in biomass (IRENA 2017, 17). Despite another increase following 2015, employment in renewable energy technologies remained well below levels in 2008. In 2018, there were 81,294 direct and indirect jobs in this area, an increase of 3.3 percent, or 2,627 jobs. 1,961 of these were in wind energy, 966 in photovoltaics, and 158 in operating materials. However, 507 jobs in biomass and 43 in solar energy were lost (IRENA 2020, 27).

The European Centre for the Development of Vocational Training uses another counting method, but arrives at similar results. Employment, it indicates, dropped precipitously following the crisis and elimination of existing investment in renewable energy technologies, which had been in place since 1994, in 2012. Direct employment in the sector dropped from 56,000 in 2012 to 47,000 in 2015, and indirect employment fell from 60,000 to 29,000. The effects of the crisis were even more wide-ranging. In 2008, the number of direct employees in the renewable energy sector was 83,000 (Cedefop 2019a, 22, 75).

The very low percentage of women in Spain is also notable, at just 26 percent in the solar energy industry (it was, on average, 35 percent in 90 companies investigated worldwide, and even lower in Germany at 24 percent) (IRENA 2017, 15).



Source IRENA jobs database. Figures provided are the result of a comprehensive review of primary information sources by national entities such as ministries and statistical agencies, and secondary data sources such as regional and global studies.This is an ongoing effort to update and refine available knowledge. Totals may not add up due to rounding.'Other Technologies' include jobs which are not technology specific.

(IRENA 2020b)

The region of Castile and León, which is slightly larger than Portugal and which extends over almost 20 percent of Spain's territory, but is home to just 5.7 percent of the country's population, is assessed as the best region in Spain to locate renewable energy sources and associated employment in many studies. The region, which also hosts mining and coal-fired power station operations, is also centrally impacted by the energy transition strategy. The region is verified as having the highest potential in Europe for solar energy fields and bioenergy (plant-based and animal-based), and is one of the top five regions in Europe for wind potential (Kapetaki et al. 2020, 4, 12). Castile and León is already the region of Spain with the highest installed capacity for renewable energy, and produces 22 percent of Spain's renewable energy. There is already a network of companies in the sector, especially in wind energy. The outlook for ongoing employment development in the sector is positive, especially in light of plans for major projects to achieve the targets set forth in the National Climate Plan. Contracts for projects in the region granted at the start of the plan alone are slated to create 1,719 jobs (Pérez Díaz and María-Tomé Gil 2020, 13, 14, 37).

4.3.2 Public policies and measures

The most important framework of reference for public policies for adapting to climate change has been the National Plan of Adaptation to Climate Change (*Plan Nacional de Adaptación al Cambio Climático,* PNACC) (OECC 2006), first enacted in 2006. In 2018, the government resolved to evaluate the situation, and to then develop a new PNACC based on experience and the new findings (MITECO 2018). In September of 2020, the Spanish government's Council of Ministers passed PNACC 2021-2030, also known as PNACC II (MITECO 2020b). The goal is to counteract the impacts and risks of climate change, and thereby make the country “less vulnerable”.

4.3.2.1 Plan Nacional de Adaptación al Cambio Climático 2021-2030

The PNCC II formulates 81 action areas, intended to create a “more secure and less vulnerable economy and society”. These areas include, among other things, health, coastal regions, water management, the construction industry, general industry, energy, forestry, biodiversity, fighting desertification, and tourism. It will be necessary to enact many new laws, and reform existing laws, in order to implement this plan. No timeline has been provided for this. Working groups should analyse legal changes, and suggest new ones, if necessary. The Ministry for the Ecological Transition (MITECO) is responsible for implementing the plan. In addition, it suggests that the concrete consequences of climate change in different sectors be evaluated, and that the action areas be updated at least every five years (Planelles 2020).

With respect to employment, the plan states “investment in planned adaptation, whether public or private, will forestall and reduce not only the risks of climate change for the economy and existing employment; it can also create new economic activity and employment opportunities, while at the same time preventing economic loss and promoting a more resilient economy” (MITECO 2020b, 10). The plan “promotes a transformation in the production, energy, and consumption model, focused on strengthening inter-relationships between industry and companies, creating good jobs, reducing inequality, increasing the value of rural development, creating more sustainable and safer cities, and protecting biodiversity, environmental capital, and our health” (MITECO 2020b, 12). The goals of the plan include:

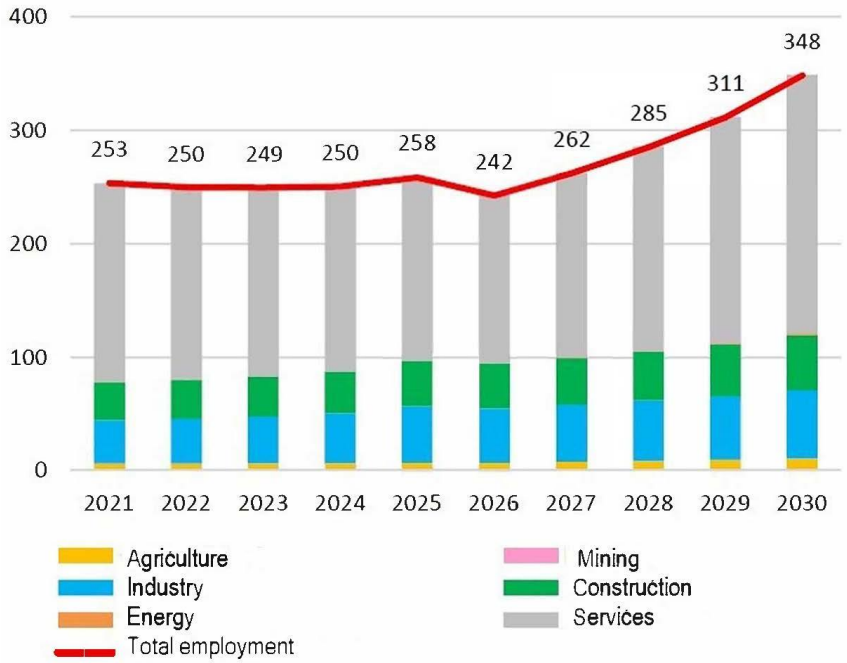
> "Counteracting the loss of jobs due to consequences of climate change, while creating employment capacity and new employment opportunities in conjunction with the adaptation" and "promoting education and training for new jobs and fostering new demand for adaptation to climate change" (MITECO 2020b, 62).

Under "2.5 Preventative measures against the impacts of climate change on employee health" (MITECO 2020b, 100–102) the plan discusses increased temperatures impacting work, as well as their health consequences. Preventative measures should be developed to deal with this issue.

Climate change adaptation by the industry and service sectors is addressed specifically, in particular small and mid-sized companies, which it states may be more strongly affected by climate change, but which also have a higher potential to generate answers (MITECO 2020b, 172). The plan refers to the governmental declaration on the climate and environmental emergency of 21 January 2020, which already included a pledge by the government to "advance, support, and enable" the transformation of the industrial model and service sector, "giving preference to sustainable economic activity and focusing on the quality of employment". This should be completed for industry via just transition agreements and accompanying measures (Gobierno de España 2020b). The link with innovative reference, in particular, should be underscored by integrating these areas into the "Spanish strategy for science, technology, and innovation 2021-2027" (Gobierno de España 2020a) (MITECO 2020b, 172).

4.3.2.2 National integrated climate and energy plan 2021-2030 – PNIEC 2021-2030

The PNIEC formulates the following goals for 2030: (a) reducing greenhouse gas emissions by 23 percent, (b) 42 percent share of renewable energy in total energy consumption; (c) 39.5 percent improvement in energy efficiency; and (d) 74 percent share renewable energy in the generation of electrical energy (MITECO 2020a, 11). The PNIEC 2021-2030 is also expressly presented as a plan for creating jobs. According to the Environmental Ministry, the impacts of the PNIEC 2021-2030 on employment have been assessed through six different models, taking into consideration over 1,000 variables (MITECO 2019, 3). According to these assessments, measures would create 242,000 to 348,000 new "high-quality jobs" annually by 2030, and add 16.5 to 25.7 billion euros to GDP, compared to a scenario without the plan. The new jobs would be created primarily from investment in the industrial sector, linked to improvements in efficiency (especially through building energy renovations), innovation, renewable energy (this should contribute an annual net growth of 107,000 to 135,000 jobs), as well as in services, and through the effects of the changing energy model starting in 2025 (Gobierno de España 2020c, 4; MITECO 2020d, 218–20).



(MITECO 2020d, 219).

The plan predicts the highest growth in employment in the service sector (175,000 to 228,000). This is followed by the manufacturing industry with 38,000 to 61,000 jobs annually, especially in the decarbonisation sector, in which Spain plans to play a leading role. The construction industry falls into the third spot (33,000 to 48,000). The only sector with a net loss in jobs is mining. An increase of approx. 7,500 jobs is even predicted in the primary sector (MITECO 2020d, 219–20).

4.3.2.3 "Law on climate change and the energy transition" legislative proposal

In 2020, a draft was issued for the "Law on climate change and the energy transition", for the purpose of implementing a range of specifications from the PNIEC 2021-2030 (Gobierno de España 2020d). The justification for the legislative proposal stated that the suggested energy transition would mobilise around 200 billion euros in investments from 2021-2030. As in the PNIEC 2021-2030, the legislative proposal defines the just transition as one strategy for implementing this (Gobierno de España 2020d). It is the first law in the world to require that new just transition strategies be resolved and approved every five years, in order to continuously optimise results on employment and social consequences of the transition to a zero emission economy (MITECO 2020e). The law should come up for a vote in parliament in early 2021.

Critics do emphasise some positive aspects of the law: "a) The clear signals it sends to economic and legal actors. b) The obligation to provide financial resources. c) The definition of funding measures in the renewable energy sector. d) The support for decarbonisation with just transition measures. e) The inclusion of financial impacts on the risks associated with climate change. f) The draft governance model". (Pallares Serrano 2020, 2)

However, these stand in contrast to significant deficits. The goals to reduce greenhouse gas emissions by 2030 are below the requirements of the PNIEC, which in themselves do not meet the new EU targets. The law establishes that greenhouse gas emissions from the entire Spanish economy should be reduced by at least 20 percent by 2030, compared to 1990 levels (Gobierno de España 2020d, 12). However, in 2020 the EU increased its target for reducing greenhouse gas emissions by 2030 to 55 percent compared to 1990. The law does not even formulate intermediate targets for 2040 any more. Regulation of waste management and the circular economy are not even addressed. No taxation system for greenhouse gas emissions is established, and no tax reform is undertaken to promote decarbonisation, with respect to motor vehicles or homes. (Pallares Serrano 2020, 2–3).

4.3.2.4 Just transition strategy

The heart of the just transition strategy (MITECO und ITJ 2020) are the just transition conventions (*Convenios de Transición Justa*). Their primary objective is to maintain jobs and create new jobs in regions affected by the closure of coal-fired and nuclear power plants. They do so through an analysis of the situation by those affected and the different economic and social actors in these areas, alongside institutions, in order to develop potential solutions. The strategy is modelled after ILO directives; however it indicates it is based on endogenous economic, social, and ecological resources, and should lead to investments that will result in ecologically, economically, and socially sustainable improvements (MITECO 2020f). A newly founded Institute for Just Transition, a separate institution adjunctive to the MITECO, is tasked with developing, coordinating, and implementing the convention (MITECO 2020e). Minister for Ecological Transformation, Teresa Ribero, has also become Co-Chair of the global ILO initiative "Climate Action for Jobs" (MITECO 2020e).

Representatives of the union CCOO (Comisiones Obreras) and the union UGT (Unión General de Trabajadores), which is affiliated with the PSOE were involved in developing the strategy and served on the expert commission created by the government in 2017 to develop scenarios for the energy transition. The just transition strategy formulated in the Law on climate change and the energy transition (Gobierno de España 2020d) includes the primary requirements and suggestions formulated by the CCOO in advance (CCOO 2018). The different affected parties stated they were very satisfied with the conventions already concluded on the national and regional level as part of the strategy in an interview-based study, as well as with the carbon plan (Plan de Carbón), the just transition for coal mining operations and mining regions, as well as the closure of nuclear power plants and the just transition conventions still involved in lower level negotiations (Maschlanka 2020, 61).

Vocational training plays a key role in the just transition strategy. The strategy indicates that training must play a key role in the individual sectors in debates regarding the just transition. It focuses on "promoting training for employment in production sectors in the so-called green and circular economy, and promoting re-qualification for employees in sectors affected by or already engaged in reconversion" (MITECO und ITJ 2020, 38). The just transition strategy also establishes active employment policies and social security measures to achieve these goals. These include integrating the greening of the economy into employment programmes; integrating women by including gender perspectives in the measures; having labour bureaus increase coordination with regional institutions and social actors; developing specialised employment programmes for particularly hard-hit

regions; developing training plans for the ecological transition or trainers; and promoting the founding of trade unions and non-profit companies (MITECO und ITJ 2020, 37).

The environmental and development foundation ecodes has completed a detailed investigation on the just transition conventions in Comarca de Andorra Sierra de Arcos, in the Aragon region. In Aragon, and particularly in Comarcas, mining and cogeneration plants make up the most important economic activity. The conventions were enacted through a participatory process, in order to identify needs and ways to move past mining and to achieve social consensus for a just transition. "The innovation is in implementing transitional models based on the circular economy in terms of the society, environment, and value creation" (Sanz Hernández et al. 2019, 20).

4.3.2.5 Circular economy

Spain's circularity rate in 2018 was 9.6 percent. However, this rate was already 10.4 percent in 2010, then dropped in subsequent years under conservative governments (eurostat 2021a). The circular economy is generally considered an employment opportunity in the literature and in governmental declarations (both regional and national). The number of employees in the circular economy in Spain is higher than the EU average, but still very low. The average in Spain is two percent, making it higher than in Germany (1.71 percent). The highest percentage in Spain is in the Basque region, with 2.08 percent of employees in this area (Administración de la CAPV und DMAPTV 2019, 7).

Compared to other European countries, Spain has seen above-average performance with respect to eco-design. The CAPV, in particular, emphasises: Over half of all companies in Spain certified under international standard ISO 14006 (Environmental management systems — Guidelines for incorporating ecodesign) are in the CAPV. There is also a Basque eco-design centre, and the most important southern European conference on the issue (Pérez Fernandez de Retana and Buenetxea Aizpuru 2019, 10, 12).

In June of 2020, the Spanish government announced a circular economy strategy to be enacted by all relevant ministries. It established the following targets for 2030:

> "- reduce domestic material consumption by 30% compared to the national GDP for 2010.
> - reduce waste by 15% compared to 2010.
> - reduce food waste throughout the entire food supply chain: A reduction of 50% per person in retail and households and 20% in production chains and supply chains compared to 2020, which would be progress towards fulfilling the Sustainable development goals (SDGs).
> - promoting recycling and related activities, with the goal of saving 10% of municipal waste.
> - reducing greenhouse gas emissions to less than 10 million tons of CO2.
> - improving water usage efficiency by 10%" (MITECO 2020h, 8).

The document addresses a wide range of different sectors, and specifically the extremely disproportionate use/waste of raw materials and generation of waste in the construction industry, compared to the number of jobs in that sector. It emphasises the need to adapt training to the new requirements which – above all in the industrial sector, generating 17.7 percent of GDP and 14 percent of employment – will make it necessary to maintain a competitive position (MITECO 2020h, 12). No specific figures or targets for employment are included.

The transition to a circular economy will require a trained working-age population with specific skills. A range of vocational training measures have already been initiated and funds provided to anticipate these needs, although the hurdles and deficits still remain significant (Pérez Fernandez de Retana and Buenetxea Aizpuru 2019, 1, 14).

One example of a project initiated and founded by a private company aimed at promoting the circular economy in Catalonia is EcoCircular, in the free trade industrial territory of Barcelona. 145 companies there generate € 9.112 billion, or eleven percent of annual GDP for the province of Barcelona, and 3.9 percent of GDP for Catalonia (and pay € 2.648 billion in taxes). A total of 137,322 jobs in this region are linked to the circular economy (TransporteXXI.com 2020). The consortium of companies in the industrial park, the Consorci de la Franca, has established the goal of reducing its level of environmental impact to the lowest possible level within ten years. Some of the buildings and maintenance of traffic routes have already been EMAS certified (Eco-Management and Audit Scheme of the EU, also known as an EU eco-audit), and all new projects are subject to a systematic eco-audit. According to the consortium, "business opportunities on site" have been identified to promote the circular economy (Tena 2020).

4.3.2.6 Basque region

The government of the Basque region enacted a strategic programme in 2015, with the goal of lowering greenhouse gas emissions by 80 percent by 2050, compared to 2005 levels. Although the plan went further in 2015 than the current measures suggested by the Spanish government, the planned reduction was still not sufficient, especially as the comparable value is generally the year 1990 (when emissions were lower than they were in 2005). In comparison to 1990, the reduction by 2030 would be 25 percent, and 75 percent by 2050. The plan was also designed to generate economic activity of € 57 million between 2015-2020, while creating 1,030 new jobs annually. Savings in energy expenditures for the overall economy could be reduced up to € 55 million annually through the plan. Tax deductions were established for companies as an incentive for investing in sustainability and reducing emissions (Gobierno Vasco 2015, 43, 58–59). In the meantime, even further-reaching measures have been enacted in the Basque region. Although they are still not sufficient in light of the challenges, the climate policy in the Basque region still goes farther than that of Spain as a whole. The former industrial and heavy industry sector is investing more in conversion, and engaging in better planning.

A study by the British trade union association TUC (Trades Union Congress) on wide-ranging industrial conversion processes in Europe emphasises the following on Bilbao: "Strong public involvement and local autonomy for policies and finances were part of an impressive transformation of a city that had experienced a destructive flood, as well as associated social, economic, and political crises [...], the extent of industrial decline was notable: 60,000 manufacturing jobs were lost between 1975 and 1995, and employment in the manufacturing industry dropped from 46 percent to 27 percent. [...] As a consequence of the industrial decline and a flood in the historic city centre, the area around the harbour, from which industry had withdrawn to a significant extent, was heavily polluted in the 1980s, and the Nervion river was declared 'ecologically dead' [...] In reality, the combined policies of the actors involved [...] created a comprehensive industrial strategy, encompassing key elements such as re-training, R&D, new start-ups, corporate development, technological transfer, and many other forms of expertise. Out of the wasteland of the mid-1980s, managers

in Bilbao achieved the seemingly impossible: They created new industries, while at the same time maintaining a significant basis for production" (TUC 2019a, 4, 18, 22).

The circular economy is most advanced in the CAPV. It generates annual gross income of € 764 million, 1.12 percent of GDP for the autonomous region, and 2.08 percent of employment (Administración de la CAPV und DMAPTV 2019, 7). Bilbao, the largest city in the Basque region, as well as the surrounding region of Bizkaia, heart of the former heavy industry area as a central economic segment in the Basque region, is also part of the Organisation Circle Economy city programme, which has completed a study on the circular economy in the region (Circle Economy et al. 2018).

The 2030 Circular Economy Strategy for the Basque region was enacted in January of 2020. It formulates the following key goals: "(1) increasing material productivity; (2) increasing the usage of circular materials; and (3) reducing waste production" (Administración de la CAPV und DMAPTV 2019, 7). It formulates the strategic objective of creating over 3,000 new jobs in the circular economy. Thus far, there are 18,463 jobs in activities associated with the circular economy (Administración de la CAPV und DMAPTV 2019, 50). It discusses sustainability in depth, however not explicitly in relationship to work. However, it does state that the jobs should be good quality and anchored in the region.

4.3.1.7 Catalonia

The government of Catalonia enacted its own 2008-2012 Climate protection plan. An Energy and climate change plan then followed for 2012-2020. It included the advancement of electro-mobility and the development and production of electric vehicles, the production and use of bio-fuels, the promotion of efficient traffic management technologies, the optimisation of infrastructure, an increase in building energy efficiency, and the promotion of buildings able to autonomously cover their own energy needs (GC 2012, 47). Likewise, a Catalonia strategy for adaptation to climate change (ESCACC*)* has been enacted for 2013-2020, which contains 30 measures for adapting to climate change. This included financing for a programme to increase building energy efficiency, which created a large number of jobs (OCCC 2012, 19, 21, 23). Regular reports have been prepared to control and evaluate implementation of the plan (GC und ICE 2016).

In 2017, the government of Catalonia enacted a law on climate change, to promote the transition to a zero greenhouse gas emissions model, and to transform the production model and access to natural and energy resources. The objective of this law is to make Catalonia a global leader in new climate protection technologies, with the goal of reducing dependency on external energy resources, and promoting decarbonisation and denuclearisation. This should be done through establishing a government round table, with the participation of select representatives from different societal actors, such as trade unions, neighbourhood organisations, trade associations, research and science, and environmental associations (Presidencia de la Generalidad de Cataluña 2017). The government of Catalonia maintains the Catalonia office on climate change (OCCC) as a separate institution for developing specific strategies, plans, and projects related to climate change in Catalonia based on the EU conventions and agreements, and collaborating with other governments (GC 2020).

4.3.3 Advising boards and other official actors

4.3.3.1 Fundación Estatal para la Formación en el Empleo (Fundae)

Fundae is the state vocational training institution, and one of the nation's key tools for influencing vocational training for employees. This analysis refers to a Cedefop report from 2018 on Spanish vocational training programmes in 2016 (Cedefop 2018b, 29–30). Unfortunately, based on the limited research I have conducted, it is not possible to determine whether the Sánchez government has brought about a change since June of 2018.[16]

According to the Cedefop, incentives from the Fundae for companies to engage in "lifelong learning" are sufficient, since a total of 2,535,038 employees (13.8 percent of the total workforce) took part in professional training measures in 2016, of these 61,984 (2.5 percent) in training in "green skills", double the figure for 2009. At the same time, however, the average length of professional training measures has been cut in half, from 33.9 to 16.9 hours. In addition to a gender-specific imbalance (77 percent of individuals in green skills training programmes were men, 23 percent were women), the age distribution is also notable. The Cedefop describes this as "balanced": the largest group was made up of 36-45-year-olds (35 percent), followed by 46-55-year-olds (27 percent) and 26-35-year-olds (21 percent). The percentage of 16-25-year-olds was just three percent, and over 55-year-olds made up just 16 percent. In terms of divisions among sectors, 43 percent of participants in green skills training programmes came from the industrial sector, and 34 percent from the service sector (except for hotel and hospitality, which made up another seven percent, and retail, which made up five percent). Only four percent of participants came from the construction industry (Cedefop 2018b, 29–31).

Cedefop's positive assessment does not appear to be entirely accurate. The number of personnel reached by Fondae professional training programmes, the average duration of measures, and the total number of hours have all dropped since 2014. The percentage of personnel over 55 seems to be very high, and gives reason to suspect that companies could accept the "incentives" and send personnel to training programmes that are unnecessary, or even though they might not be with the company much longer (Cedefop 2018b, 31). The low level of just four percent of employees from the construction industry stands in stark contrast to the fact that the construction industry is the largest relative producer of waste, and the largest consumer of raw materials (MITECO 2020h, 12).

To get companies more interested in ongoing training for the technological transition and transformation of the economic model, governmental policies, political orientations, and state incentives to promote these shifts are essential. This is clearly reflected in the funding for renewable energy, which has created major growth in the sector and generated jobs, training, and continued education, which all collapsed when that funding was removed. The challenge is to create a new model that simultaneously improves the quality and sustainability of employment, as well as equality and social inclusion. Training is the key to doing so (Lope 2019, 321–22).

[16] No current information on work results is available on the Fundae website.

4.3.3.2 Fundación Biodiversidad

The Biodiversity Foundation, which is affiliated with the Environmental Ministry, established in a 360-page study in 2019 that protecting and maintaining bio-diversity and ecosystems would not only prevent irreversible damage, but also create a large number of direct and indirect employment opportunities: ranging from park maintenance and natural conservation to ecological agriculture, beekeeping, natural cosmetics, and much more. The primary lever for doing so is offering the necessary technical means, technologies, and specialised training (Fundación Biodiversidad and Programa Emplea Verde 2019).

The foundation has its own vocational training programme, emplea verde, which supports the founding of ecologically sustainable companies. The programme has been in place since 2010, is co-financed by the European Social Fund 2014-2020, and will continue through 2023 (according to n+3). It is designed to serve "as a bridge between employment and environmental policies, with dual objectives: To ensure the environment and sustainability serve as the foundation for better jobs and more competitive companies" (MITECO 2020c). The program is active in the "green" and "blue" economy (activities associated with promoting and maintaining ocean biodiversity) and focuses specifically on the low CO2 and circular economy. It intends to support over 50,000 personnel and 3,000 companies by 2023. The goal is to integrate 4,800 unemployed individuals into the labour market, as well as to support over 3,000 entrepreneurs in founding new companies or improving existing ones, qualifying 24,000 persons and providing additional qualifications to over 6,000, to improve their position on the labour market (MITECO 2020c).

The Fundación Biodiversidad has also created the AdapteCCa web platform alongside the MITECO and the Spanish Office on Climate Change, in order to facilitate access to and the exchange of information on the consequences of climate change, potential risks, and adaptation strategies. Access and exchange are multi-directional among governmental institutions and local and regional administrations, scientific associations, planners, and public and private actors. (MITECO 2020a)

4.4 Criticism and other actors: Trade unions, environmental associations and parties

4.4.1 Parties

Since all significant parties have been involved in governments in recent years, it is easy to classify their policies. The right-wing, conservative and neoliberal Partido Popular was the sole governing party from 2011, but failed to achieve a majority in 2016 and formed a coalition government following a new election with the new right-leaning neoliberal party Cuidadanos (citizens), which fell apart in June of 2018. The results of right-leaning governments in terms of an ecologically sustainable transition and social policy are disastrous. Laws and support for an ecologically and socially sustainable transition were weakened or eliminated entirely, the crisis and governmental policies resulted in an above-average loss in green jobs compared to other European countries, while the environmental balance deteriorated drastically. Ecological transition and just transition were not even mentioned in the Ciudadanos election platform for 2019. Neither coal and nuclear plants nor fossil fuel-burning vehicles were mentioned in the PP election platform for 2019 (Greenpeace España and Cantero 2019). It is true that investigations were carried out at different governmental

institutions under Rajoy, and that they developed suggestions for sustainability, however very few of these were implemented. The initiatives were often questionable in value and highly siloed, such as the idea for using people with different disabilities in recycling, sorting raw materials, and renewable energy. According to the responsible ministry, however, this failed due to a lack of awareness among employers regarding the capabilities of disabled people (CERMI und MSSSI 2012, 29–33).

PSOE and Unidas Podemos

The positions of PSOE and Unidas Podemos are stated in their governmental policies. The late 2019 coalition agreement stated that "growth and creating and consolidating good-quality work" was a key goal; to do so, sustainable employment should be promoted and an active social and labour policy should be implemented that "guarantees dignified, stable, and high-quality work and just pensions", with the goal of "making the ecological transition a reality, and laying the foundation for sustainable and inclusive growth" (PSOE and UP 2019, 3). It also agreed to produce 100 percent renewable energy by 2050, with a figure of between 85 and 95 percent already by 2040, develop a just transition strategy for regions impacted by the closure of coal-fired and nuclear power plants in order to create new jobs in these regions; establish a plan for industrial development in order to drive the ecological transition and decarbonisation; work for a true Green New Deal in the EU, and to provide the financial and technical means to do so with fixed, auditable obligations for emissions reduction; likewise, it agreed to move for a European CO2 tax and to create an EU fund to support the just transition in regions most heavily impacted by decarbonisation (PSOE and UP 2019, 23, 24, 29, 38). Several of these suggestions have already been implemented through governmental policies. An EU fund to promote the just transition was put forward by Spain in an information conference of EU Energy Ministers on 28 April 2020 (MITECO 2020). In this respect, the measures initiated up to the present do conform tot the general coalition agreement concluded.

4.4.2 Trade unions

Just 13.7 percent of workers in Spain are organised in trade unions. Trade unions are subject to a high level of fluctuation in member rates. Since 2015, there are more workers joining them than leaving, and membership numbers are increasing once again, especially in the largest trade union association, the CCOO, which continues to advocate for a socialist society as the most class-oriented trade union. The CCOO had around 935,000 members in 2018 (14,000 more than in 2017), and represented 35.7 percent of elected company trade union delegates. However, the UGT followed with 32.6 percent of delegates and slightly more members (941,000, or 2,000 more than in 2017). Since trade unions can only take part in collective bargaining negotiations in Spain if they make up at least ten percent of delegates nationwide or at least 15 percent of delegates in a region, only the CCOO and UGT are permitted to do so anywhere in the country. Furthermore, only the Basque trade unions ELA (Eusko Langileen Alkartasuna) and LAB (Langile Abertzaleen Batzordeak) are large enough to be represented regionally in the CAPV and Navarra. ELA is a non-party-bound, Basque national "class union", and was the largest union in the CAPV in 2017, making up 40.44 percent of delegates, while Navarra was the third largest with 22.74 percent. The LAB, close to the Basque left-leaning nationalist movement, was the second largest union in the CAPV

in 2017 with 19.1 percent of delegates, and the fourth largest in Navarra with around 17 percent of delegates (Peña González, Bermúdez-Figueroa, and Roca 2021; Vicente 2019).

The CCOO, UGT, ELA and LAB all work for a just transition. None of the trade unions is against ecological transformation. Despite the low percentage of the workforce engaged in organized unions, trade unions in Spain do still play a relatively important role. The degree of mobilisation and willingness to engage in labour disputes are relatively high in the CCOO, ELA, and LAB. In addition, there are numerous other trade unions in a radical left-wing spectrum, with tens of thousands of members and strong regional or local importance. The ELA and LAB, above all, primarily focus on labour disputes and confrontation alongside smaller trade unions. The Basque region has more strikes than anywhere else in Europe (Las Heras and Rodríguez 2020).

The CCOO and UGT took part in a climate protection day in workplaces on 24 June 2020, with the goal of sensitising companies, public administrations, and employees on the necessity to adapt workplaces to the challenges of climate change, and to evaluate the environmental impact caused by workplaces as part of doing so, with the ultimate goal of reducing emissions.

Comisiones Obreras (CCOO)

The requirements collected in advance by the CCOO for a just transition (CCOO 2018; CCOO de Castilla y León 2018) have mainly been integrated into the new government's just transition strategy. Whether these will be implemented is yet to be seen. Furthermore, the CCOO (in contrast to the UGT) promotes greater state intervention, requirements for companies, stricter laws to protect workers, and a higher level of national investment (CCOO 2018; CCOO de Castilla y León 2018). Unai Sordo, General Secretary of the CCOO, stated that the debate on ecological transition is a difficult topic in trade unions, therefore the transition must be fostered through social support policies. However, he stated this is neither a risk nor an opportunity; instead, the ecological transition is a necessity, and must be turned into an opportunity to create new work in more sustainable sectors. He indicated that an ecological transition would only be feasible if employees played a part in it, and if it was a just transition (Sordo 2019). Likewise, the CCOO made a statement on the occasion of the Climate Protection Day on 24 June 2020. They stated that post-pandemic economic reactivation was the ideal time for an ecological just transition:

> "We are faced with an extraordinary moment to formulate policies that will help transform our development model to a more economically, socially, and ecologically sustainable model, conforming to the climate protection obligations which Spain has entered into and the sustainable development goals [...] Trade unions must be part of the solution [...] This ecological transition must be just and green, must create dignified, secure, and high-quality jobs, and must at the same time promote the development of rural regions" (CCOO 2020).

In 2019, a government-funded research project by the Union Institute of Work, Environment and Health (ISTAS) of the CCOO was launched to analyse the impressions, attitudes, and opinions of employees and their union representatives on climate change, in order to derive concrete policy suggestions for climate protection measures in workplaces and strategies to implement these measures based on this information. This is based on a qualitative assessment in all economic sectors and work areas, with over 1,000 quality-related interviews with employees and trade union delegates, group discussions, and in-depth interviews with key actors and trade union groups. The goal is to establish a framework for discussion among employees, as well as between employees

and trade union representatives and other social actors involved in climate policy (María-Tomé Gil and Ferrer Márquez 2019).

4.4.3 Environmental associations

Ecologistas en Acción, *Greenpeace* ad *Oxfam Intermón* submitted a joint complaint against the government in December of 2020 due to "a lack of activity against climate change". None of the subsequent Spanish governments have "shown ambition or sufficient interest in fulfilling their obligation to counteract the largest threat facing the planet". It makes reference to EU resolutions and international climate agreements, and states that "a climate policy that allows us to enjoy a sustainable future is a legal obligation" (Greenpeace España, Ecologistas en acción, and Oxfam 2020). Spain is the EU country with the largest increase in greenhouse gas emissions between 1990 and 2017. The increase was 17.9 percent, or 51.7 million tons. The government's goal of a 23 percent reduction is less than the EU target of 55 percent, which is itself insufficient. Since a succession of governments has failed to meet its international obligations for fighting climate change, the complaint asserts that the Supreme Court should obligate it to enact a new integrated national energy and climate plan containing a reduction in greenhouse gas emissions by 2030 of at least 55 percent, compared to 1990 levels (Público & efe 2020).

Ecologistas en Acción

Ecologistas en Acción is an alliance of environmental groups founded over 20 years ago. Over 300 independent base organisations are members of the alliance. Its goal is to give a stronger voice to the groups, most of which are more radical and democratic, by combining forces. The alliance criticises the fact that the PNIEC establishes only one sector (fossil fuels and nuclear energy) where an ecologically sustainable transition would result in job losses, while sectors with a heavy environmental impact, such as transportation, construction, and industry can carry out a completely sustainable transition without any job losses, or even by adding jobs. The environmental alliance feels this is entirely impossible, if emissions are to actually be reduced. This is the result of a study conducted by the alliance that presents three different scenarios for measures, impacts, and climate consequences for Spain: (a) Green New Deal (GND); (b) Degrowth strategy and; (c) Business as usual.

Sustainable work, in the sense of an ecological and social transformation of the work-oriented society, plays a central role in the report. A foundational chapter following the introduction is dedicated to this issue, and the overview focuses on the necessity for an expanded definition of work. Two fundamental problems are outlined:

Invisible, unpaid reproductive labour must be included in the assessment. As a result of this, the dimension of employment must no longer be privileged in considerations on how to transform work. In order to reflect on a just division of societal activity in a scenario of ecological and social transformation, it states it is important to think about work based on the hours dedicated to productive and reproductive work. This would make it possible to investigate all work required to maintain society on equal footing. On the other hand, employment plays a key role in the social and economical organisation of the capitalist system, which inevitably causes ecosystem destruction. Therefore, an eco-social transformation must inevitably establish a horizon for overcoming

capitalism. From this perspective, it is essential that all work be evaluated on a comprehensive basis, not just paid employment (Ecologistas en acción 2019a, 4).

In comparison to the GND and degrowth strategy, in summary, it states that the GND scenario does go in the right direction with respect to the climate, however it does not go far enough, and is not very compatible with a vision of global climate justice. The degrowth scenario, in contrast, would both achieve the necessary reduction in emissions and represent a just transition in a global context. However, it would require a very disruptive revolution in the structure of production, linked to a major re-orientation in the primary sector and ruralisation, although secondary and tertiary sectors would continue to make up the majority. It states that the GND production strategy tends to be compatible with the current Sánchez government policy, although with a greater emphasis on the areas of energy, the welfare state, and new technologies. However, it indicates that presenting a GND founded primarily on solar energy, electric vehicles, and sustainable consumption would simply not be feasible. If a GND is to be sustainable, it would have to also question motor vehicles, air travel, and meat consumption. With respect to employment, the study states that the GND does have considerable potential to expand employment, while a degrowth strategy would result in a significant loss of jobs, unless the labour market underwent a wholesale transformation. Ultimately, both strategies would be confronted by restrictions and resistance, however these would be greater in the case of the degrowth strategy. At the same time, however, the latter would open up the opportunity to develop non-capitalist societies (Ecologistas en acción 2019a, 51).

Greenpeace Spain

Greenpeace Spain also regularly issues analyses, declarations, and engages in actions to a lesser extent. The organisation generates a high level of media attention, and takes moderate positions. Greenpeace Spain praises the GND as a solution for the climate catastrophe – although it does call for a GND that's more consistent in some areas. However, further demands, even within the framework of a GND, are called "difficult to implement" or infeasible. A Greenpeace analysis on the electoral platforms for the parliamentary elections in April 2019 named the PSOE's platform as the best with respect to a just transition, climate and environmental policies, and resource management. It criticises the platform as insufficient in some areas, in particular lamenting the lack of binding timelines for the just transition strategy. Overall, however, it indicates that the platform does move in the right direction, and would represent a continuity in governmental action. The Unidas Podemos platform is ranked second. The analysis indicates as positive factors that it is the only electoral platform to set a deadline to close all nuclear power plants (before 2024) and end the use of coal (before the end of 2025), however, states that this is, at the same time, incoherent and unrealistic, since it establishes the condition of creating two new jobs for each job lost. Likewise, it states that the suggestion of promoting sustainable passenger transport by allowing under-26-year-olds to use public transportation free of charge (funded by the public) is not feasible (Greenpeace España and Cantero 2019).

In 2020, Greenpeace Spain published a report with a range of suggested actions in order to use the economic recovery following the pandemic to convert to an ecologically and socially sustainable economy and society. It stated that an ecological transformation represented an opportunity to create dignified and sustainable employment. It indicated Spain could create 550,000 jobs annually in the coming decade through such a transformation (Greenpeace España 2020a, 9). Greenpeace itself refers to the suggestion as a GND, "with the goal of resolving any conflicts between employment and carbon dioxide emissions, suggesting that we should have reasonable growth cycles, with new

green and sustainable models to generate employment that are emission-neutral". To achieve this, Greenpeace Spain suggests creating up to three million jobs through the transition to 100 percent renewable energy in the next 15 years (Greenpeace España 2020a, 16). This and many other initiatives were already included in a suggestion from Greenpeace Spain in 2014 for the period from 2015-2030, based on the same figures for projected job creation (Greenpeace España 2014, 28).

4.4.4 Building a Just Transition: Alliances between trade unions and the environmental movement

Based on a historical and strategic analysis, Ecologistas en Acción has the widest-ranging discourse and set of practices related to an alliance between trade unions and environmental movements among any of the large environmental associations. In an investigation on the climate emergency and labour with respect to a just transition, which was conducted with the involvement of trade union representatives, which analysed trade unions (CCOO, CGT and ESK), and which included statements by trade union representatives, it emphasises that the structure of trade unions and the establishment of a worker-focused perspective have made it possible to organise a fight that links urban sectors and workplaces, and that still functions as the foundation of many current movements. The trade unions, it states, are now at the heart of the storm of ecological transformation, yet their dual role as parties affected by and at the same time as the solution to this conflagration of issues indicates the complexity of the challenge (Ecologistas en acción 2019b, 4).

4.4.5 Fundación Alternativas

The *Alternatives Foundation* is a progressive think tank founded in 1997 which unites a whole range of social democratic actors, from left-alternative to socialist-leaning groups, and which develops activities, analyses, and publications on various topics. The Fundación Alternativas has published three extensive reports on sustainability in Spain over the last few decades, which also include policy recommendations. The most recent report from 2018 contains a variety of recommendations for an "ecologically just transition", which have been or are being implemented or discussed by the current government. In the employment area, these include funding building energy renovations and providing support to install solar systems and other renewable energy sources for energy consumption. The report recommends a renovation plan for this purpose, with the goal of completing energy renovations for 250,000 homes each year. This would directly create 135,000 jobs. It also suggests creating an "Observatory on work in change", which should "develop and suggest a blend of macro-economic and sector-based industry and employment policies with an integrated perspective, in order to modernise these sectors and utilise the employment opportunities posed by the circular economy or ecological transition in agriculture, industry, and construction. The perspectives should consider different trends related to ecologisation, as well as digitisation, automation, and precartisation" (Sánchez and Álvarez 2018, 155). The report also recommends just transition commissions like those that have already been introduced (Sánchez, Álvarez, and Gamero Rus 2018, 155–56).

4.4.6 Small and mid-sized companies: Coalición de empresas por el Planeta (Coeplan)

The "Coalition of companies for the planet" Coeplan (*Coalición de empresas por el Planeta*) is a relatively new actor on the scene. The coalition, made up of small and mid-sized companies, is committed to the UN's 2030 Sustainable Development Agenda, as well as the goals formulated therein for a transition to an ecologically and socially just production, consumption, and business model. Coeplan also offers seminars and continued training in all relevant areas, and published a "Manifesto for regenerating the economic model" in May of 2020 (Coeplan 2020).

4.5 Preliminary conclusions

The measures, which may seem wide-ranging compared with other European countries, will likely not be sufficient to decisively reduce the impacts of climate change. The goals set by the coalition government themselves are lower than those in EU regulations. Nevertheless, there has been a clear break with the policies of the previous Rajoy government. We can no longer speak of continuous national policies. Instead, there has been a clear change of course in expenditures for the 2021 budget. Public investments have reached record levels, and social expenditures have also been increased sharply to 59.9 percent of the total budget. € 11.787 billion of the € 27 billion from the EU coronavirus aid package are earmarked for a "green reconstruction", mainly including comprehensive investment in renewable energy, energy efficiency, sustainable mobility, and just transition (Greenpeace España 2020b). The coalition's programmes, plans, and initiatives on ecological and social transition are some of the most comprehensive in Europe. Some initiatives are interesting and innovative, as is the just transition convention. Some EU countries may have formulated more wide-ranging goals, however, these have not been followed by measures that would make it possible to achieve the objectives set.

Nevertheless, which plans will actually be implemented in Spain is yet to be seen (and only if the centre-left coalition remains in power; otherwise, we should not expect to see the country continue on the path it has set) since, as Alvarez Barba has noted: "Calculating and suggesting options for transforming work and society and drafting scenarios is simple. Setting them in motion is something very different. All scenarios for true transformation require a frontal assault on large, established economic powers and dominant industries like oil and energy, and it does not seem like they are going to give up without a fight" (Álvarez Barba 2020). And so, public funds continue to be spent on contaminating industries and forms of energy, without being linked to any environmental requirements (Greenpeace España 2020b).

Spain has an enormous capacity for developing technologies to generate "clean" and renewable energy. However, the leading global role played by energy group ENDESA in the wind energy sector is due to state interventions in the 1990s, when ENDESA was still a state-run operation (Durán 2019, 202).[17] Durán states that it is an illusion to believe that economic patterns can only be changed through a technology policy or more flexible work:

> "Experiences from the last 20 years clearly show that processes to improve employee training and qualifications must be carried out at the same time as a wide-ranging transformation in

[17] ENDESA has also experienced strong international criticism, for instance since land was taken away from indigenous and agricultural communities for ENDESA wind farms.

> corporate obligations which ensure the continuity and productive sustainability of companies. This conversion will require a significant shift in the way profits are used and calculated, with increased re-investment in activities that will increase technological capital, and thereby productivity. This is a more efficient path than repeatedly reducing wages and making the labour market more precarious" (Durán 2019, 209).

The proposed "Law on climate change and the energy transition" does contain one positive specification, that new just transition strategies must be resolved and approved every five years. However, how to ensure that this will not result in worse framework policies and statutory regulations, should political majorities or interests change, is not addressed.

There are, likewise, many points related to employment that are not explained. All programmes and governmental declarations do repeatedly emphasise that the new jobs need to be ecologically, economically, and socially sustainable, and that the focus should be on high-quality, long-term work. However, there are few concrete details on how to ensure good-quality work, and how to avoid new employment in green jobs from primarily being lower qualified and worse quality, non-socially sustainable, and more often precarious. This applies to all sectors, however it applies above all to the service sector and construction industry, as well as agriculture. According to official calculations, energy renovations of homes and other buildings alone would create 33,000 to 48,000 new jobs annually in the next ten years (MITECO 2020d, 219–20). In order to avoid the current trends towards precarious work and exploitation in the construction industry, it is important to take a wide range of measures at the same time, including implementing new legal regulations and controls, implementing fixed employment contracts in the construction industry, placing higher demands on the quality and solvency of construction companies, in order to avoid illegal employment, feigned self-employment, and sudden bankruptcies and insolvencies in the building sector. Likewise, new and higher requirements are needed for employee qualification and competency, as well as for the sustainability of the materials used (Escanciano 2020, 52).

The situation is similar in agriculture, albeit on a smaller scale. New jobs and the conversion to ecological agriculture will require a large number of qualified professions and training on water and soil management, using (adapted) technologies to increase yield while eliminating pesticides and insecticides as well as chemical fertilisers, etc. At the same time, exploitation and illegal and precarious employment, mainly impacting migrant workers, must be prevented here as well in a proactive manner. Likewise, there must be a focus on creating high-quality work in agriculture, while at the same time guaranteeing access to healthy and eco-friendly food for the entire population. EU-wide regulations will be needed to achieve these goals (Martínez García 2020, 98, 100–102). Last but not least, the measures must be accompanied, especially in the construction industry and agricultural sector (as well as in hotel and guest services) by measures that protect illegally employed migrants against deportation, in order to make exploitation more difficult and make such illegal employment easier to discover.

The fact that questions regarding quality, social security, and the sustainability of work play a key role in governmental programmes and comprehensive critiques of those programmes shows that there is a social debate on sustainable work in Spain, as well as a transformation of work and the social actors that advance the issue.

5. The Netherlands: Initial situation, policies, debate, and actors

Alongside Albania, the Netherlands is one of the European nations most threatened by climate change. The biggest danger to the country is rising sea levels, since a majority of its territory has been walled off from the sea by dikes. Based on less drastic scenarios, sea level would rise by 25-75 cm at the coast by 2100, and based on more drastic scenarios could rise by 50-100 cm. Even today, some former agricultural areas have become marshy, and by 2100 half of the nation's territory could flood regularly. This will be associated with infrastructure damage; entire regions will become uninhabitable in the EU's most densely inhabited country – except for Malta; natural and environmental damages will occur, agricultural space will be lost, food production will drop, and the drinking water supply will be endangered (Bocksch 2020; Climate-ADAPT 2019; EEA 2016).

Ecology, climate change, and sustainability, therefore, have long been topics of concern in the Netherlands. The first national plan to adapt to climate change dates back to 2007 (Climate-ADAPT 2019). The Netherlands is generally considered highly environmentally-friendly, and the government works to take a leading role in climate policy and environmental protection. There is a public debate regarding ecologically sustainable employment and sustainable business, and above all regarding the circular economy. Green jobs are mentioned in the literature. Generally, jobs in generating and distributing renewable energy are the ones referred to as green. However, the term is rarely used. The central debate focuses on sustainability, and on employment for the transition to a sustainable economy (and society). In addition, the Netherlands is one of the EU countries where environmental policies and measures against climate change are not centrally justified or legitimated through the creation of jobs (Pociovălișteanu et al. 2015, 9243). Nevertheless, governmental documents and future strategies underscore the presumed enormous economic opportunities for the country, which sees itself taking a leading international role in terms of sustainability and, in particular, the circular economy. Qualification of employees and the quality of work play a central role in the question of work for an ecological transition. However, there is no explicit national sustainability strategy.

The overwhelmingly positive self-assessment and perception of the Netherlands with respect to an ecologically sustainable transformation of economy and society is not reflected in reality – at least not up to 2016. In 2018, the European Commission once again provided this sobering assessment:

> „The Netherlands is the only Member State that did not reach its 2013/2014 indicative renewable energy sources (RES) trajectory of 5.9 % of gross final energy consumption. [...] Although among the highest of the EU, the waste recovery rate is rather low vis-à-vis neighbouring countries, while the physical waste intensity [...] is relatively high and increasing faster than EU average. The Netherlands scores relatively low (16th) in the 2016 Eco-Innovation Index, which points to the need to improve the circular economy" (European Commission 2018, 51).

The negative balance, increasing pressure from environmental movements and large-scale protests against natural gas production in 2017 (which causes soil to subside and frequent earthquakes), as well as rising sea levels led to a significant turn in governmental policies and to the enactment of a Climate Protection Act in 2018 which is more wide-ranging than those enacted in other European countries (Hofhuis und Van Schaik 2019; Kirchner 2018), as well as to a National Climate Convention in 2019 (Governments of the Netherlands 2019) (environmental associations, trade unions, and academics criticise these as insufficient). Both of these measures were developed and supported by a non-partisan coalition. There are no clear, relevant differences between policies for an

ecologically sustainable transition between different governments. The bourgeois-liberal politician Mark Rutte governed from 2012 through 2017, backed by a liberal-conservative and social democratic coalition; from the end of 2017, he led a liberal-conservative, liberal, and Christian democratic coalition that was re-elected in 2021. All governments worked to ensure the broadest possible backing for their sustainability policies, as well as for their energy transition strategies.

In addition, the neo-corporate Polder model (a model of consensus-based decision-making) served as a clever tool for social partnership: organized consensus-building through negotiations between employers, trade unions, and "independent experts", as they were called by the Dutch crown. These make up the Social and Economic Council, SER, an institution under public law founded in 1950 for the purpose of advising the government on economic matters and making recommendations (until 1994, the government was required by law to consult with the SER on key economic questions, however it was never obligated to implement its recommendations). The SER is made up of three factions: (1/3 employer representatives, 1/3 trade union representatives, and 1/3 experts). Since the early 1980s, the SER has been used to negotiate on wages and working conditions (which can also be declared as industry-wide collective bargaining agreements with the approval of the Ministry on Social Affairs) and build consensus. Social and economic reforms were also negotiated in this manner in the 1980s and 1990s. The SER also rules when it comes to energy agreements.

5.1 Statistical data on the economy, population structure, and employment

5.1.1 Population (overall population and age structure 2020)

In 2020, the Netherlands had 17.1 million inhabitants. With a low annual population growth rate of 0.2 percent, a moderate percentage of under 65-year-olds, a comparable low to moderate percentage of 0-14-year-olds, the second highest percentage of 10-24-year-olds after France, and a relatively high percentage of 15-64 years-olds, further and increasing pressure of the labour market is expected.

Total population in millions	Annual population growth %	Population structure (age)			
		0-14 (%)	10-24 (%)	15-64 (%)	65 + (%)
2020	2015-2020	2020	2020	2020	2020
17.1	0.2	15.7	17.4	64.3	20.0

Not including Aruba, Bonaire, Sint Eustatius and Saba, Curaçao and Sint Maarten (UNFPA 2020, 145)

In addition, significant ageing is expected in the medium term.

5.1.2 GDP, economic growth, and economic structure

The per capita GDP of the Netherlands has grown steadily, and was US$ 57,564 in 2018, just below Norway and second place among comparable nations. Economic growth weakened moderately due to the crisis by -1.0 percent in 2012 and -0.1 percent in 2013, and has been two percent or more

since 2015. Most recently, the growth figure for 2018 was 2.6 percent. Public administration, defence, education, health, and social work made up the largest share of value creation with 20.8 percent in 2018 (only estimated data available), followed by trade, repairs, transportation, and hotel and hospitality with 20.6 percent (this percentage has grown since 2011, and remained relatively constant since 2015). The professional, academic, and support services sector has seen continuous growth since 2013, and in 2018 made up a share of 15.4 percent (13.6 percent in 2013). Industry, including energy, made up 15.2 percent (this figure has dropped since 2011, and remained constant since 2015). All other sectors remain relatively constant, except for the financial and insurance sector, which made up 6.8 percent in 2018, compared to 9.1 percent in 2012. The real estate sector made up 7.2 percent (OECD 2020b).

5.2 Workforce, employment, and labour market

5.2.1 Labour market data

During the first half of the 2010s, the Netherlands saw a significant increase in unemployment, then pivoted towards full employment at an even sharper angle.

Table 1. Labour force

Annual average estimates

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Labour force, thousands										
All persons	8 725	8 726	8 861	8 932	8 896	8 933	8 966	9 042	9 148	9 297
Males	4 714	4 691	4 761	4 804	4 802	4 795	4 804	4 834	4 886	4 953
Females	4 011	4 034	4 100	4 128	4 093	4 137	4 161	4 209	4 262	4 344
Unemployed, thousands										
All persons	435	434	516	647	660	614	539	438	350	314
Males	213	216	260	346	343	313	268	216	182	168
Females	222	218	255	301	317	301	271	221	169	146
Employment, thousands										
All persons	8 290	8 291	8 345	8 285	8 236	8 319	8 427	8 605	8 798	8 982
Males	4 501	4 475	4 501	4 459	4 460	4 482	4 536	4 617	4 705	4 785
Females	3 789	3 816	3 845	3 827	3 776	3 836	3 891	3 987	4 093	4 198
Employment (%)										
Males	54.3	54.0	53.9	53.8	54.1	53.9	53.8	53.7	53.5	53.3
Females	45.7	46.0	46.1	46.2	45.9	46.1	46.2	46.3	46.5	46.7
Unemployment rate (% of labour force)										
All persons	5.0	5.0	5.8	7.2	7.4	6.9	6.0	4.8	3.8	3.4
Males	4.5	4.6	5.5	7.2	7.1	6.5	5.6	4.5	3.7	3.4
Females	5.5	5.4	6.2	7.3	7.7	7.3	6.5	5.3	4.0	3.4

(OECD 2020r, 1)

Unemployment increased from five percent in 2010 to 7.5 percent in 2014. Afterwards, it dropped continuously and was just 3.4 percent in 2019. Only Poland had a lower unemployment rate among comparable nations, with 3.3 percent. The youth unemployment rate (15-24-year-olds), which increased from 11.1 percent in 2010 to 13.3 percent in 2013, was the lowest among all comparable nations in 2019 at 6.7 percent. The gender balance among unemployed persons has grown less pronounced over time, and in 2019 unemployment rates among men and women were equal.

Table 2. Unemployment rates by age

Annual average estimates, percentage

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
All persons										
15-24	11.1	10.0	11.7	13.2	12.7	11.3	10.8	8.9	7.2	6.7
25-54	3.8	3.9	4.6	6.0	6.2	5.6	4.6	3.7	2.8	2.6
55-64	4.4	4.7	5.3	6.8	7.7	8.1	7.2	5.5	4.5	3.2
65 and over	2.3	3.0	3.4	4.3	5.1	4.8	3.9	3.9	3.8	3.5
15-64	5.0	5.0	5.9	7.3	7.5	6.9	6.1	4.9	3.8	3.4

Note: Detailed metadata at:http://metalinks.oecd.org/lfs/20200831/71aac

(OECD 2020r, 2)

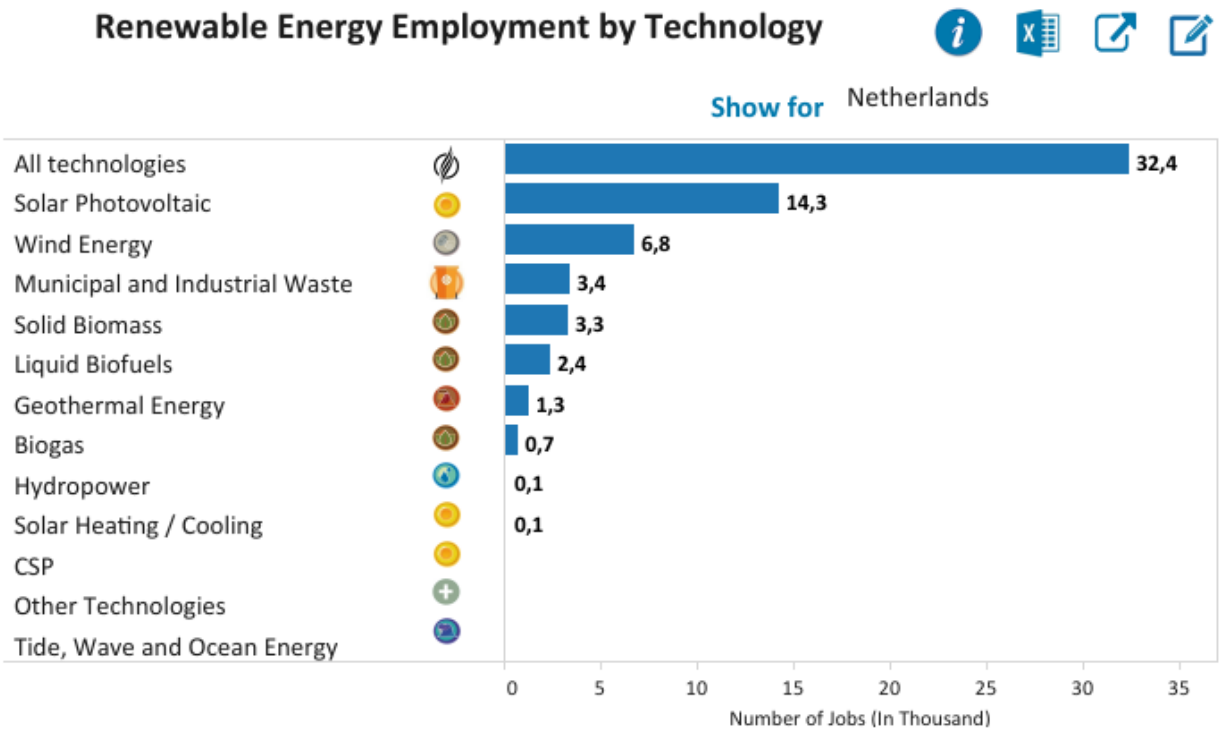
Employment increased significantly between 2010 and 2019, from 8.29 million to 8.98 million. This increase was seen exclusively in the service sector. In agriculture, hunting, and forestry, employment dropped drastically between 2010-2019, from 229,400 to 167,900. In industry, employment dropped from 1.326 million to 1.301 million, while employment in the service sector increased from 6.734 million to 7.513 million. The Netherlands has the highest percentage of employees in the service sector among all comparable nations. The ratio of employment between industry and service is 1:5.8. Dropping employment in the industrial sector is heavily concentrated in the construction industry. Almost all jobs lost in the industrial sector were in construction (40,000). Apart from a slight increase of 16,000 employees in the manufacturing industry, employment figures throughout the industrial sector were stagnant or dropped, including in electricity, gas, steam, air conditioning and water supply, waste water, waste management and avoidance, areas which generally benefit from ongoing transformation (OECD 2020r, 3).

In contrast, almost all service sectors saw an increase. Growth was seen primarily in wholesale and retail, vehicle repairs (from 1.08 million to 1.25 million); professional, academic, and technical activities (from 474,700 to 645,000); administration and support services (from 296,900 to 478,500), hotel and hospitality (from 330,600 to 387,100, and culture, entertainment and recreation (from 169,900 to 192,900). However, decreasing employment in public administration, defence, and social security (537,100 to 509,100) and the weak growth in human health and social work (from 1.342 to 1.367 million) and education (from 566,200 to 587,900) likely indicate that the transformation of neoliberal criteria will follow, although it must be noted that a very high number of people work in human health and social services, compared to the population (OECD 2020r, 3).

5.3 Green jobs and sustainable work

Governmental representations and claims indicate that the Netherlands is a leader in the ecological transition. In reality, with 100 points in the EU-28 Eco-innovation scoreboard in 2019, it was exactly average among EU-28 states, while employment in *eco-industries* was well below average with just 72 points (European Commission 2020).

5.3.1 Employment in the renewable energy sector



Source IRENA jobs database. Figures provided are the result of a comprehensive review of primary information sources by national entities such as ministries and statistical agencies, and secondary data sources such as regional and global studies.This is an ongoing effort to update and refine available knowledge. Totals may not add up due to rounding.'Other Technologies' include jobs which are not technology specific.

(IRENA 2020b)

In the Netherlands, the renewable energy sector is described in many reports as one of the sectors where a large number of new jobs will be created. With just 7.4 percent of its energy generated from renewable energy sources, the Netherlands was dead last compared to other EU countries in 2018 (PACE 2020, 10; Statistics Netherlands 2019). This makes goals for growth in the sector appear all the more ambitious. The 2019 National Climate and Energy Report (KEV) from the Netherlands Environmental Assessment Agency (PBL) envisions strong growth in renewable energy based on ongoing implementation of the energy convention noted in the introduction (Government of the Netherlands 2013).

The report assumes that the targets set in 2013 (which were not particularly ambitious, according to environmental group critiques) will be achieved. The percentage of energy from renewable energy sources will be increased to 16.1 percent by 2023, according to these (the target was set at 16 percent). The planned reduction of 1.5 percent in energy consumption annually for 2013-2020 would also be achieved, in this assumption. Beyond assuming a growth in jobs, the KEB provides no specific estimates, but does also expect that the goal of 15,000 new jobs created through investment in renewable energy sources and energy saving measures will be achieved. However, the Netherlands has the lowest percentage of employees in the renewable energy sector among all

comparable nations. In light of the very different employment figures and the varying real-world sustainability of different renewable energy sources, however, this figure tells us little about the actual status of the energy transition or the quality of relevant work.

New jobs are to be created for qualified employees from the five coal-fired power plants that still exist in the Netherlands, which are slated to be closed by 2030 - primarily in building components for wind turbines (and in the petrochemical industry). However, this likely applies only to the more highly qualified of the 2,800 employees threatened with termination. How many employees this would be, exactly, is unclear. No compensation is envisaged for the lost jobs (SER 2018). Accordingly, this poses a high potential for creating conflicts. On the other hand, however, the discussion seems overblown when the 2,800 jobs are compared to the total number of new jobs to be created or lost in other sectors.

According to a study from 2018 that investigated the economic impacts of expanding renewable energy sources, illustrating a variety of scenarios using the neo-Keynesian CGEM ThreeME (multi-sector macroeconomic model for the evaluation of environmental and energy policy), around 50,000 new full-time jobs could be created by 2030, contributing to an 0.85 percent in GDP growth (compared to a scenario without the use of renewable energy). The positive impacts will be the result of the relatively high numbers of worker and large amount of capital needed for wind farms and solar energy, compared to oil and gas-fired plants. Likewise, this would generate growth opportunities for producing products domestically instead of purchasing imports, and would result in an increase of electricity prices between two and 18 percent (Bulavskaya and Reynès 2018).

Decentralised and self-organised actors play a unique, yet often less illuminated role (this is the case in almost all countries in southern Europe with respect to a variety of sustainability projects, especially in Scandinavia and the United Kingdom with respect to alternative energy). An analysis published in 2018 dealt with self-organization in small-scale, decentralized energy projects, and came to the conclusion,

> "that the processes of self-organization facilitate socio-institutional practices that are observable not only within the initiatives but also traceable in wider institutional contexts. These socio-institutional practices are essential for a better understanding of the interface between the citizen-driven energy projects and local governance. The analysis further supports the idea that processes of self-organization, along with market-led and state-led mechanism, underpin innovative and pragmatic pathways which could enhance the energy transition towards a carbon neutral future" (Hasanov and Zuidema 2018).

5.3.2 Public policies and measures

In 2013, the Dutch government negotiated the first energy convention concluded with the participation of employer associations, trade unions, energy companies, environmental associations, and other stakeholder groups, the SER (Government of the Netherlands 2013). However, over time the government has made amendments to the convention for the purpose of "institutional adjustment". These primarily involved "the integration of lower administrative levels, new formats for citizen participation, and an improved system to review and evaluate measures" (Musch 2019, 2). The convention was primarily a political declaration of intent which concluded a non-binding energy efficiency target, and a binding target for renewable energy. It formulated a reduction of final

energy consumption by an average of 1.5 percent per year, and an increase in the percentage of energy from renewable sources from 4.4 percent at the time the goal was stated to 14 percent in 2020, and then 16 percent in 2023 (Government of the Netherlands 2013). Since that time, a large number of other conventions and laws have been enacted. The most significant of these are explained in the following section.

5.4.2.1 2018 Climate Protection Act

In late 2018, a non-partisan climate protection act developed with the help of 100 actors[18] from government, business, and civil society was enacted, with the goal of lowering CO2 emissions by 49 percent by 2030, and 95 percent by 2050 compared to 1990 levels, as well as making electricity generation virtually CO2 neutral by 2050 (Hofhuis und Van Schaik 2019; Kirchner 2018; Stichting Van de Arbeid 2020, 10). In 2019, another national climate convention with broad-based support – compared to other EU governments – was enacted (Governments of the Netherlands 2019).

With the 2018 Climate Protection Act, the Netherlands made climate protection a binding requirement. However, the environmental organisation Urgenda had already filed a class action suit against the Dutch government in 2015 to force them to lower CO2 emissions more than already planned, specifically by 25 percent by the end of 2020, compared to 1990 levels. The organization won the suit in 2015. However, the government continued to litigate. Ultimately, the Supreme Court ruled in favour of Urgenda's claims in December of 2019, stating that the government's express obligation is to defend the human rights of citizens in the face of climate change (Buranyi 2020). The combination of an explicit neo-corporate model and a wide-ranging right to file class action suits is fairly exceptional in the international context. While the Polder model had a dampening effect, in the viewpoint of centre-left parties, since results were below those achieved for initiatives from red-green, the right to file class action suits acts as a driver. From a conservative viewpoint, however, the Polder model could also be seen as a driver, since its results go beyond the intentions of the centre-right.

The non-partisan law passed in 2018 was preceded by many months of negotiations. The draft of the law, initially presented by the greens and social democrats, was ultimately accepted by seven parties from the government and the opposition (for more information, see the paragraph below on parties). The target of "100 percent renewable energy" for use in power generation by 2050 initially indicated in the first draft of 2016 – which conformed to the global climate treaty of 2015 – was reduced in the law to simply "CO2 neutral power production". The original reduction in CO2 emissions by 55 percent by 2030 was reduced to 49 percent in order to achieve a compromise with the centre-right parties (Hofhuis und Van Schaik 2019, 5; Kirchner 2018; Stichting Van de Arbeid 2020, 10).

[18] The primary participants from civil society were trade unions and several environmental organisations. Public participation was restricted to providing input to discussions. The climate convention was then concluded only by political parties. As described below, environmental associations, trade unions, the socialist party, and the animal protection party described the climate convention as insufficient.

5.4.2.2 2019 Climate Convention

The almost 250-page long Climate Convention, which was passed on 28 June 2019 with an over two-thirds majority of the Dutch Parliament, is the core of public policies and measures for an ecologically sustainable transformation of the economy and society. It represents a package of 600 agreements and measures in total. It is the follow-up to the previously enacted Climate Act, with the declared intention to integrate new aspects of the Climate Convention at a later date.

The primary goal of the convention was to achieve a drastic reduction in greenhouse gas emissions. It expressly states as a central tenet that the necessary transition will mainly be a social transition, and will change most areas of everyday life. A social partnership between citizens, business, and government is emphasised, with government playing a "reliable" role:

> "Both citizens and businesses will face a series of decisions that affect how we live, our mobility, our food and diet, what products we buy and how we earn a living. These will not always be easy choices, and citizens and businesses will also have to rely on each other and on the government. A combination of decisiveness, investments, knowledge and expertise is required." (Governments of the Netherlands 2019, 5)

Other core points of the convention include the closure of all remaining coal-fired power plants by 2030, the sale of exclusively zero-emissions passenger cars starting in 2030 at the latest, the reduction of greenhouse gas emissions from residential and other buildings by combining measures to improve energy efficiency, using sustainable energy sources, and constructing additional off-shore wind turbines. No compensation payments have been agreed for the closure of the coal-fired power plants. The convention expressly states the goal of transitioning the economy to a fully circular economy. Progress is to be reviewed regularly by a commission (Government of the Netherlands 2019).

The convention is highly detailed in the measures, limit values, financing sources, taxes, etc. it sets forth, and does not appear to leave many specific loopholes. The passage on emissions-free passenger transport, for instance, deals with used cars, export vehicles, taxes, rental car firms, alternative mobility clauses in employment contracts, and more.

16 pages of the convention (209-225) deal explicitly with the "labour market and training". The preface to the convention even indicates that work and training will be central to achieve the targeted climate transition, as well as for other comprehensive transitions, such as digitisation and the circular economy. The SER is entrusted with coordination,

> "which will set up a special SER committee tasked with identifying the opportunities and threats to employment posed by these transitions and exploiting them in an inclusive manner. In this context, the SER will promote and connect national, regional and sectoral initiatives and facilitate the development of sectoral training and labour market agendas. To this end, the chair of the SER committee will be guaranteed insight into the general and sector-specific progress on the agreements of the Climate Agreement. In addition, the SER will reach agreements with relevant knowledge organisations on improving information provision on the labour market and training to support transition policy. Within the government, the Minister of Social Affairs and Employment will be the primary point of contact regarding this theme." (Governments of the Netherlands 2019, 9–10)

In accordance with the Dutch Polder model, this strategy is accompanied by a whole range of other packages and declarations of intent, all of which are designed as public private partnerships (PPPs), and which are referred to in the climate convention. The "Declaration of intent on the labour market and training in the district-oriented approach" is central among these, with agreements to be implemented through regional PPPs and other measures. Furthermore, there are the "Agreement on the Senior Secondary Vocational Education Curriculum for Climate Technologies" (created from the "Declaration of intent for senior secondary vocational education") and the "Green Deal for the Development of Local and Regional Renewable Heating and Cooling technologies". In addition, the "social partners" have declared their willingness to increase implementation capacity through training funds for specific sectors (Government of the Netherlands 2019, 20). There is also the 2020 National Technology Package, enacted in 2018 (Nationaal Techniekpact 2019).

In order to transition to a sustainable economy and implement the climate convention, it states that many thousands of new workers will be required in different industrial sectors, ranging from the production industry to the energy sector and construction (Government of the Netherlands 2019, 209). In contrast, however, many workers in traditional industries would lose their jobs or be at risk of losing them. In addition, it would often be necessary for workers in existing jobs to learn new skills, since the character of their work would change. There is also the risk of a potential loss of prosperity, as generating sustainable energy is more work-intensive than producing energy from fossil fuels. Greater technological innovation will be needed to counteract this risk. In order to ensure affordability, speed, and social support for the goals of the climate convention, therefore, it would be necessary to react to the needs of employees and secure them appropriately against social risks. The same is true for the transition to a circular economy, digitization, and automation (Government of the Netherlands 2019, 209).

The government is expressly described as the key driving force behind this process:

> "What is required first of all is to attract more people, with attractive work, good working conditions and development and career prospects. The government and relevant government agencies, including the Employee Insurance Agency (UWV), will ensure that the necessary framework conditions are in place to ensure that employed persons and job seekers, including those at a disadvantage from the labour market, will be able to take control of their lives and work. This will apply in particular to workers whose responsibilities/jobs have changed. Secondly, it is vital that the current and future workforce and businesses keep developing far more than is presently the case, through tailored, responsive learning and through intensive collaboration with the business community and the trade unions." (Government of the Netherlands 2019, 209)

It also formulates the necessity of changing all student lesson plans, down to the primary school level, and of updating and adjusting these regularly in order to anchor a new approach and new understanding into the entire learning process early on. This includes the need to provide appropriately trained teachers and training (Government of the Netherlands 2019, 210).

The package cites from the SER report "Energy transition and employment" when referring to the principles and seven guidelines formulated for necessary, future-oriented training, education, and

labour market policies (SER 2018).[19] These are reproduced in full in the climate convention as guidelines:

> "• integrated **human capital agendas** featuring coherent and widely supported labour market agendas for the medium and long term, which also address social impacts. […] a plan may comprise national agreements and regional action plans;
>
> • **translation** of national and sectoral agreements **into regional economic agendas**, with regional initiatives together leading to the achievement of national targets. In addition, cross-linking regional implementation policy with sectoral activities (such as collective labour agreements, research and development (R&D) and social plans) is crucial;
>
> • **modular and responsive education** that is embedded in a **strong, positive** development and **learning culture** and builds on existing good initiatives, structures and collective labour and other agreements;
>
> • **an inclusive approach** that includes agreements to make better use of the available labour potential. For example, this will relate to a greater number of hours worked and to greater workforce participation among women, but equally concerns people with an occupational disability and other groups at a distance from the labour market, who will be able to do more complex work as a result of new technology;
>
> • aiming toward achieving **good and fair employment conditions**, working conditions and working relationships, as well as the associated social infrastructure, and participation **in new and existing secondary sectors** that are relevant to the energy transition;
>
> • improving information regarding regional and sectoral labour markets and better insight into the future needs of the labour market. […]
>
> • **compensating for job losses** in a fair and inclusive manner by preparing workers in good time for job loss, facilitating their development and mobility and mitigating employment-related and social consequences in an appropriate manner wherever existing facilities are insufficient. From a public interest perspective, as the legislator and as a driving party, the national government holds a unique role and responsibility. Where the transition is accompanied by job losses in the context of a "just transition", an approach is needed that prepares workers for such a prospect in good time, which facilitates their development and mobility and provides financial compensation if necessary. This is a responsibility of all the various partners involved." (Government of the Netherlands 2019, 210–11)

A special commission was formed with broad participation by a wide range of social actors in order to design measures and agreements on the labour market and training that would achieve widespread social support.[20] The participating organisations commit to observe all of the agreements

[19] Only a summary of these exists in English (SER 2019).

[20] "Dutch Trade Union Federation (FNV), the National Federation of Christian Trade Unions in the Netherlands (CNV), the Trade Union Federation for Professionals (VCP), the Confederation of Netherlands Industry and Employers (VNO-NCW), the Dutch Federation of Small and Medium-Sized Enterprises (MKB-Nederland), LTO Nederland, the Technology Pact, the Top Sectors, the Construction Agenda (De Bouwagenda), FME, Netbeheer Nederland, Employers' Association for Energy and Utilities Companies (WENB), the Netherlands Association of Senior Secondary Vocational Schools (MBO Raad), the Cooperation Organisation for Vocational Education, Training and the Labour

concluded in the "Labour market and training" section of the climate convention, as well as to individually and jointly develop and implement them (Government of the Netherlands 2019, 210–11).

The agreements and declarations of intent in the climate convention relate to the following topics and areas:

- Comprehensive labour market agendas, with a two-page description of the focus, topic areas, core points and procedures, as well as further details for the following sectors: Agriculture and land use; electricity; industry; built environment; and mobility.
- Translation into implementation and regional socio-economic agendas
- Good terms of employment, working conditions, and working relationships
- An inclusive approach to maximising potential
- Responsive education - tailored and embedded in a strong learning culture
- Improving regional and sectoral labour market information
- Absorbing loss of employment
- Conditions to kick off and ensure coherence of the package of agreements
(Government of the Netherlands 2019, 212–24)

Sector-specific committees were created in order to implement the convention, consisting of actors that have committed to following the climate convention and that are required for its implementation. These committees are developing agreements in their individual sectors, and concentrating on finding common solutions to problems. They are not entitled to re-negotiate the agreements that have been made. In addition, there is a committee that supervises the progress of implementation and handles communication, coordination, and the exchange of knowledge, in order to ensure the convention is implemented in a coherent manner. It is made up of the chairs of various committees and areas, and it also communicates with organisations or target audiences, including citizens and small business owners who are not or not yet actively participating in implementing the climate convention (Stichting Van de Arbeid 2020, 12).

However, the effectiveness of the formal mechanisms defined is questionable, as later critiques from trade unions and environmental associations show.

5.3.2.3 Circular economy by 2050

According to the climate convention, the Netherlands aims to have completed the transformation to a 100% circular economy by 2050. The figures differ on how circular the economy currently is. The circularity rate of the Netherlands was 29 percent in 2018, the highest among all EU28 nations (eurostat 2021a). According to another source, 24.5 percent of the Dutch economy is circular. This would mean a little less than a quarter of raw materials used to satisfy societal needs come from recycled sources (PACE 2020, 6). A study by the PBL which is cited in the same source states that

Market (SBB), The Netherlands Association of Universities of Applied Sciences (Vereniging Hogescholen), the Association of Universities in the Netherlands (VSNU), the Ministry of Economic Affairs and Climate Policy, the Ministry of Social Affairs and Employment, the Ministry of Education, Culture and Science, the UWV, the climate umbrella organisation for youth organisations Jonge Klimaatbeweging, Koepel Energie en Klimaat, the Netherlands Environmental Assessment Agency (PBL) and SER President Mariëtte Hamer." (Government of the Netherlands 2019, 211)

13 percent of materials used in the Netherlands are recycled. A study from MVO Nederland, in contrast, indicates that 12.1 percent of the Dutch economy is sustainable. According to Eurostat, the EU average for 2017 was 11.2 percent, just three percentage points more than in 2004 (PACE 2020, 11).

The Netherlands had 1.7 t of recycled materials per person per year, one of the EU's top three countries in terms of its recycling rate. However, this is contrasted with the facts that the Netherlands is also one of the largest per capita producers of industrial waste, due to their central role in international transportation, that the country produces one of the highest annual percentages on a per capita basis of household waste (520 kg of household waste and 514 kg of food waste), that it still burns 44 percent of its waste, and that it continues to rely heavily on fossil fuels and trade (PACE 2020, 11).

A report by the Ministry for Infrastructure and the Environment and the Economic Ministry from 2016 emphasises the economic opportunities associated with the transition to the circular economy, as well as new job creation. The country aims to take on a leading role within Europe, if not the world:

> "Dutch knowledge and expertise provide solutions to scarcity issues elsewhere as well, and can contribute to sustainable development and the expansion of markets. The circular economy can thus make a significant contribution to the future earning capacity of the Netherlands and Europe. The Netherlands has a good starting position to capitalise on these opportunities: it has a good infrastructure, major ports and airports, and leading businesses. Strong sectors include the chemical industry, the agri-food sector, high-tech systems and materials, logistics, the creative industry, and recycling. European cooperation can help us to capitalise on this leading position internationally. The Netherlands leads the way when it comes to the biobased economy and the utilisation of Nature Based Solutions that reduce the use of raw materials." (Ministry of Infrastructure and the Environment and Ministry of Economic Affairs 2016, 13)

The report refers to a variety of studies on job figures and economic benefits. In an initial assessment, the *Netherlands Organisation for Applied Scientific Research (TNO)* assumes additional annual revenues of € 7.3 billion in sectors directly involved in the circular economy. This would be linked to 54,000 jobs in the Netherlands. A study by Rabobank, in contrast, estimates the additional growth in GDP at € 1.5 billion (business-as-usual scenario) to € 8.4 billion (fully circular economy) (Ministry of Infrastructure and the Environment and Ministry of Economic Affairs 2016, 13).

A study from 2020 by the Dutch PACE deals with the question of which jobs and competencies will be needed for the transition to a circular economy(PACE 2020).[21]

The website European Circular Economy Stakeholder Platform, a joint project by the European Commission and the European Economic and Social Committee (EESC), presents a variety of companies and initiatives in different EU countries, selected to represent good practices for a circular economy. The examples are considered "relevant practices" and "innovative processes" which represent instances of "learning from experience". For the Netherlands, for instance, *Parksharing* is named as a B2B platform for companies that want to share materials, space, machines, or personnel locally; the use of coffee grounds as an organic fuel in a Jacobs Douwe Egberts plant; upcycling laptops by Hewlett-Packard (HP); increasing the circularity of plastic by creating a

[21] For more on PACE, see 5.3.3.3.

system to track plastics by polyamide manufacturer Domo and polymer manufacturer Covestro (European Circular Economy Stakeholder Platform 2020).

Butter and Webers, in turn, list three examples that are not restricted to individual companies, but rather are "good practices" for the circular economy in the framework of regional and territorial development (in progress). These include the foundation kiEMT, Energy and Environmental Technology Valley Eastern Netherlands, founded in 2005, which consists of 230 participants from industry, universities, and the government. The foundation supports start-ups, cooperations, clusters, and international collaboration in the industrial region to promote the energy transition and a bio-based circular economy. The second example is the *Cleantech Region Stedendriehoek*, consisting of seven municipalities, which aims for climate neutrality by 2030 and has a total of 400,000 residents. The third example is the *Project Circles (Cluster for Innovation, Redesign of value Chains and other Circular Lifestyle Economy Solutions)*, a project to increase collaboration and promote the circular economy by organising 65 business meetings with the participation of 146 companies (Butter and Webers 2018).

These examples, however, also illustrate the problem with defining a circular economy. In some examples, it is unclear what a circular economy actually is, while in others - such as increasing the circularity of plastics - a regularly critiqued approach is used: namely, that the primary focus should be to restrict the use of plastic as far as possible and ultimately stop its use, not to legitimate and continue its use through supposedly better recycling methods.

The examples for comprehensive cooperation come closer to the plans to develop a circular economy set forth by the Dutch government in their complexity and regional focus than the collection of individual examples. However, here as well, the circular character is not always clear - in addition, the strong and overwhelming orientation of the industries described towards export raises questions regarding sustainability. What is notable in all examples is that the topic of work, let alone the quality of work, is not addressed at all.

Likewise, there seem to be more hurdles in reality for the planned transformation than the detailed plans and descriptions would indicate. A qualitative study on sustainability in small and mid-sized start-ups in the Dutch food and drink industry published in 2018 lists some critical points if the ambitious sustainability goals in the climate convention are to be achieved (Long, Looijen, and Blok 2018). The study is particularly interesting, since the food and drink industry in the Netherlands plays an important economic role, is highly dynamic, and is under strong pressure towards sustainability. At the same time, small and mid-sized businesses play a central role with respect to employment.

"Barriers include external events, principle-agent problems as well as a lack of support from wider actors and systems. The results highlight that businesses wishing to develop a business model for sustainability must make sustainability the key principle upon which the firm is founded. Continual development and improvement is required in addition to the support of a range of different actor's external to the firm, such as suppliers, customers, and government." (Long, Looijen, and Blok 2018).

The conditions for succeeding in making sustainability a fundamental principle for a company to build on, however, are not present anywhere in the government's plans for transition nor in the PPPs.

5.3.3 Advising boards and other official actors

In light of the Polder model used in the Netherlands, there are a large number of boards, councils, institutions, and cross-sector think tanks, and it is not possible to name all of them here. A partial description is provided in the statements on work and training in the climate convention. Parties, trade unions, and some environmental associations are described below. This section will be restricted to briefly introducing several actors, in order to refer to these later on.

5.4.3.1 Netherlands Environmental Assessment Agency (PBL, Planbureau voor de Leefomgeving)

The Netherlands Environmental Assessment Agency published a report in 2018 titles "Effects of the energy transformation on the regional labour market - a brief scan" (Weterings et al. 2018). The questions addressed in the report are what impacts the energy transformation will have on demand for workers in each sector and province, and to what extent they will cause more tension in the short term on the labour market. The study is designed to help avoid a "disparity between demand and the labour supply" so as to prevent increased tension on the labour market. It formulates the goal of adapting current labour market conditions to requirements, as a way to achieve the changes in production needed for the energy transition (Weterings et al. 2018). Good work, sustainable work, the quality of work, or the just transition are not discussed or mentioned in the report.

5.3.3.2 Stichting Van De Arbeid

The *Foundation for Labour* (StVDA) is a joint institute and think tank made up of employees and employers (https://www.stvda.nl/nl). The StVDA is another central element of the Dutch social partnership system. It was founded in May of 1945, directly after the end of the Second World War, "as a body under private law for dialogue and cooperation between central employer associations (industry, mid-sized companies, agriculture, and horticulture) and trade union associations" (Stichting Van De Arbeid 2003, 5). The goal is for employers and trade unions to work together to create a new economic and social system. The StVDA was officially recognised by the Dutch state as a consulting body on socio-economic matters. Under the "Commercial Association Law" passed in 1950, the StVDA was replaced in its consulting function for the government by the Social and Economic Council, however it remains a forum for consultation between employers and employees on current economic matters, especially labour conditions and labour relationships. The two-person Executive Board and six-person Foundation Board are both made up of equal numbers of employees and employers. Of the eight seats on the employee organisation, four are held by the *Federatie Nederlandse Vakbeweging* (FNV, *Federation of Dutch Trade Unions*) and two each by the Christelijk Nationaal Vakverbond (CNV, Christian National Trade Union Federation) and the (Vakcentrale voor middengroepen en hoger personeel (MHP, Trade Union Federation for Professionals) (Stichting Van De Arbeid 2003).

5.3.3.3 Platform for Accelerating the Circular Economy (PACE)

The *Platform for Accelerating the Circular Economy* (PACE) was initiated by the World Economic Forum in Davos, is part of the World Resources Institute, and brings together over 70 leaders from

politics and business, purportedly for the purpose of accelerating the transition to a circular economy. PACE gives the impression of being an organised lobbying forum.

5.4 Criticism and other actors: Trade unions, environmental associations and parties

5.4.1 Parties

The Climate Act passed in late 2018 and the Climate Convention which followed in 2019 were created on the initiative of a "climate alliance" of the social democratic Partij van de Arbeid (PvdA), which dropped from the 24.8 percent of votes it received in 2012 to 5.7 percent in 2017, and the green party GroenLinks (GL), which achieved its best results in 2017 with 9 percent of votes. Both parties sought to form broad consensus, and spent months in negotiations making sacrifices in order to achieve agreement among all liberal, Christian democratic, and conservative parties, which are more restrained when it comes to environmental matters. Ultimately, however, the liberal, Christian democratic, and conservative governmental parties did agree to the Climate Act, the five-year plans for climate protection, and even an annual evaluation of the government's strategy on climate protection policy (Kirchner 2018). The differences between the parties on the bourgeois spectrum are restricted essentially to nuances. The *GroenLinks* party, for instance, declared the following with little criticism:

> "Today, these seven parties concluded a historic agreement: We will stop climate change. [...] We are stipulating by law that every future government must do enough to achieve climate targets, regardless of the colour of the government. The Dutch Climate Act is not the first climate law in the world; we are preceded by seven other countries. However, this Climate Act is the most ambitious climate law in the world" (Groen Links Partei 2018).

The Socialistische Partij (SP), which received 9.1 percent of the vote in 2017, also joined the initiative and voted for the law, although it continued to criticise it as insufficient and demanded additional measures. The various extreme right parties in the Netherlands are in strong opposition to most climate policies and energy transition policies (Hess and Renner 2019).

The small animal welfare party, *Partij voor de Dieren*, or PvdD for short, which received 3.1 percent of votes in 2017, rejected it as insufficient and voted against it. The extreme right, populist party *Partij voor de Vrijheid* (PVV, Party for Freedom) from Geert Wilders, which received 13.06 percent of votes in the parliamentary elections in 2017, dropping to 6.54 percent in the Senate election in 2019, as well as the far right populist anti-EU party *Forum voor Democratie*, which received 1.8 percent of votes in the parliamentary elections in 2017, then was the strongest party in the first chamber in the Senate elections in 2019 with 15.9 percent of votes, declined to vote for the new Climate Act. They described the law as hysterical, and as a waste of money.

5.4.2 Trade unions

The three largest trade union associations, the FNV, CNV, and MHP are involved in all negotiations and in a large number of boards through the Polder model. They have participated in negotiations for and supported all of the conventions, as well as helping to develop strategy documents and templates through their participation in the SER and StVDA. Dutch trade union associations have a strong European focus, however, their engagement is linked primarily to the Polder model and should not be seen as a reaction to European discourses. Nevertheless, trade unions do critique the Climate Convention and governmental policies. They primarily focus on the aspect of the quality of work, benefiting their social status. This critique is made most strongly by the 1.2 million member-strong FNV. The FNV's position declaration on the "just transition and dignified work" (FNV 2018) states:

> "The starting point for the FNV is that jobs offer existential security and future prospects, and that we must ensure they are of good quality. This is certainly the case for a sustainable economy. We understand fair, truly green jobs as being jobs with humane working conditions, work duties, well-developed labour relationships and labour conditions (quality of work). The FNV believes that the principle of fair, truly green jobs must apply to sectors with renewable energy sources (wind, solar, tidal, as well as geothermal and hydrogen) in addition to the existing sectors. This is the case above all if there is a large disparity between the quality of work in traditional and new sectors. This prevents mobility between jobs and different kinds of work. In these new sectors and sub-sectors, there are many cowboys, and agreements are rarely concluded between social partners, for instance on wages or flex time. These green sectors cut straight through a range of traditional sectors (agriculture, energy, construction, transportation, offshore, industrial). We must improve our position through connections with "old" sectors, and achieve humane working conditions and well-developed labour relationships here as well, alongside employees" (FNV 2018).

The concern expressed by the FNV indicates that the quality of the newly created jobs is not, in reality, as central and good as indicated in the declarations of intent and conventions, as an interview with Deputy FNV Chair Kitty Jong also makes clear (Kitty Jong, FNV Netherlands, 2018).

The SER also sees this as a potential risk:

> "An important issue of concern is also that the quality of jobs offered in the growth sectors of the renewable economy can differ from that of the traditional sectors. This can involve, for example, the absence of a collective labour agreement, lower pay, temporary employment contracts, and no access to funds for training" (SER 2018, 2).

The FNV and the environmental organisation Milieudefensie collaborated closely on the report, which explicitly states a position on employment questions in the energy sector (Transnational Institute and Milieudefensie 2020). The FNV and Milieudefensie have also cooperated closely recently on other matters. Collaborations between trade unions and environmental associations is a European trend, and is accompanied by a mutual sensitisation among those involved on environmental matters and issues of the quality and security of work. However, this is more institutionalised in the Netherlands than in other EU countries due to the Polder model.

5.4.3 Environmental organisations

Milieudefensie (Friends of the Earth Netherlands)

This environmental organisation, which has been active since 1971, is working for a just transition. It is active in the areas of energy, sustainable food production, forest conservation, business (such as trade conventions, etc.) and transportation. In the sense of a global just transition, it works to make Dutch group companies responsible for their international activities (for instance, it successfully filed suit against Shell due to environmental damages it caused in the Niger Delta). The organisation enjoys broad-based support among the population, and exercises a significant level of influence over governmental institutions and private companies (Milieudefensie / Friends of the Earth Netherlands 2020). Milieudefensie is independent and supported by private donations. Based on its own information, the organisation has 55,000 members, who decide on its focal areas and activities, as well as 33,000 donors. It is primarily financed by individual donations. Campaigns are carried out mainly through over 2,000 volunteer activities. Milieudefensie is the Netherlands' membership association in the international union of environmental protection organisations Friends of the Earth. All of its member organisations remain independent of political parties and economic interests, have a democratic structure, and are active in the area of environmental protection on both local and national levels. However, Milieudefensie is more involved in social mobilisation than, for instance, the German Friends of the Earth membership association, the Bund für Umwelt und Naturschutz Deutschland (BUND - German Federation for the Environment and Nature Conservation) (Milieudefensie / Friends of the Earth Netherlands 2020).

Urgenda. Report 2030: Nederland 100% Duurzame Energie in 2030

The environmental organisation Urgenda which, as described above, has already filed suit against the government in 2015 to force a greater reduction in CO2 emissions, a suit which they won before the Dutch Supreme Court in late 2019, is also one of the strongest critics of the climate convention. Urgenda had already published a report in 2017, according to which the Netherlands could transition to a 100 percent sustainable energy supply by 2030, in less than 15 years. The report investigates five areas (the "built environment", mobility, food, industry, and energy production) and offers suggestions for change and transformation. The transition to 100% renewable energy, it states, will be cheaper and cleaner than continuing to use fossil fuels, will create 150,000 new jobs, will secure the energy supply, and will promote innovation (Urgenda 2017).

5.4.4 Building a Just Transition: Alliances between trade unions and the environmental movement

The collaboration between FNV and environmental organisations began in 2013 after the 2013 Energy convention was passed. On the one hand, the topic of sustainability has become more and more important over time for the trade union movement, while on the other concern for a socially and in many other ways "just transition" has become a stronger focus of environmental movements. Since that time, collaboration between the FNV and environmental organisations has become more intensive. In 2016, the FNV served on an advisory board on a study initiated by Milieudefensie on the distribution of costs in the area of climate policy. In 2018, the two worked together on the

aforementioned SER report. There were tensions when energy-intensive industries launched a major campaign against the environmental associations' demands to introduce a CO2 tax. The companies argued that this would result in a loss of jobs as energy-intensive industries would move abroad. They mobilised the members of their industries against the initiative. The FNV, however, did not bend to pressure, and the environmental associations presented reports assuming a minimal loss of jobs. Ultimately, the companies were not successful in moving public opinion or policy to their side. However, this battle made clear how central the jobs argument still is (Transnational Institute and Milieudefensie 2020).

The FNV criticised the convention (which had not yet been passed at the time, but which had already been watered down) on multiple fronts. In addition to insufficient measures to ensure the quality of new jobs, it primarily critiqued the lack of a coal fund. Prohibiting coal, according to Deputy FNV Chair Jong, would cause thousands of people to lose their jobs. Jong stated that, were these lost jobs not compensated, this would undermine social backing for the transition to an ecologically and socially sustainable economy and society. Environmental organisations such as Greenpeace, Milieudefensie, Natuur en Milieu and the Natuur- en Milieufederaties expressed their disappointment. Maarten Labots from the *Young Climate Movement*, which was involved in negotiations on the Climate convention as a representative for sixty youth organisations, called the wording of the agreement insufficient (Heleen Ekker 2018).

5.5 Preliminary conclusions

A review of the plans and declarations of intent issued by the Dutch government gives the impression that it is thinking small, rather than thinking big. However, the fact that the Netherlands is one of the worst performing countries in the EU in most areas relevant to sustainability tends to recede into the background. Obviously, the results achieved by the Polder model, a mutually coordinated and slow process, are insufficient: Neither for nature, as not only scientific warnings, but ultimately also the class action suit won based on these warnings shows, nor – as once again expressed in criticisms by trade unions – in relation to the quality and sustainability of work.

Discourse, declarations, and approaches seem to be more advanced, compared to many other EU countries. This is evidenced, for instance, in the focus on sustainability and the transformation to a fully circular economy. Creating jobs is not the most salient feature used to justify sustainability and climate policies. They are presented as an absolute priority; the need especially for qualified employees is then defined based on this priority. The massive loss of jobs is likewise discussed. There is a stated intention to provide a social safety net for individuals who lose their jobs. Schooling at all ages is also discussed, in conjunction with qualified training.

In line with the Polder model, suggestions and programmes call for a broad social partnership, involving governmental actors, parties, trade unions, private business, scientists, and civil society associations. The government and the state are seen as driving elements behind the process, which focuses heavily on PPPs and which aims at regional and local implementation, involving the administrations on these different levels. Centrally formulated guidelines and programmes should be implemented locally and regionally, based on local specificities.

As critiques from trade unions and even the fears of the SER show, however, questions regarding sustainable work, the quality of work, a re-evaluation of work or even a critique of the work-

oriented society recede completely into the background, or do not even appear at all. The focus is solely on fully aligning the workforce to the needs of private business. Ultimately, the Netherlands represents an unusual model of a state-managed form of neo-liberalism, backed by social partnerships.

In light of the discrepancy between the self-perception / self-presentation of Dutch governments and the data on their past poor performance when it comes to sustainability in the Netherlands, the criticisms expressed by climate organisations that climate policies are insufficient seem justified. What is more, past policies raise serious doubts about whether even the goals that have been formulated will be achieved. Instead of a sustainable re-orientation of the economy and society – which would involve the creation of fully new jobs – the strategies mainly aim to maintain production activities and shift or boost qualifications for different jobs. The Dutch economy's absolute focus on export is not questioned. The process implemented by the Dutch government is consolidated in the symbolic example of aluminium coffee capsules. Instead of simply doing away with them, it instead aims to boost recycling, while using the coffee grounds as an organic fuel.[22]

As the suit by Urgenda shows, Dutch governments, regardless of their political alignment, are not inclined to take more radical measures. The judgement by the Supreme Court in late 2019 gave the government just one year to achieve the target (Kaminski 2019). The government's attitude was pushed even further towards rejecting a stronger environmental course by the pandemic and the ways in which it accelerated various crises. Today, the government does not even seem prepared to listen to suggestions from environmental associations any longer, which was not the case in the past in light of the Dutch political approach being so focused on social dialogue. On the other hand, the drop in emissions from production, international trade, passenger transportation and air travel caused by the pandemic did make it easier for the government to comply with the specifications – although all this did was push the problem down the road (Buranyi 2020).

At the same time, the social and environmental pressure to advance a sustainable transformation of the economy and society is great. The Netherlands has been a gas producer since the world's tenth largest natural gas field was discovered in the 1950s, and covers its own needs from this supply while exporting a large amount of natural gas to Germany and France (bringing the nation over 300 billion euros in income). However, the consequences of extracting that gas – soil subsidence and increasing earthquakes – have led to major protests. Consequently, a five-year fracking moratorium was issued in 2015, after which fracking was ultimately prohibited. An accelerated end to gas production was also announced in late 2019, reducing the practice with immediate effect, and scheduling the final end of gas extraction for 2022 instead of 2030 (T. Kirchner 2019).

[22] Nestlé coffee capsules were named as one of five finalists for a "worst-of" award, the "Goldene Geier" by the Environmental Action Germany (Deutsche Umwelthilfe) in May of 2021. "Nestlé subsidiary Nespresso uses an extremely large amount of aluminium in its coffee capsules, which has a disastrous economic balance sheet. Nespresso uses 666 grams of packaging for every kilogram of coffee. Nespresso attempts to hide this by promising that it will soon use 80 percent recycled materials. According to the Deutsche Umwelthilfe, however, it is not even possible to manufacture new coffee capsules from a used coffee capsule out of the recycling bin." (Tartler 2021)

6. United Kingdom: Initial situation, policies, debate, and actors

The United Kingdom is already heavily impacted by climate change. In the risk report for 2017, the Climate Change Committee (CCC)[23] listed six central areas where the UK was exposed to a moderate to high or extremely high risk due to climate change. Not enough is being done in any of these areas. Nor is enough being done to counteract the two high-risk areas of rising sea levels and the danger of flooding, as well as the risks posed by rising temperatures.

(CCC - Committee on Climate Change 2016, 8)

A broad discussion on drastically reducing greenhouse gas emissions began earlier in the UK than in other European countries. A 662-page report from 2006,(Stern 2006) assembled by economist Nicholas Stern on behalf of the government, had a strong influence on this discussion (Stern 2006). The "Stern Review on the Economics of Climate Change" is likely one of the most well-known reports on climate change, and to date the most extensive report available. It outlines an alarming picture, even from just an economic standpoint.

The UK aimed to greatly reduce greenhouse gas emissions from energy production by eliminating coal (which occurred earlier than expected with the closure of the last three coal-fired power plants in 2020), increasing its usage of renewable energy sources, especially offshore wind energy, and using nuclear power, which covers around 20 percent of the country's electricity needs. Another 30 percent will be generated with gas-fired power plants (Plickert 2020; Sotscheck 2020). Greenhouse gas emissions from buildings and agriculture, in contrast, have remained essentially the same. Between 2017 and 2018 (the latest data currently available), they actually increased in transportation by five percent. There are also significant differences between different regions. The Scottish government has set the goal of emitting zero greenhouse gas emissions by 2045, while Wales only wants to reduce emissions by 95 percent by 2050. Both of these goals conform to the recommendations of the CCC (ONF - Office for National Statistics 2020; Shepheard 2020a). Sustainable

[23] The CCC is an independent body that continuously monitors and analyses climate change and issues recommendations for the government. Its founding was a stipulation of the Climate Change Act of 2008.

work is not addressed either in public debate nor in governmental documents. The official discourse focuses on green jobs, although there is no other country where the term is understood so broadly and with so little specificity as it is in the government of the UK. In Scotland, discourse has long been about the just transition, and a participative just transition commission was introduced in 2019. On the national level, however, the government places no explicit focus on this issue (Robins et al. 2019a, 3). Trade unions and environmental movements have been collaborating and have been engaged in a wide-ranging discussion and campaign for a just transition for many years.

6.1 Statistical data on the economy, population structure, and employment

6.1.1 Population (overall population and age structure 2020)

In 2020, the United Kingdom had 67.9 million inhabitants. With a comparatively high annual population growth of 0.6 percent, a low percentage of over 65-year-olds, the top percentage of 0-14-year-olds, equal to France's, and a percentage of 10-24-year-olds which is below France and the Netherlands but still relatively high, the country is not expected to experience extremely rapid ageing.

Total population (in millIons)	Annual population growth %	Population structure (age)			
		0-14 (%)	10-24 (%)	15-64 (%)	65 + (%)
2020	2015-2020	2020	2020	2020	2020
67.9	0.6	17.7	17.3	63.7	18.7

The figures are for GB and Northern Ireland. The British Overseas Territories are not part of the UK (UNFPA 2020, 146).

However, the pressure on the labour market is greater than in all other comparable nations.

6.1.2 GDP, economic growth, and economic structure

The UK's per capita GDP has increased continuously since 2011, and was US$ 46,885 in 2018, making the country average among comparable nations, just above France, and below Norway, the Netherlands, and Sweden. Economic growth has dropped constantly since its peak of 2.6 percent in 2014, and was 1.3 percent in 2018. In addition to the consequences of the pandemic – which are impacting all comparable nations – the consequences of Brexit will likely led to the country having one of the largest drops in economic performance. Public administration, defence, education, health and social work made up the largest share of value creation with 18.2 percent (1.2 percent lower than in 2011, but constant since 2014), followed by trade, repairs, transportation, and hotel and hospitality with 17.5 percent (constant since 2011), then just 13.6 percent for industry, including energy (dropping since 2011) and the real estate sector with 13.2 percent (the highest among all comparable nations, but dropping since 2016). The professional, academic, and support services sector, however, has seen continuous growth since 2011, and made up 13.1 percent in 2018 (11.3 percent in 2011) (OECD 2020i).

6.2 Labour market policies, workforce, employment, and labour market

The British government follows a labour policy based on promotion and stimulus, which was introduced primarily under New Labour between 1997 and 2010, with the support of conservatives and liberals. Mandatory participation in programmes was added to this model under the conservative-liberal coalition between 2010-2015. The measures have not resulted in any change in the success rate for integration into paid labour, nor with respect to the tendency of funding providers to focus on measures related to more easily communicated cases, while neglecting more complex ones. This reinforces the criticism that a stimulus-based labour market policy primarily serves to discipline the workforce, and therefore to expand the low-wage sector and generate pressure towards flexibility (Watts et al. 2014; Wiggan 2015, 370–72).

The British labour market has been heavily deregulated over the last decade. The recession which began in 2008 contributed to an increase in the already high unemployment rate, and a decrease in productivity. It is true that the employment rate grew again after the recession, and the unemployment rate before the pandemic was around four percent, which is very low compared to other European countries - however, wage levels and productivity did not recover (Herz and van Rens 2020). Work productivity per hour in the UK is worse than the large, industrialised European nations of Germany, France, and Italy (Government UK 2017, 21). Apart from the criticism regarding productivity,[24] this contradiction has existed for quite some time, and cannot be satisfactorily explained by labour economists. On the other hand, the country suffers from a lack of trained professionals. A quarter of companies are not able to find the personnel they require to increase productivity. This is due to the relatively low wages and high cost of living, as well as to Brexit. Brexit resulted in tighter immigration laws, and to an atmosphere where many international workers no longer feel welcome (GTAI 2020; Herz and van Rens 2020).

6.2.1 Labour market data

Table 1. Labour force

Annual average estimates

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Labour force, thousands										
All persons	31 584	31 841	32 129	32 391	32 667	32 943	33 247	33 412	33 701	33 964
Males	16 983	17 095	17 241	17 330	17 435	17 572	17 727	17 736	17 869	17 945
Females	14 602	14 747	14 888	15 061	15 233	15 371	15 520	15 676	15 831	16 019
Unemployed, thousands										
All persons	2 459	2 559	2 533	2 437	1 996	1 746	1 599	1 447	1 347	1 269
Males	1 456	1 477	1 434	1 377	1 109	958	873	786	723	703
Females	1 004	1 082	1 100	1 060	887	788	726	661	624	566
Employment, thousands										
All persons	29 125	29 282	29 596	29 954	30 671	31 197	31 648	31 965	32 354	32 695
Males	15 527	15 618	15 808	15 953	16 325	16 614	16 854	16 950	17 147	17 242
Females	13 598	13 664	13 788	14 001	14 346	14 583	14 794	15 015	15 208	15 452
Employment (%)										
Males	53.3	53.3	53.4	53.3	53.2	53.3	53.3	53.0	53.0	52.7
Females	46.7	46.7	46.6	46.7	46.8	46.7	46.7	47.0	47.0	47.3
Unemployment rate (% of labour force)										
All persons	7.8	8.0	7.9	7.5	6.1	5.3	4.8	4.3	4.0	3.7
Males	8.6	8.6	8.3	7.9	6.4	5.5	4.9	4.4	4.0	3.9
Females	6.9	7.3	7.4	7.0	5.8	5.1	4.7	4.2	3.9	3.5

(OECD 2020q, 1)

[24] To put it crudely, a hairdresser who finishes a haircut in 30 minutes for €150 is much more productive than one who finishes two haircuts in 30 minutes for €15 each.

The unemployment rate in the country is very low compared to other European countries, at 4.0 percent in 2019. However, the youth unemployment rate is relatively high at 11.3 percent.

Table 2. Unemployment rates by age

Annual average estimates, percentage

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
All persons										
15-24	19.5	21.3	21.1	20.2	17.2	14.4	13.3	12.1	11.6	11.3
25-54	6.0	6.0	6.0	5.7	4.7	4.0	3.6	3.2	3.1	2.9
55-64	4.5	4.9	4.9	4.9	4.2	3.6	3.6	3.5	3.3	2.9
65 and over	2.4	2.7	2.2	2.4	2.1	1.6	1.5	1.9	1.5	1.5
15-64	7.8	8.2	8.0	7.7	6.4	5.4	5.0	4.5	4.3	4.0

(OECD 2020q, 2)

The workforce increased from 29.125 million in 2010 to 32.695 million in 2019. Employment growth was seen primarily in the service sector. Compared to other nations in the study, the UK has the lowest relative employment rate in the industrial sector, after the Netherlands. The ratio of employment between industry and service is 1:4.48. There have been slight fluctuations over the years in agriculture, hunting, and forestry, however, in 2019, the sector employed around as many people (341,000) as it did in 2010 (351,600). Employment in the industrial sector increased from 5.555 million to 5.902 million, while it increased in the service sector from 23.219 million to 26.452 million. The manufacturing industry and construction industry were the two largest industrial sectors, yet they saw the lowest percentage of growth (OECD 2020q, 3).

Employment in the service sector grew in almost all areas (employment only dropped in the much less significant sub-sector of employment in private households and activities for own use - from 64,300 to 49,700). The growth in wholesale and retail and vehicle repairs was barely noticeable (from 4.01 million to 4.04 million). Professional, academic, and technical activities saw the largest percentage of growth in employment (from 1.874 million to 2.519 million); information and communication followed (from 1.012 million to 1.389 million); then the real estate sector (from 281,300 to 391,300); and other services (from 730,000 to 938,000). Somewhat smaller, yet still high growth in employment were seen in human health and social work (from 3.823 to 4.401 million); culture, entertainment, and recreation (from 756,600 to 878,700); hotel and hospitality (from 1.428 million to 1.745 million); administration and support services (from 1.34 million to 1.53 million); and education (from 3.1 million to 3.413 million). Employment growth in public administration, defence, and social security was somewhat more moderate (from 1.907 to 2.111 million); transportation and storage (from 1.454 million to 1.572 million); and finance and insurance (from 1.179 to 1.287 million) (OECD 2020q, 3).

6.3 Green Jobs

Green jobs have been a topic of discussion in the UK for over 15 years. Governmental documents sometimes differentiate these into “light green” and “dark green” jobs. The former include green skills as part of the requirements for currently existing jobs, while the latter are “completely green” jobs (HM Government 2011, 7). Interestingly, a governmental study of private business from 2011 stated with respect to light green jobs that it is unclear “whether they will ever be able to clearly

articulate this type of need in light of the complexity, even if the CEOs emphasise sustainability" (HM Government 2011, 25). The criteria for green jobs are, however, doubtful. Green jobs are equated with employment in the low carbon sector, although this is certainly not the same thing. In the UK, therefore, employment at nuclear power plants and in the nuclear sector is counted among green jobs, as are jobs trading emissions certificates or financial accounting specialised on low CO2 activities (HM Government 2011; Strietska-Ilina et al. 2011; Shapira et al. 2014). This classification was adopted for the UK by the ILO. A study from 2011 indicates that 900,000 people are already working in the low-carbon sector in the UK, as well as adjacent value creation chains. The aim is to increase this number to 1.3 million by 2017. (Strietska-Ilina et al. 2011, 421). Among the seven green jobs case studies in the investigation, there are at least three that would definitely not be considered green jobs in other countries and studies: British gas smart gas meters, emissions trade and financing, and the National Skills Academy Nuclear. A fourth example, electric vehicle production, would at least be disputed (Strietska-Ilina 2011, 426–27).

Due to the different counting methods used, the available data is not completely clear. Allan et. al. state the following with respect to Scotland, but it could apply to the entire UK: "for many different reasons (such as with respect to definitions, methodology, and limited data), there is no one "correct" standard for employment in low-CO2 activities and renewable energy, which is why such a large range of alternative approaches have been created" (Allan, McGregor, and Swales 2014, 18). In 2015, around 335,000 people (one percent of the population) were employed in the low carbon and environmental goods and services (LCEGS) sector.[25] This includes water and waste water management, waste management and recycling, renewable energy, environmental conservation and environmental consulting (ONS 2018, 7). The figure indicated for employment in the low carbon and renewable energy sector (LCREE) for 2018 is once again indicated as 224,800 (compared to 200,800 in the year 2015). This includes jobs in renewable energy, the nuclear industry, manufacturing energy-efficient products, in the energy-efficient lighting sector, energy monitoring systems, and manufacturing and infrastructure for vehicles with low emissions values, as well as all services and trade linked to these sectors (ONS 2020a, 4, 6, 8).

Based on its own statements, the government pursues a clean growth strategy. It states that new, high-quality jobs, industries, and companies have been created thanks to meaningful technological innovation. Thanks to its leading expertise in offshore wind energy systems, the government asserts, low-CO2 and electric vehicles as well as playing a leading global role in "green finance", the UK has successfully exported goods and services throughout the entire world, creating more than 430,000 jobs in low-CO2 companies and supply chains (HM Government. Department for Business, Energy & Industrial Strategy 2018). Due to the high greenhouse gas emissions, large amount of resources consumed, and many jobs involved, the construction industry and energy-efficient renovations in the UK are a focus for future green jobs, as they are in many other countries as well. One criticism in this respect is that public policies and narrowly worded regulations ultimately

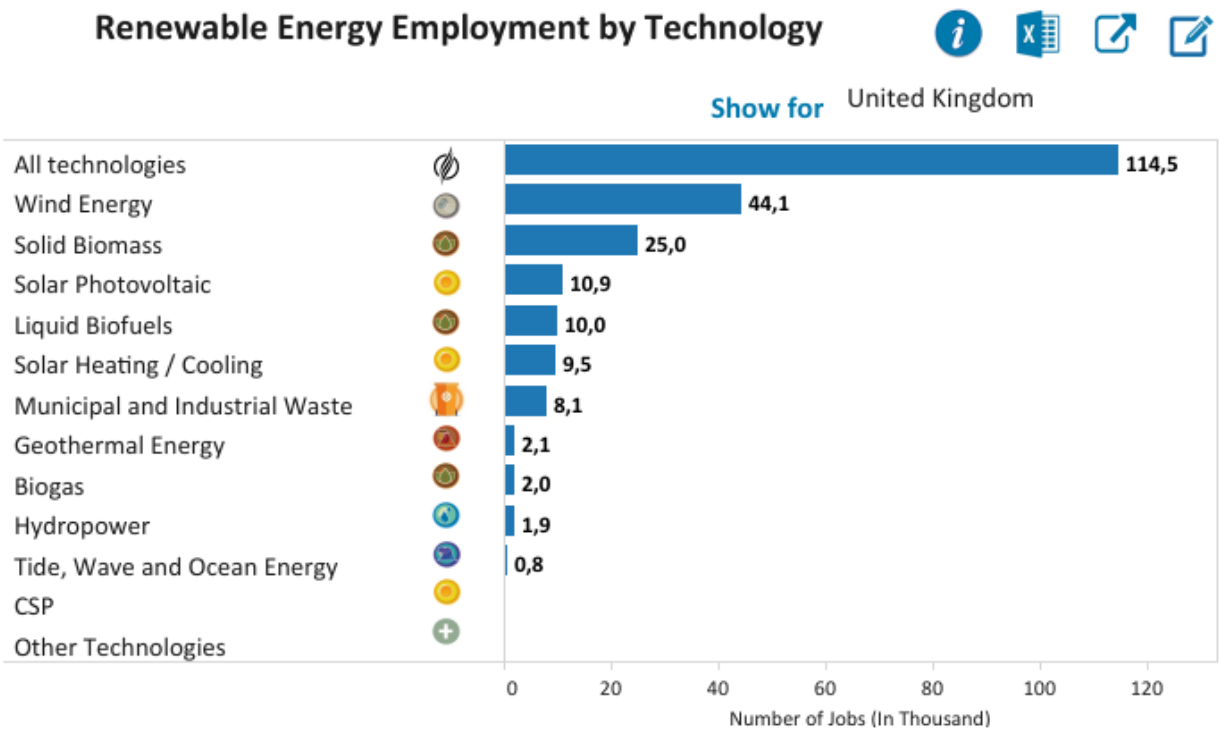
[25] Low Carbon Environmental Goods and Services (LCEGS) has become one of the most commonly used methods to measure green jobs in the UK. Three significant sectors have been identified: "Environmental (including waste, recovery, and recycling and environmental consultancy), Renewable Energy (including technologies) and Emerging Low Carbon Technologies (including building technologies). These sectors were further split into 23 subsectors and 2,490 individual activities" (Connolly, Allan, and McIntyre 2016, 357). Since the methodology is very complicated and cost-intensive, data sets are not prepared each year. Please see Connolly et.al. for a more specific explanation and statement of the problem. 2016.

prevent more extensive ecological and sustainable mechanisms from being expanded (Gibbs and O'Neill 2015).

A study on the development of green jobs in Scotland found that LCEGS jobs have increased there, however the recession which began in 2008 slowed the growth of employment in LCEGS. In general, the growth in LCEGS employment is much slower than the growth in installed renewable energy capacity (Connolly, Allan, and McIntyre 2016, 359).

With 118 points in the 2019 EU-28 Eco-Innovation Scoreboard, the UK was in seventh place and just slightly above the EU28 average of 100 points. The UK received just 47 points in the category of employment in *eco-industries*, well below the EU28 average and just one point above Poland (European Commission 2020).

6.3.1 Employment in the renewable energy sector



Source IRENA jobs database. Figures provided are the result of a comprehensive review of primary information sources by national entities such as ministries and statistical agencies, and secondary data sources such as regional and global studies.This is an ongoing effort to update and refine available knowledge. Totals may not add up due to rounding.'Other Technologies' include jobs which are not technology specific.

(IRENA 2020b)

These figures deviate greatly from the intentions of the 2009 governmental plan on the energy transition: It set forth the goals of creating 200,000 new jobs in the renewable energy sector by 2015, and another 300,000 new jobs by 2020 (HM Government 2009, 114).

6.3.2 Public policies and measures

The Climate Change Act was enacted in 2008, under the labour government led by Gordon Brown. It sets forth an obligation to lower greenhouse gas emissions by 80 percent compared to 1990 levels by 2050 (Government of the UK 2008). At the time, climate change was one key cause for broad-based protest movements. The "UK Low Carbon Transition Plan: National strategy for climate and energy," was then passed in 2009, for the purpose of growing the number of 880,000 jobs that existed in low carbon and environmental sector at the time the plan was passed by over 50 percent. Its goal was to create half a million jobs in the renewable energy sector by 2020 "if we take the opportunity to establish the UK as a global centre of low-carbon industries and green production" (HM Government 2009, 114). In July of 2018, the government published a new national programme of adaptation to climate change (Government of the UK 2018). The first such programme had been published in 2013 (Government of the UK 2013). Both of these programmes followed reports published in 2011 and 2017 outlining climate change risk assessments (CCC 2011; 2016).

The 256-page future industrial strategy for the country published by the British government in 2017 speaks in general of the need to increase productivity, as well as of the need for comprehensive investments in infrastructure and technical and mathematical education, and of funding for companies and individuals. The advantages of industry in the UK in the "global transition to clean growth" should be maximised, and should lead the world "in the development, manufacturing, and use of low carbon technologies, systems, and services that cost less than CO2-intensive alternatives" (Government UK 2017, 14, 21, 42). How to do so, and what impact this will supposedly have on *green skills*, are not clear. National consultations should be held with companies, trade unions, and employees for this purpose – although there is no coordination to do so (Cedefop 2018c, 14). Overall, the government of the UK primarily focuses on increasing "green finance and social impact investing" (Robins et al. 2019a, 3).

In 2019, the government passed a law that stipulates greenhouse gas emissions should be lowered to net zero by 2050 (from its previously stated goal of an 80 percent reduction, always compared to 1990 levels).[26] It stated that greenhouse gas emissions had already been reduced by 42 percent by this point, while the economy grew by 72 percent. Exports from the low-CO2 economy should then grow to £170 billion by 2030 (Government UK 2019).

The UK's circularity rate in 2018 was 16.3 percent, well above the EU28 average. It was 14.2 percent in 2010 (eurostat 2021a). The low growth in this rate clearly shows that the EU28 target of a 100 percent circular economy by 2050, to which the UK remains obligated even after Brexit, is very unlikely to be achieved. None of these documents discusses sustainable work. They only focus on qualifying employees to meet the needs of an economy which will be even more focused on exports.

6.3.2.1 Need for trained professionals and vocational training for decarbonisation

Estimates assume that around 21 percent of all jobs in the UK will be impacted significantly by a transition to a green economy. This encompasses 6.3 million workers. Around half of these jobs

[26] It should be noted once again that it is possible to use emissions certificates and investing in "CO2 reservoirs" such as forestry, tree planting, or restoring moors either domestically or abroad to actually lower CO2 emissions by more than 100 percent, while still emitting CO2.

require skills that will be in greater demand in a green economy, while the other half will require retraining. These jobs would not be lost, but would require special attention. The sectors likely to have the greatest need for retraining will be the construction industry (30 percent), transportation (26 percent), and the manufacturing industry (17 percent). The East and West Midlands and Yorkshire and Humber regions will be most heavily impacted by the transition (Robins et al. 2019b, 2).

A study on private consulting and certification companies completed in 2015 for the British government regarding the decarbonisation of industry and energy efficiency in light of the goals formulated for 2050 discusses an "ageing workforce and a lack of engineers as a challenge in many sectors" (WSP and Parsons Brinckerhoff and DNV GL 2015, 24). Some sectors in the UK also suffer from a lack of diversification. Specifically, there are deficits in

> "Operational and maintenance skills which can enable incremental improvements in energy efficiency; The ability to develop projects including articulating a viable business case; RD&D skills including the development of successful links with equipment manufacturers, technical centres and academia; Technical and engineering skills relating to specific processes and technologies identified in the pathways analysis such as combustion specialists (for example in cement, ceramics, glass and iron and steel), electrification (ceramics, glass, food and drink and pulp and paper) and chemical engineering (for example in those sectors where carbon capture could play a significant role); engagement with senior leaders, so that they understand the challenges in terms of skills and how they can develop and deploy the skills needed to tackle the challenges ahead." (WSP and Parsons Brinckerhoff and DNV GL 2015, 24–25).

It should come as no surprise that the study states these deficits should be overcome through public financing in corporate-led professional training programmes, such as those that already exist under the Science Industry Partnership for the chemical sector and bio-sciences. In light of the fact that these deficits have been caused by the companies themselves, and that they have already attested their inability to identify needs and opportunities themselves and utilise these adequately, it is doubtful whether this will be a successful strategy in the sense of helping the climate or ensuring good work.

In early October 2020, the British government announced further measures with the goal of making the UK a global leader in wind energy, as part of achieving the country's goal of converting to a net zero CO2 economy by 2050: £160 million should be provided to modernise harbours and infrastructure, thereby drastically increasing offshore wind energy capacity (which currently covers 10 percent of the country's electricity needs). The investments would quickly create 2,000 jobs in the construction industry and another 60,000 direct and indirect jobs for "support" in harbours, factories, and manufacturing chains for the next generation of offshore wind turbines by 2030 (Government UK 2020).

Sustainable work, good work, and the just transition play no role at all in the reports.

6.3.2.2 Scotland

Scotland has its own climate policy, which is much more ambitious and comprehensive than that of the UK. Since the restoration of the Scottish parliament in 1999, Scottish policies have focused on creating jobs through low carbon and renewable energy. In 2011, the "transition to a low-carbon economy" was declared as one of the Scottish government's strategic priorities (Allan, McGregor,

and Swales 2014, 18). The Scottish Renewables Action Plan was passed in 2009. The Low Carbon Strategy for the economy passed by the Scottish government in 2010 stated that green jobs could grow by over four percent annually through 2020, from 70,000 to 130,000, making up over five percent of total employment. Expanding offshore wind energy alone could generate up to 20,000 new jobs, turning Scotland into Europe's centre for green energy (Scottish Government 2010, 7–8; 12–13). An update and supplement to the renewable energy plan passed in 2011 set the goal of covering all of Scotland's electricity needs with renewable energy by 2020, as well as eleven percent of its heating energy needs. In particular, it emphasises professional training measures to prepare Scottish workers for the new requirements, in particular the estimate of 40,000 new jobs to be created in the renewable energy sector (Scottish Government 2011).

The "2018-2032 Climate Change Plan" was enacted in 2018, and stipulates that greenhouse gas emissions should be reduced by 66 percent by 2032, with the country reaching net zero emissions by 2045 (Scottish Government 2018). Likewise, it resolves that a Just Transition commission and citizen's meeting on climate change should be created in order to develop recommendations for how to carry out the zero emissions transition, and what aspects must be taken into consideration with respect to qualifications, the labour market, and education (Scottish Government 2019). The commission also includes two trade union representatives.

The Scottish government has made the concept of "fair work" the centre of its economic strategy. Scotland intends to be a leader in fair work by 2025. To do so, corporate funding and public contracts will be linked to obligations for companies to invest in qualification and professional training, to not use zero hour contracts (on call work) inappropriately, to work to close the gender pay gap, and to pay a liveable wage (unionlearn 2020, 11). Since the commission was created, there has been an increase in local efforts to mobilise funding for climate protection measures. Trade unions and environmental associations, in particular, have taken a leading role in setting out the agenda (Robins et al. 2019a, 3).

Another update to the climate change plan was passed in 2020 (Scottish Government 2020b). It states explicitly:

> „At the centre of our approach is a commitment to increase the number of good, green jobs, and to enable people to access these jobs through training and reskilling. To further align the skills system with the demand resulting from a green recovery and the transition to net zero, the Climate Emergency Skills Action Plan has been published alongside this update" (Scottish Government 2020b, 8).

The update includes a wide range of concrete measures to promote professional training, for companies to create green jobs and – besides other measures – funding of £ 1.6 billion, already included in the government's budget for 2020-2021, for energy-efficient building renovations that will be projected to create 3,000 to 5,000 new jobs, as well as £ 25 million for green retraining of individuals who have lost their jobs due to the pandemic, and £ 60 million for young people, green vocational guidance and green training professions (Scottish Government 2020a, 49).

The "2018-2032 Climate Change Plan" and all subsequent governmental documents that refer directly to it do not use the term sustainable employment; however, they speak of creating good, high-quality, secure, and well-paid green jobs, and do discuss the just transition.

6.4 Criticism and other actors: Parties, trade unions and environmental associations

Measures taken by the British government(s) to fight climate change have been criticised on many sides as wholly inadequate. The government's critics include environmental associations, scientists, left-leaning organisations, and medical professionals. In June of 2019, over 1,000 physicians quickly signed on to a document outlining the health-related consequences of climate change and calling for peaceful resistance (Taylor 2019). In December of 2020, the CCC declared that the UK needed to reduce greenhouse gas emissions by 78 percent compared to 1990 levels by 2035, in order to achieve zero emissions by 2050 (Carbon Brief 2020).

6.4.1 Parties

The extreme right parties in the UK, from various small parties to Reform UK (formerly known as the Brexit Party and before that the UK Independence Party) all oppose measures to fight climate change. Nigel Farage and his Reform UK party have positioned themselves as declared opponents to the government's "green policies", and Farage himself has publicly expressed doubt regarding whether humans influence climate change (Hess and Renner 2019).

The policies of the conservative party, which has been in power since 2010, has been presented in the investigation. In their 2019 electoral platform, they stated: "Our plan for a Co2-neutral future with clean energy means new kinds of jobs in new industries. Thanks to our exit from the European Union, we can develop forward-thinking regulations to ensure we are leaders in the creation of future technology, and that we profit from this position" (Conservative Party 2019, 36). However, previous development in green jobs under conservative governments, the serious economic consequences of Brexit, and the often-stated interest in reducing environmental and labour standards in order to improve competitiveness would seem to indicate that developments will move in a different direction, even though the conservatives have promised to "collaborate with the market over the next ten years to create two million new, high-quality jobs in clean growth" (Conservative Party 2019, 55).

Labour Party

In its 2019 electoral platform, Labour promised to fight climate and environmental crisis with a plan "to improve the standard of living by converting our economy to a low-carbon economy that it is rich in good jobs, radically just, and democratic" (Labour Party 2019). Labour wanted to initiate a green industrial revolution through the GND in order to create a million jobs in the UK and transform industry, energy, transportation, agriculture, and buildings. The goal of the GND was a substantial reduction in emissions by 2030. It stated that run-down communities should be rebuilt, with better and more well-paid jobs, and lower energy costs. It indicated a Labour government should collaborate closely with employees and trade unions so that they could lead the transformation of their industries and create new, high-quality jobs. It stated that sustainability should be a guiding principle behind the transformation, alongside social justice, so that the UK could stand out in an international comparison. Costs for the green transition should be paid, it stated, mainly by the rich and persons responsible for the problem (Labour Party 2019). Since the left-leaning Labour party lost much of its influence after party chair Jeremy Corbyn lost the elections, and since

the neo-liberal wing of the Labour party dominates in parliament, this ambitious position has also been abandoned.

Green Party

In its electoral platform for 2019, the Green Party suggested a Green New Deal based on combined investments of over £100 billion per year, with the goal of leading the UK to zero emissions by 2030. It included providing subsidies to industry for decarbonisation, as well as offering extensive financing for professional training with necessary skills, in order to create millions of new jobs. These jobs were to be created in renewable energy, transportation, land usage, and other sectors that would be transformed by the transition to a zero emission economy. The GND also had the goal of transforming the food and agricultural system, and facilitating a transition in which jobs would be retained, while new, green employment opportunities would be created (Green Party 2019a, 7–8). It also provided for energy renovations of residential and other buildings. The millions of new jobs it aimed to create would be high-quality jobs, well-paid and secure, and would be distributed throughout the entire country, with priority given to communities that had been most affected by economic changes in past decades (Green Party 2019a, 13, 18). The added annual investment in professional training (including new training professions) under the plan would be 2 billion £, and would primarily be paid out to local administrations, which would, in turn, decide how to spend the money in order to give their residents access to new employment (Green Party 2019b, 19). It stipulated that a more comprehensively financed plan for agriculture, with funding, new land division and distribution, and professional training programmes would facilitate a conversion to ecological agriculture within ten years, associated with efforts towards food sovereignty, building up local food systems and markets, where the production and sale of food would primarily be in the hands of workers and communities (Green Party 2019b, 21, 41). The programme did not expressly use the term sustainable employment, however, the wide-ranging transformation, the use of concepts such as sustainable and the just transition, and the way employment is characterised in the GND do touch on many aspects of sustainable employment.

6.4.2 Trade unions

British trade unions have been active in the area of green jobs intensively for many years. The trade union TUC has over 6.6 million members and 52 member unions (Greener Jobs Alliance 2020). The trade union professional training institution, TUC unionlern, published an initial comprehensive report on trade union initiatives in this area in 2012. Unionlearn itself supports member unions in funding training services, campaigns, and partnerships, in order to advance the agenda of a green economy and develop a trade union policy for a green agenda (Cedefop 2018d, 28). The University and College Union (UCU) has formed the Greener Jobs Alliance to back a training strategy focusing on green skills. The Greener Jobs Alliance funds local and regional trade union initiatives, with the goal of influencing educational activities through this funding. In 2013, it also passed a Green Skills Manifesto (Greener Jobs Alliance 2013), followed by a joint declaration with environmental associations and trade unions in 2018 to promote a just transition and concrete regulatory measures to support this (Greener Jobs Alliance et al. 2018).

The Trade Union Congress - TUC

The just transition is a central concern of the TUC. Its efforts on the issue are embedded in the call for an ecological transformation of the economy and society. This means that the association, as it expressly states in the trade union campaign plan for 2019-2020, advocates for an industrial plan that addresses regional inequalities, that ensures good, sustainable, and well-paid jobs throughout the country, and that tackles the climate crisis. The campaign backs a national and regional just transition commissions. The TUC works to shorten working hours, with a just transition to new technologies and the right to flexible working hours from the first day. All employers should be obligated to publish all jobs as such as well (TUC 2019b, 5, 7, 8). The TUC always argues in favour of extensive infrastructure measures, and for the expansion of nuclear power (TUC 2020, 4). However, the latter is heavily disputed within the TUC as well, making the TUC as a whole seem incoherent.

The TUC criticises governmental plans, since they do not mention a just transition. It participates in alliances with environmental associations, is also heavily focused on social partnership, and always works to involve employers on all levels. It demands that the government implement an approach based on social partnership (TUC 2019b, 5). It states that a successful just transition will only be possible if the state becomes more active in this area: "Without an active state that is willing to set market ideology aside and work with people and cities towards a common goal, the crisis will only deepen, harming British industries and many of the towns and cities that depend on them (TUC 2019a, 5).

The TUC estimates that 1.24 million jobs could be created from governmental investments of £85 billion in clean energy infrastructure. The organisation states it is essential that employees have a right of co-determination. If they had a true right of co-determination, then plans could be agreed with the government and companies to ensure job security and protect the quality of employment. This would improve local approval, and measures could be implemented more quickly due to higher levels of acceptance (Keating 2020; TUC 2020, 4).

The TUC calls for a sustainable industrial policy on the national level, focused on creating high employment standards, and supplemented by regional, sub-regional, and local planning levels, as well as comprehensive collaboration between companies, administrations, and trade unions. Involving representatives from the communities and the workforce could help ensure the new infrastructure would be created for the good of the communities. Regional and local administrations, it states, would also have to work together with trade unions to ensure that each investment programme was accompanied by a plan for good work, and that each infrastructure project included employment and professional training opportunities for the local population (TUC 2020, 4).

In order to achieve a just transition that overcomes inequality and that reaches all employees: "Men and women, young and old, black and white, in the global North and South", the TUC outlined four basic principles in July of 2019: a clear path to a low-carbon economy; employees must be in the centre of developing plans; all employees should have access to measures to improve their skills; and new jobs must be good jobs (unionlearn 2020, 8).

Upon closer analysis, the TUC is impacted by a variety of sector-specific interests and political alignments that result in it making contradictory statements in some cases. The Public and Commercial Services Union (PCS), which is part of the TUC and the campaign for a million climate jobs, works for a just transition and energy democracy. The PCS is against gas and nuclear power, although the TUC calls these an important part of the energy mix of the future (PCS 2017, 17). In

addition, the PCS clearly states "we will only achieve an energy transition by ending the capitalist basis of the energy system and the inequality and injustices that go hand-in-hand with it" (PCS 2017, 27).

6.4.3 Building a Just Transition: Alliances between trade unions and the environmental movement

In 2009, the Campaign against Climate Change trade union section, alongside the Bakers, Food and Allied Workers Union (BFAWU), Communication Workers Union (CWU), Fire Brigades Union (FBU), National Union of Students (NUS), Public and Commercial Services Union (PCS), Transport Salaried Staffs Association (TSSA), Unite, the union (UNITE) and the University and College Union (UCU) published an initial, 70-page plan to create a million climate jobs. It suggested a series of different measures. It stated that, with sufficient political will and investments, jobs could be created in building wind turbines, energy efficiency renovations of homes and public buildings, and the construction of an integrated transportation network for local and long-distance transportation operated using renewable energy (PCS 2017, 26). The plan speaks out against the kinds of numbers games often played in governmental arenas: "We want a million new jobs. We don't want to add up existing jobs and new jobs and say that now we have a million climate jobs. We don't mean jobs that will be 'created' by some mysterious market process by 2030" In addition, the campaign by British trade unions emphasises an important distinction: „'Climate jobs' are not the same as 'green jobs'. Some green jobs help the climate, but 'green jobs' can mean anything– park rangers, bird wardens, pollution control, or refuse workers. All these jobs are necessary, but they do not stop climate change. Climate jobs are jobs that lead directly to cuts in emissions of greenhouse gases, and so slow down climate change" (Neale and Campaign against Climate Change 2014, 4)

The Greener Jobs Alliance (GJA) has existed in the UK since 2010, as a confederation of trade unions, student organisations, environmental associations, campaign groups, and a policy think tank that back a just transition. The founding members of the GJA are the UCU, the TUC, Greenpeace, Friends of the Earth, the National Union of Students, People & Planet and the Institute of Public Policy Research. In 2013, the GJA published a Greener Skills Manifesto which establishes a variety of requirements for a low-carbon skills strategy. These include, for instance, a long-term strategy for employment and professional training, in contrast to the current short-term strategy; partnerships with civil society on both national and local levels to promote employment, job opportunities, and inclusion; and the participation of employees and workers in commissions on the opportunities for and threats facing employment in all economic sectors (Greener Jobs Alliance 2013).

The Greener Jobs Alliance calls for a just transition based on supporting the communities most heavily impacted by industrial transformation through local investment in new employment and skills, with the goal of building up local supply chains. It calls for the government to include the principles of a just transition in all of its programmes and plans, in particular in the obligation to implement the Paris Climate Accords, and to form a national just transition commission. It also calls for the government to enact laws to ensure that employees are represented appropriately on the local level, and that they have a right of co-determination in trade unions on all decisions regarding the economic restructuring that will take place.

Local associations: The Low Carbon Task Force in Yorkshire and Humber
Due to the industries and energy generation located in the area, Yorkshire and Humber is the region of Britain with the highest greenhouse gas emissions. The TUC established a joint commission there in April of 2018, consisting of representatives from existing industries, trade unions, local enterprise partnerships (LEP, corporate alliances that work to obtain funding and investment), an environmental associations such as the local Sheffield Climate Alliance and Friends of the Earth. The goal is to involve everyone in a just transition and mobilise resources for the transition. They state that the region has already achieved success in the past through collaboration between workers, trade unions, and companies, such as changing the types of fuel used, making energy-efficiency modifications, and implementing new industrial processes and professional retraining programmes. They emphasise that existing industries in the region with high levels of CO2 emissions, such as the chemical, cement, and steel industries, will require new investment. The TUC does, however, express concern that neither the industry strategy nor the strategy for clean growth from the British government mentions the need for a just transition (TUC 2018).

6.5 Preliminary conclusions

Climate policies in the UK can be summarised by stating that there is strong, non-partisan support for wide-ranging targets to reduce greenhouse gas emissions. When the targets were increased in 2019, this met with little resistance (Labour and the liberal democrats even called for further increases), however politicians resist discussing how these targets are to be achieved (Willis 2020). However, the UK always represents itself as a pioneer in climate protection. The different governments, especially the conservatives who have been in power for the last ten years, have adorned themselves with ever more ambitious climate protection targets. However, the targets - which are criticised even in studies commissioned by the government as insufficient - are never achieved in most areas. The Climate Change Act passed by a Labour government in 2008, and the stricter climate targets and plans passed by conservative governments, are legally binding - however none of these resolutions indicates who should ensure they are complied with, should the government fail to meet its obligations. A legal suit could be filed on this basis. British courts have shown that they are certainly willing to make decisions on these matters. The labour court declared in February of 2020 that the government's decision to expand the Heathrow airport was illegal (Shepheard 2020b). However, such a suit would take a long time, and the outcome would be uncertain. In general, as well, maintaining nuclear power and the stated intention to expand nuclear energy and build nuclear fusion reactors, as well as classifying jobs in the nuclear sector as green jobs represent a complete distortion of any concept of an energy transformation, environmental protection, or sustainability. The government's policy is focused wholly on fulfilling or anticipating the needs of private industry, since investigations do not consider private business capable of identifying these needs itself. The goal is to position the UK as a global leader, focused on services and high-tech exports, as well as a financial hub that conforms to international low carbon goals. However, sustainable work is rarely addressed in the UK government's programmes and discourses. Aspects of good work and the quality of work are likewise not mentioned, except for the often repeated goal of creating "good jobs". There are, however, no criteria or measures to do so, nor any intention to set out a legal framework for this.

A study by the Institute for government found that "government should be under no illusion about the difficulty of its target, and of securing the public support needed to meet it" (Sasse et al. 2019).

In light of past experience and results, any hope that the policies that have been set forth will be successful is completely unfounded; what is worse, these policies appear to be nothing more than a programme to subsidise business with no intention of achieving climate targets. Under these policies, the labour market will be further deregulated, regional inequality will increase, and wages will continue to drop. The policies of the Scottish government are quite different from these, and deserve closer consideration.

Debates regarding a just transition, definitions of good work, or stricter criteria for good jobs are promoted most intensively by environmental movements and trade unions. However, the concept of sustainable work as such does not appear in these. Discussions instead focus on a just transition and good work, although this is defined more or less widely in different contexts, with aspects of sustainable work being included to varying extents. However, trade union policies are also contradictory. On the one hand, they place great value on coalitions with environmental associations, social movements, and local initiatives. On the other, however, they also always promote and seek out the involvement of and close collaboration with employers and industrial companies. Whether it is possible to implement a sustainable ecological transformation of the economy and society through harmonious collaboration with private companies is doubtful. As the TUC simultaneously calls for a massive expansion of infrastructure, an industrial growth strategy, and the expansion of nuclear energy as integral parts of a zero emissions strategy (TUC 2020, 4), in reality any ecological sustainability at all is doubtful, as is any prospect for long-term coalitions and strategies with environmental associations and many social movements.

One central question in terms of the UK is what consequences Brexit will have on its environmental policies, green jobs, and sustainable employment. Before Brexit, many sides expressed fears of drastic deterioration. The UK was considered problematic in terms of environmental concerns even before it joined the EU. However, once in the EU it often took the initiative in passing environmental laws. Despite this, it implemented laws and regulations itself in 80 percent of cases only as a consequence of or adoption of EU regulations. Brexit proponents often argued that EU environmental, social, and labour laws were too strict, and would negatively impact the UK's capacity to compete on the global stage. Climate protection was a central area of dispute during Brexit negotiations. At first glance, it plays a key role in the Brexit withdrawal agreement. Climate protection outlined therein certainly does not fulfil the standards for EU membership, however it is still one of the most wide-ranging programmes for climate protection set forth in a trade agreement.

The parties to the agreement committed to continued close, long-term collaboration on climate protection issues. Both partners stated they would “strive” to increase climate protection beyond the stipulated 40 percent reduction in greenhouse gas emissions by 2030 (in the meantime, the EU has resolved a target of 55 percent and the UK 68 percent), and confirmed their “ambition” of achieving full CO2 neutrality for their economies by 2050. If the EU or UK fail to meet their own obligations under the *Paris Climate Accords*, the entire Brexit trade agreement could be abandoned. However, the devil is in the details. An “ambition” is much less binding than the original formulation of a “target”; the environmental standards of both partners may not fall behind EU standards at the time of Brexit - however, suit can only be filed in this respect if the weaker standards have verifiable consequences on trade or investment. The British Institute for Public Policy Research noted on this point: “Given it is notoriously difficult to prove that any lowering of protections affects trade or investment, the deal is unlikely to prevent the UK government from weakening EU-derived labour and environmental policies if it so chooses” (Morris 2020, 2). The conflict resolution mechanisms set forth for all other areas of the Brexit agreement explicitly do not apply to the

environment or sustainable development. Therefore, it is unclear how any environmental or climate targets are to be implemented, as only consultations involving experts are required should the contract be breached. These will then issue non-binding recommendations – and only if there are impacts on trade and investment (Gabbatiss 2021).

Brexit also means the loss of EU financing, which results in a risk that the financing available for energy efficiency programmes will drop (Turner et al. 2020, 8). Thus far, no concrete measures have been created to make up for this loss.

7. Sweden: Initial situation, policies, debate, and actors

Arctic, sub-Arctic, and alpine regions are seeing temperatures rise at the fastest rates. Scientific scenarios assume an increase of 0.4°C per decade for Sweden and Scandinavia (Climate Change Post 2021c). A heat wave in the summer of 2018 caused extensive wildfires, making clear the urgency of climate change. Other consequences are likely to include greater warming of the Earth's oceans, rising sea levels, and changing wind patterns.

Sweden boasts that it has comprehensive and wide-ranging climate policies. It has continuously lowered CO2 emissions each year for many years. The energy system (except for car, air, and shipping), is already mainly decarbonised. The country is a leader among the EU28 in terms of its percentage of renewable energy in relation to total energy consumption, and fulfilled the EU targets for renewable energy in 2020, eight years before the date stipulated by the EU. Sweden plans to reduce its CO2 emissions to zero by 2045 (van Rooijen et al. 2019a, 2). However, it still uses nuclear energy extensively to do so, although it resolved in 1980 to halt use of the technology by 2000. This date was first pushed to 2010, and then ultimately revoked altogether. Nevertheless, many operators of nuclear power plants have shut down operations. In 2020, only eight reactor blocks were still in operation at three locations (IRENA 2020, 9).

From October 2006 to October 2014, the country was governed by conservative governments led by Prime Minister Fredrik Reinfeldt of the bourgeois-conservative and economically liberal Moderata Samlingspartiet (through 2010 as a majority government with three other conservative parties, and then as a minority government). Minority governments are common in Sweden. The government is generally formed by the strongest block. After the bourgeois-conservative block lost its majority, social democrat Stefan Löfven led a red-green minority government beginning in 2014, which then narrowly retained its hold on power in 2019. The social democrats lost around three percent in 2018, to receive 28.3 percent of votes, while the Greens lost 2.5 percent of votes, for a total of 4.4 percent. The red-green minority government is tolerated, for instance by the Vänsterpartiet (left-leaning party) (8 percent).

At first glance, differences among the various environmental policies are not particularly significant. Climate measures and plans have been supported by almost all parties in recent years. Even the Greens in government are not urging the elimination of nuclear power. This is primarily because all Nordic states, except for Denmark, are highly industrialised, and that their economies and a majority of jobs are dependent on energy-intensive industrial production, with an energy consumption per GDP unit higher than the OECD average. Wide-ranging changes in electricity and heating supply, efficiency, and transportation are expected, but only minor changes in the industrial sector (Sovacool 2017, 576). Relationships between employers and employees are based on a concept of social partnership.

Experiences in recent years, however, raise doubts regarding the effectiveness of measures enacted against climate change. The rise of Greta Thunberg, who has inspired a national and international movement, has clearly demonstrated that even Sweden’s measures to fight climate change are insufficient.

There is no discourse surrounding green jobs. The primarily neo-liberal, depoliticised debate regarding employment and the transition to an ecologically sustainable society is characterised by discourses on highly qualified employment and cutting-edge technology. Terms like sustainable

work are not used at all in public debates, nor by trade unions. In reality, employment plays only a minor role in transitional processes.

7.1 Statistical data on the economy, population structure, and employment

7.1.1 Population (overall population and age structure 2020)

In 2020, Sweden had 10.1 million inhabitants. With 20.3 percent of its population over 65 years of age, Sweden is in the middle of nations investigated. With a comparably high percentage of 10-24-year-olds, and above all of 0-14-year-olds, and 62 percent of the population being 15-64-year-olds, the population is not expected to age excessively rapidly.

Total population (in millIons)	Annual population growth %	Population structure (age)			
		0-14 (%)	10-24 (%)	15-64 (%)	65 + (%)
2020	2015-2020	2020	2020	2020	2020
10.1	0.7	17.6	16.5	62	20.3

(UNFPA 2020, 146)

7.1.2 GDP, economic growth, and economic structure

Sweden's per capita GDP has grown continuously since 2011, and in 2018 was US$ 53,808, third place among comparable nations after Norway and the Netherlands. Economic growth between 2011-2018 was always above two percent, except for a moderate drop of -0.6 percent due to the crisis in 2012, and increase of 1.1 percent in 2013, peaking at 3.1 percent in 2011 and 4.4 percent in 2015. Most recently, the growth figure for 2018 was 2.2 percent. The sectors responsible for value creation were comparatively well-balanced and distinct, with public administration, defence, education, health, and social work making up the largest share at 21.3 percent (relatively constant since 2012), followed by 18.7 percent for industry including energy (constant since 2013), and trade, repairs, transportation, and hotel and hospitality at 17.7 percent (constant since 2011). There has been constant, moderate growth, in contrast, since 2011 in the professional, academic, and support services sector, which made up 11.6 percent in 2018 (OECD 2020h).

7.2 Workforce, employment, and labour market

7.2.1 Labour market data

Table 1. Labour force

Annual average estimates

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Labour force, thousands										
All persons	4 950	5 017	5 061	5 116	5 184	5 225	5 279	5 383	5 444 |	5 508
Males	2 621	2 646	2 661	2 688	2 726	2 737	2 765	2 826	2 853 |	2 887
Females	2 329	2 372	2 400	2 429	2 459	2 488	2 514	2 557	2 591 |	2 620
Unemployed, thousands										
All persons	426	392	404	412	412	388	369	362	346 |	376
Males	228	207	219	220	223	207	203	197	185 |	194
Females	198	184	185	192	189	181	166	165	162 |	182
Employment, thousands										
All persons	4 524	4 626	4 657	4 704	4 772	4 837	4 910	5 022	5 097 |	5 132
Males	2 394	2 438	2 442	2 468	2 502	2 530	2 562	2 629	2 668 |	2 693
Females	2 130	2 188	2 215	2 237	2 270	2 307	2 348	2 393	2 429 |	2 438
Employment (%)										
Males	52.9	52.7	52.4	52.5	52.4	52.3	52.2	52.4	52.3 |	52.5
Females	47.1	47.3	47.6	47.6	47.6	47.7	47.8	47.6	47.7 |	47.5
Unemployment rate (% of labour force)										
All persons	8.6	7.8	8.0	8.1	8.0	7.4	7.0	6.7	6.4 |	6.8
Males	8.7	7.8	8.2	8.2	8.2	7.6	7.4	7.0	6.5 |	6.7
Females	8.5	7.8	7.7	7.9	7.7	7.3	6.6	6.4	6.2 |	7.0

(OECD 2020p, 1)

The number of working-age citizens has increased slightly each year. The unemployment rate, meanwhile, dropped moderately from 2010 to 2019, from 8.6 percent (2010) to 6.4 percent (2018). The youth unemployment rate (15-24-year-olds), however, is comparatively very high. It was between 24.8 percent (2010) and 17.4 percent (2018), and was most recently 20 percent in 2019.

Table 2. Unemployment rates by age

Annual average estimates, percentage

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
All persons										
15-24	24.8	22.8	23.7	23.6	22.9	20.3	18.9	17.8	17.4	20.0
25-54	6.4	5.7	5.9	6.1	6.0	5.8	5.5	5.3	5.1	5.3
55-64	5.8	5.2	5.2	5.1	5.4	5.3	5.3	5.1	4.4	4.6
65 and over	2.0	2.0	2.5	1.9	2.8	2.3	2.3	2.8	2.7	2.4
15-64	8.7	7.9	8.1	8.2	8.1	7.6	7.1	6.8	6.5	6.9

(OECD 2020p, 2)

The workforce increased from 4.524 million in 2010 to 5.132 million in 2019, or by around 13 percent. Employment growth was seen primarily in the service sector. Employment in the industrial sector increased from 898,100 to 940,200, while it increased in the service sector from 3.531 million to 4.105 million. The ratio of employment between industry and service is 1:4.37. Despite slight fluctuations, there is a clear downward tendency in agriculture, hunting, and forestry (from 94,800 in 2010 to 86,200 in 2019). Employment development in the industrial sector, however, differs from that in all other comparable nations. Employment in the construction industry increased by around 20 percent, from 302,300 in 2010 to 360,500 in 2019. It dropped in the manufacturing industry from 544,800 to 513,000. Employment growth in electricity, gas, steam, air conditioning (from 23,300 to 30,800), and in water supply, waste water, waste management, and

avoidance (from 19,200 to 26,200) was not quantitatively significant, though these figures did represent significant growth by percentage. (OECD 2020p, 3).

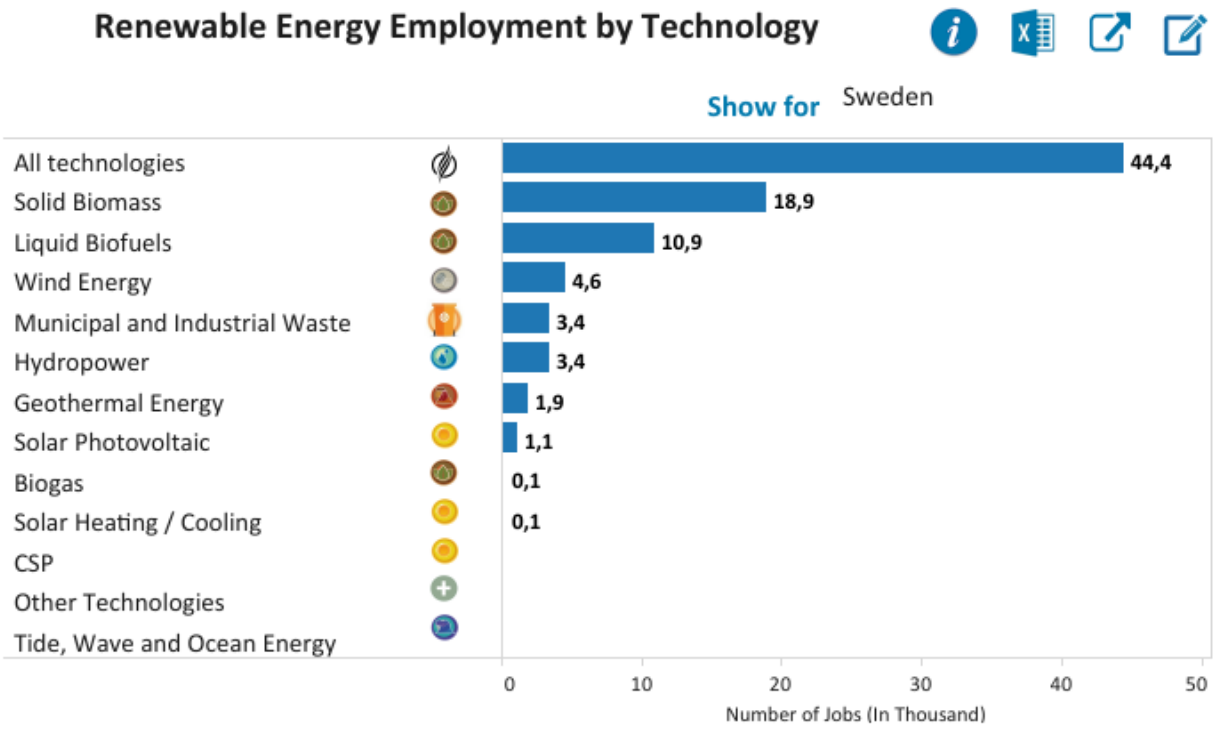
Employment grew in all sub-segments of the service sector (no separate data is collected in Sweden for employment in private households and activities for own use). The information and communication sector saw the largest growth in employment at around 40 percent (from 175,000 to 255,200); culture, entertainment, and recreation saw just a slight growth (from 111,800 to 140,400); followed by public administration, defence, and social insurance systems, with an increase of around 35 percent (from 270,600 to 366,400); then professional, academic, and technical activities (from 348,900 to 443,800); the real estate sector (from 64,100 to 82,500); education with employment growth of around 22 percent (from 488,000 to 586,100); administration and support services (from 197,200 to 223,800); human health and social work (from 700,200 to 762,600) and other services (from 115,300 to 129,500). The lowest percentage of employment growth was seen in hotel and hospitality (from 153,600 to 164,800); wholesale and retail, vehicle repair (from 553,500 to 572,600); finance and insurance (from 95,900 to 100,700) and transportation and storage (from 243,300 to 247,600). The data indicates that employment growth in Sweden took place in different service sectors, in many cases, than in comparable nations in the study. Growth in the public sector and in education, in particular, are notable. (OECD 2020p, 3).

7.3 Green Jobs

Sweden took fourth place in the 2019 EU28 Eco-innovation scoreboard. Since the rating system for eco-innovation capacity was introduced in 2010, Sweden has always been among the top five countries. Sweden achieves above average results for most criteria. However, in particular with respect to socioeconomic results, and above all in employment in "eco-industries", Sweden is well below the EU28 average at just 56 points (with 100 as the average value, and Finland and Luxembourg taking the top spots at 478 points). This could indicate that the aspect of employment has been neglected in the transition to a CO2 emission-free economy and society. It could also be an explanation for the high youth unemployment rate, despite the very good eco-innovation balance (European Commission 2020). Investments in R&D have not translated into a significant green employment sector. In 2018, 66,804 workers were employed in green jobs in Sweden (Sweden does not count nuclear energy jobs among these), representing around 1.3 percent of total employment, a growth of 724 workers over 2017.[27] Renewable energy and waste management both employ around 13,000 workers, and are the areas with the highest employment in green jobs (Statistics Sweden 2021).

[27] The percentage was calculated based on OECD figures. Other sources (van Rooijen et al. 2019a, 9) indicate lower percentages, but the reason for this is unclear.

7.3.1 Employment in the renewable energy sector



Source IRENA jobs database. Figures provided are the result of a comprehensive review of primary information sources by national entities such as ministries and statistical agencies, and secondary data sources such as regional and global studies.This is an ongoing effort to update and refine available knowledge. Totals may not add up due to rounding.'Other Technologies' include jobs which are not technology specific.

(IRENA 2020b)

In 2017, 39 percent of Sweden's energy came from nuclear power, 40 percent from hydropower, eleven percent from wind energy, and ten percent of electricity and heat primarily came from other renewable energy sources. Wind energy has developed into one of the fastest growing renewable energy technologies in recent years (IRENA 2020, 9). Sweden promotes renewable energy in several different ways. On the one hand, it does so through energy certificates (jointly with Norway up to 2020), and on the other hand through providing comprehensive funding for R&D in the renewable energy sector. With 2.7 percent of GDP dedicated to R&D, investments in research in Nordic countries (except for Norway, that invests only 1.7 percent) are well above the EU average of two percent (Irandoust 2018, 88). Alternative generators of renewable energy, mainly cooperatives, have existed in Sweden since the 1980s. These grassroots initiatives are not as widespread in Sweden as in the Netherlands, for instance, however there are 81 wind energy cooperatives, producing around 10 percent of total wind energy, as well as six existing solar energy cooperatives and four currently being developed. there are also 25 eco-villages and new rural communities with their own renewable energy systems (Kooij et al. 2018, 58).

7.3.2 Public policies and measures

In 2009, Sweden resolved to reduce greenhouse gas emissions by 40 percent by 2020 compared to 1990 levels in areas not included in the trade of EU emissions certificates as part of its "Integrated climate and energy policy". They achieved this goal, meaning that Sweden exceeded its obligations in the EU context, which required a reduction in emissions of 17 percent compared to 2005 levels by 2020. However, they did so by investing in projects to reduce emissions in other countries, and not by actually reducing emissions in Sweden (Bruhin, Dinges, und Ackva 2018, 9; CPC 2020, 6–7).

Sweden is a leader in Europe on R&D and eco-innovation, which are a key component of the strategic focus of its environmental policies. This primarily involves new technologies in "bio-energy, smart grids, green buildings, waste management and recycling, green vehicle technologies, hydro resource management, marine energy, and solar energy" (van Rooijen et al. 2019b, 2). Almost a million of the slightly more than five million employees in Sweden work in industry. At the same time, industrial products make up the majority of the country's exports. This, alongside with the ageing of Sweden's population - which is not excessively fast compared to other European countries but which is occurring - and the challenges of climate change are considered grounds by the government to focus strongly on promoting industrial innovation (MEI und GOS 2016, 2).

With respect to employment, all of the parties and the government continuously declare that the ecological transition should create new jobs, however at first glance the concrete initiatives to do so seem modest, apart from the funding granted for innovation and research. Only 224 million SEK (approx. 22.3 million Euros) were provided in the 2021 budget to support local and regional employment for a green transition (Socialdemokraterna 2020).

7.3.2.1 The Climate Act as a framework for climate policy

On 15 June 2017, the Swedish parliament passed the Climate Act, developed by a multi-party commission, with the approval of almost all parties as a framework for Swedish climate policy. It stipulates the goal of reducing greenhouse gas emissions to net zero by 2045 at the latest, and actually achieving a negative balance after that date. The Climate Act also sets forth intermediate targets. These goals are more ambitious than EU resolutions and Sweden's obligations within the EU. The Climate Act went into force on 1 January, 2018. After it was passed into law, governmental policies were required to be based on the targets formulated in the Climate Act, and to reflect the current status of scientific knowledge. The goals of the national budget must conform to the goals of the climate policy. The government is also required to present a climate report each year with the national budget. Every four years, a comprehensive evaluation and explanation must be conducted for how climate targets are to be achieved, and a Climate Action Plan must be submitted for this purpose (Bruhin, Dinges, und Ackva 2018, 5, 14; CPC 2020, 6–7; GOS 2017).

The Climate Act also created the independent Climate Policy Council (CPC). This interdisciplinary expert body is tasked with independently evaluating the climate policy and providing assessments on the extent to which this conforms to the climate targets. To do so, it issues an annual report on the progress in fighting climate change, the development of emissions, and the effectiveness of government policies . The CPC also reviews and comments on the government's Climate Action Plan, after which the government is required to answer its critiques within three months of the

evaluation. The CPC has a mandate to evaluate and comment on all policies which it considers relevant in the course of the fight against climate change. The council cannot enforce any legal measures against the government (Bruhin, Dinges, and Ackva 2018, 5, 14). However, the hope that it would still be able to increase public pressure on the government and increase accountability has not come to fruition. The council does have a mandate to enter into direct discussions with parliament, however the parties in government seem to agree that vehement critiques from the CPC should simply be ignored. Since it was established, its annual reports have declared that the government's policies are insufficient to achieve climate targets beyond 2020. Accordingly, it considers the government's reports and plans to be incompatible with statutory requirements (CPC 2020, 6–7).

7.3.2.1 Smart industry, industrial strategy, need for trained professionals and vocational training

The 2016 industrialisation strategy explicitly lists forestry as a key sector, since it is capable of supplying industry with renewable materials and fuels. In addition, it states that the vehicle industry should provide more sustainable means of transportation, and that the information and communication industry should create the connections that make a smart society that is able to use resources efficiently possible (MEI und GOS 2016, 2). Actual, sustainable forestry is growing rapidly; however, as statistics show, the number of jobs created through this growth is very marginal, with just over 500 jobs existing in the sector (Statistics Sweden 2021).

The industrialisation strategy outlines four key points: Industry 4.0 to facilitate a digital transformation of industry; sustainable production through more efficient use of resources and increased environmental criteria, which should generate new jobs and increase competitiveness; increasing industrial capabilities by making scientific and engineering degree and training programmes as well as re-training programmes and lifelong learning more attractive; and finally promoting R&D in areas that will increase the industrial production of goods and services. In general, the needs of the industrial sector should be better matched by education and training on all levels. The goal here is to meet the as yet unmet need for highly trained professionals, counteract the fact that poorly trained workers have difficulty finding work, and the expectation that a large percentage of less trained workers will require retraining and continued education in the future (MEI und GOS 2016, 3; Skolverket 2020a, 7, 25).

In order to facilitate the transition to new employment, Sweden has “Job Security Councils” to which employers pay contributions. Employees with full-time, permanent jobs who lose those jobs due to mass layoffs and who were employed for at least one year receive funding, training, and support to find new employment. These measures begin before the end of the employment relationship. This does actually ease the transition for many workers. However, the OECD Sweden recommended as early as 2018 that this support be expanded to all persons who lose their jobs, since the restrictions would not apply to those in the weakest social position, who need the most support (Skolverket 2020b, 25). The fact that the entire educational system is aligned to the needs of industry is also questionable. It certainly does make sense to prepare for the requirements of professional life. However, how to align education should not be determined wholly by the needs of industry. Ultimately, it is important and necessary that decisions about how to design society, as well as the focus, meaning, and purpose of production and work should be more often the result of a democratic, society-wide process than they have been in the past.

7.3.2.3 Circular economy

Sweden's circularity rate in 2018 was very low, at 6.7 percent. What is worse, it has been higher in every year since 2010, with the exception of 2014, (peaking at 7.5 percent in 2011) (eurostat 2021a). The Swedish government announced in 2017 that it wanted to develop a strategy for the transition to a bio-based circular economy. However, no concrete strategy followed this announcement (CPC 2020, 63). There are initiatives to implement a circular economy in some Swedish municipalities, such as in Umeå, the fastest growing urban centre in Northern Sweden, which is slated to double its population by 2050 to 200,000. Because of this, a large number of new residences and associated infrastructure will be created here. Umeå's strategic plan for the city for 2016-28 is designed to make it a leader in implementing the circular economy. The initiative was created by the city administration, but is built primarily on cooperations with companies and initiatives, with the support of private, and especially university-based, research. Collaboration is carried out through a variety of initiatives, from the "Circular Economy Business Accelerator North Sweden", a corporate platform for collaboration, to the "Green Umeå" network, which supports sustainable local projects for an ecological transition, sustainable mobility and a sharing economy. Projects promote, for instance, "renewable energy, the reduction of food waste, clean mobility, and the use of recycled materials in construction" (OECD 2020s). Umeå is an important industrial area, with a Volvo truck division plant and the company headquarters of Ålö AB, an agricultural machinery manufacturer specialising in front loaders. Therefore, how far the planned conversion to a circular economy can actually progress is questionable.

7.4 Criticism and other actors: Parties, trade unions and environmental associations

Greta Thunberg has demonstrated on an international stage that Sweden's climate policies still leave plenty of room for critique. Climate protests are held regularly in Sweden at her initiative, along with a broad Fridays for Future movement. However, there were already environmental associations in Sweden engaged in tough litigation against the country's climate policy and carrying out campaigns before she came to the forefront. Alliances, however, were not formed between environmental movements and trade unions, like those that exist in many other European countries. The cause for this likely lies in the model of social partnership.

There certainly are enough reasons for a broad-based movement. In addition to the insufficient climate policy, with the red-green government not even fulfilling its own framework guidelines established under the Climate Act (CPC 2020, 6–7), the Swedish model is not based on any concept of a national or international just transition. There are few policies in Sweden for replacing the jobs that will be lost, especially not lower qualified jobs. The government's chosen path focuses mainly on highly qualified jobs, and plans show little concern for the unavoidable victims of the transition – people who will lose their jobs in sectors like coal, oil, gas, or in the future perhaps even nuclear power. Poor and lower middle-class individuals will not be able to make the private investments needed for the conversion to individual use of solar energy, electric cars, new, expensive electrical devices, energy-efficient home renovations, zero energy homes, etc. that the government pushes; instead, these individuals are at risk of being passed by as the gap between social classes widens. Ultimately, the heavy use of ETF and outsourcing CO2 emissions overseas is not in line with

international climate justice (Sovacool 2017, 578). Extractive policies disadvantaging the Sami population in the country's North are another important dimension. Up to a few years ago, depoliticised environmental surveys and a preference for technological solutions allowed mining to continue almost without any resistance (Anshelm and Haikola 2018).

7.4.1 Parties

Almost all parties in Sweden are in agreement on the country's climate policy. Only the right-leaning radical Sweden Democrats, who garnered the third most votes in 2018 with 17.5 percent, have denied the human role in causing climate change and voted against ratification of the Paris Climate Accords and the Climate Act. However, except for the conservative Moderata Samlingspartiet, which announced in 2017 that it would be working with the Sweden Democrats "on factual matters" in order to make a red-green minority government impossible, all other parties strictly reject any cooperation with them; so it is unlikely that party politics will result in any change to the climate policy (Bruhin, Dinges, and Ackva 2018). Except for the Sweden Democrats, then, the positions of all parties are reflected in the governmental policies presented here. Even the Social Democrats and Greens always affirm that private industry is the central pillar for the transition to a Co2-free economy and society, especially innovative entrepreneurship (Socialdemokraterna 2020; Swedish Green Party 2020, 20). Almost all parties, including the Greens, also agree that the climate targets they all enacted jointly in the Climate Act and the recommendations of the CPC should be ignored.

7.4.2 Trade unions

Sweden is characterised by a strong model of social partnership. 70 percent of employees are organised in trade unions, and by law there must be at least two company trade union members on the supervisory board of any company with over 25 employees (Pellennec 2018a). However, in recent decades the economy and employment relationships have become much more liberalised, with the formation of social partnership hive-off companies. Trade unions, and especially workers, are so strongly ingrained in the Swedish model that they have very little awareness for possible alternatives, nor social mobilisation or alliances with non-institutional forces.

The Swedish trade union association Landsorganisationen Sverigen (LO) works with many of its individual unions to promote greater action by the state, and argues that the market will not be able to manage the challenges that the nation faces alone. Specifically, the LO calls for more "stimulus for infrastructure, digitisation, and the climate. The government should significantly increase state subsidies for renovating and updating Swedish infrastructure, in particular the power grid and digital communication (...) the railways and other traffic infrastructures, as well as energy and climate protection measures, should be granted more funding" (LO et al. 2020).

While some trade union officials focus on integrating policies against climate change into the work of unions, this is often not discussed at all by members, and some officials even oppose this attitude (Lundström 2018a). Among most governing bodies of trade unions, as well, the focus is on social partnership. Johan Hall, research director of the LO, emphasises that the trade union is in continuous dialogue with companies in order to convince them to offer new trainings for their employees. Despite their potentially deviating interests, he states that companies would recognise that they will

also benefit in the long-term from more highly trained employees. No major changes are expected from companies in the metal and steel sector towards a conversion to CO2 production that would create additional qualified jobs (Pellennec 2018b).

Even though trade unions do now seem to recognise that current production methods influence the climate, production relationships as such are not questioned. Apparently, there is no alternative vision for the role of workers and trade unions in the economy and in society among Swedish trade unions. Trade union discourse focuses fully on a "post-political" approach for consensus-building among the government, companies, and trade unions. This approach is similar to the idea for a technological fix. High rates of union membership, extensive integration of trade unions into operational and economic decision-making, and their role as protectors of growth would seem to make it difficult for them to promote active climate policies and enter into alliances with other social forces (Lundström 2018b, 545–46).

7.4.3 Environmental movements

Thanks to Greta Thunberg, a broad-based environmental movement has formed in Sweden that criticises and questions the government's policies. In addition, there are various environmental associations that have grown in importance in recent years. These include, for instance, the Swedish Society for Nature Conservation and Jordens Vänner, the Swedish member organisation of Friends of the Earth. Jordens Vänner, in particular, issues extensive declarations and mobilises for additional climate policies, against trade in emissions certificates and mining in Sami regions, and works for a just transition in Sweden and international climate justice, along with many other issues (Jordens vänner n.d.). In recent years, many circumstances have caused environmental issues to become re-politicised in Sweden (Anshelm and Haikola 2018).

7.5 Preliminary conclusions

As in other Nordic states, the decarbonisation Sweden hopes to achieve will be carried out on a socioeconomic stage, and will build on changes to the technological infrastructure, political regime, and economic structures, among other things. This means that it is dependent on many unknown factors, such as new technological developments, strong political support, and social acceptance (Sovacool 2017, 577). It is not possible, for instance, to infinitely expand wind energy (for instance, due to bird migration routes).

In its 2020 report, the CPC found that existing policies were not sufficient. Emissions dropped by two percent annually between 2003 and 2014, but have slowed since then to less than one percent per year. In 2019, the council found that governmental measures would not be sufficient to achieve targets set beyond 2020. The government set forth 14 measures in its report to parliament in 2019, which went into force that year. However, these were not sufficient to change the CPC's assessment. Therefore, the judgement that climate targets will not be achieved if current circumstances and policies are continued is affirmed. The government's climate report would not even meet statutory requirements; in most cases there are no assessments of the impacts of suggested measures and, when these are included, none of the bases on which they are founded are explained. In addition, the CPC states that the government uses different units and formats in order to assess the

impacts of different measures, making it difficult to compare them and their effects (CPC 2020, 6–7). In general, the government's announcement in the Climate Action Plan that it would cooperate with green industries to develop a bio-based economy strategy for sustainable use of Swedish forests is welcome news. However, the governmental declaration of 2017 announced a strategy for transition to a bio-based, circular economy, then nothing was presented. Therefore, it is important to illustrate what the bio-based economic strategy will look like, and when it will be started (CPC 2020, 62–63).

Apart from in many declarations of intent, the quantity and quality of employment in the sustainable transformation of the economy and society are not a central topic of discussion in Sweden. Despite the analysis of the CPC to the contrary, social partners continue to assert that the force of the market and social partners will manage all challenges through a technological fix. Qualification and employment measures associated with the transition aim to offer retraining and continued education, in order to get workers whose jobs may be endangered ready to meet the demands of the labour market. Within the framework of this limited investigation, I have not been able to identify any redefinition of work, any comprehensive understanding of the quality of work, or even any critical discussion among trade unions, not even from mainstream trade unions. The social aspects of work which trade unions do focus on will ultimately result in shoring up the current economic system and continuing the current social system.

The implementation of neo-liberal policies and ideology within the framework of strong social partnership has led to the depoliticisation of society and a concentration on individual responsibility, paired with a strong belief in progress (Thörn and Svenberg 2016). However, experiences in recent years, especially with the heat wave and growing wildfires in 2018, the movement inspired by Greta Thunberg, and the shortcomings of the Climate Act have caused the climate question to become re-politicised.

8. Norway: Initial situation, policies, debate, and actors

As part of Scandinavia, Norway is heavily impacted by climate change. This is particularly evident in the country's increasing average temperatures, and the shrinkage of glaciers which had been growing up until 1990 (Climate Change Post 2021a). The Norwegian government declares that it is undertaking a comprehensive transition to an ecologically sustainable society – and this is the way the country is presented in the international press. In reality, however, the country's environmental balance sheet and ecological transition are highly ambivalent, and even well behind the already deficient European average in many aspects. Norway does cover almost 100 percent of its electricity needs using renewable energy (Irandoust 2018, 88), and with over 50 percent of new passenger cars registered being electric, Norway is a leader in this area ('Norwegen erreicht E-Auto-Quote von 54,3 Prozent' 2021) – although their benefit for the environment is questionable. However, with natural gas production of around 1.73 million barrels per day in 2019, Norway is Europe's largest oil producer (Statista 2020) and the fifth-largest crude oil exporter in the world. The country's prosperity is founded on exporting crude oil and natural gas, as is its own transition to renewable energy. Profits are invested in a national fund worth over a billion US dollars. Crude oil and natural gas production, and investments in the national fund, are subject to ever-louder critiques. In 2015, the fund divested from coal for the first time, and in 2019 the parliament resolved to divest fully from coal. Almost at the same time the world climate accords were concluded, however, Norway permitted new oil drilling in the Arctic Barents Sea in 2016 for the first time in two decades. In 2019, the government announced that it would be selling oil shares valued at 7.5 billion, but retained its investments in multinational oil corporations (Der Spiegel 2020; Heymanns 2019; Theurer 2019).

The public has become more aware of the issue of sustainable employment only in the last few years. Sustainable employment is not discussed in governmental documents. The public debate speaks of "climate jobs", if it focuses at all on this issue. The discussion surrounding sustainable employment is found primarily in environmental movements, trade unions, and in the church, which have joined forces in a campaign calling for "100,000 climate jobs" (Bridge to the Future 2015a).

8.1 Statistical data on the economy, population structure, and employment

8.1.1 Population (overall population and age structure 2020)

In 2020, Norway had 5.4 million inhabitants. With 17.5 percent of its population over 65, the percentage of older residents is relatively low compared to other European countries. In addition, it has a relatively high percentage of 0-14-year-olds and 10-24-year-olds. Therefore, society is not expected to age with greater than average speed in Norway either.

Total population in milllons	Annual population growth %	Population structure (age)			
		0-14 (%)	10-24 (%)	15-64 (%)	65 + (%)
2020	2015-2020	2020	2020	2020	2020
5.4	0.8	17.3	18.4	65.2	17.5

(UNFPA 2020, 145)

With 0.8 percent population growth, Norway is one of the fastest-growing of the nations investigated.

8.1.2 GDP, economic growth, and economic structure

GDP's per capita GDP was US$ 67,614 in 2018, by far the highest of all comparable nations. This is heavily linked to the crude oil and natural gas sector, which furthermore explains the fluctuations between US$ 66,956 in 2013 and a drop to US$ 58,917 in 2016. These fluctuations correspond to developments in the price of oil. This does have a direct impact on available household income, but less of an effect on economic growth, which was low to moderate, from 1.0 to 2.7 percent between 2011 and 2018 (most recently, the figure was 1.3 percent in 2018). It is no surprise that by far the largest share of this was generated by industry, including energy, which made up 29.5 percent of total value creation, and likewise fluctuated between 24.9 and 36 percent from 2011 to 2018 based on the prices of crude oil and natural gas. Public administration, defence, education, health and social work followed at 22 percent, then trade, repair, transport and hotel and hospitality at 13.4 percent (OECD 2020c).

8.2 Workforce, employment, and labour market

8.2.1 Labour market data

Table 1. Labour force

Annual average estimates

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Labour force, thousands										
All persons	2 592	2 620	2 669	2 694	2 721	2 760	2 768	2 759	2 792	2 819
Males	1 370	1 379	1 413	1 422	1 437	1 461	1 466	1 459	1 480	1 495
Females	1 222	1 241	1 256	1 272	1 285	1 298	1 302	1 300	1 312	1 324
Unemployed, thousands										
All persons	91	84	83	92	95	119	129	115	106	104
Males	55	47	50	51	53	67	79	67	60	59
Females	36	37	33	41	42	52	51	48	46	45
Employment, thousands										
All persons	2 501	2 536	2 585	2 602	2 627	2 641	2 638	2 644	2 686	2 716
Males	1 315	1 332	1 362	1 371	1 384	1 395	1 387	1 392	1 421	1 436
Females	1 186	1 204	1 223	1 230	1 243	1 246	1 251	1 252	1 265	1 279
Employment (%)										
Males	52.6	52.5	52.7	52.7	52.7	52.8	52.6	52.6	52.9	52.9
Females	47.4	47.5	47.3	47.3	47.3	47.2	47.4	47.4	47.1	47.1
Unemployment rate (% of labour force)										
All persons	3.5	3.2	3.1	3.4	3.5	4.3	4.7	4.2	3.8	3.7
Males	4.0	3.4	3.6	3.6	3.7	4.6	5.4	4.6	4.0	3.9
Females	2.9	3.0	2.6	3.2	3.2	4.0	3.9	3.7	3.5	3.4

(OECD 2020k, 1)

At 3.8 percent in 2019, the unemployment rate in Norway is very low, and fluctuates only slightly (between 2010 and 2019, it was between 3.2 and 4.8 percent). In comparison, however, youth unemployment was relatively high at 10.0 percent in 2019, and has remained consistently high between 2010 and 2019, with values ranging from 8.5 to 11.2 percent.

Table 2. Unemployment rates by age

Annual average estimates, percentage

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
All persons										
15-24	9.3	8.7	8.5	9.1	7.9	9.9	11.2	10.4	9.7	10.0
25-54	3.0	2.7	2.6	2.9	3.3	4.0	4.3	3.7	3.4	3.2
55-64	1.4	1.2	1.2	1.3	1.3	1.6	1.9	1.8	1.6	1.6
65 and over	0.7	0.6	0.5	0.7	0.7	0.9	0.9	1.1	0.5	1.1
15-64	3.6	3.3	3.2	3.5	3.6	4.4	4.8	4.3	3.9	3.8

(OECD 2020k, 2)

Employment growth in Norway (from 2.5 million in 2010 to 2.716 million in 2019) was lower than in Sweden, for instance, yet nevertheless notable, since Norway also had a relatively constant unemployment rate. What is unusual is that there is almost no difference in the percentages of growth in employment in the service sector (from 1.955 million to 2.134 million) and the industrial sector (from 492,300 to 526,500). The ratio of employment between industry and service is 1:4.05. Employment in agriculture, hunting, and forestry showed a clear downward tendency (from 63,700 in 2010 to 55,300 in 2019), with minor fluctuations. This means that employment growth in the service sector was less pronounced than in other countries, and employment in the industrial sector was higher than in Sweden. In addition, employment development in the industrial sector did have some specific peculiarities. Similar to Sweden, employment in the construction industry actually increased by 20 percent, from 179,800 in 2010 to 226,900 in 2019, while employment in the manufacturing industry dropped from 236,700 to 209,400. However, Norway had a high percentage of increase in employment in mining (from 45,700 to 61,200, with significant fluctuations and a peak of 76,800 in 2014), seeing a reduction in electricity, gas, steam, air conditioning (from 17,500 to 16,400) and stagnation in water supply, waste water, waste management, and avoidance (from 12,600 to 12,700), a significant contrast with Sweden and all other countries in the study (OECD 2020k, 3).

Employment grew in almost all sub-sectors of the service sector (Norway does not collect separate data on employment in private households and activity for own use), except for in the transportation and storage sector, which saw a significant drop in employment (from 140,100 to 125,200) and finance and insurance (from 52,200 to 49,900). Growth in the other service sectors was more evenly distributed than in Sweden. The biggest growth was seen in the less specific sub-sector of administration and support services, which saw growth of a little over 36 percent (from 93,300 to 127,400) and hotel and hospitality (from 68,900 to 92,700). This was followed by culture, entertainment, and recreation (from 51,600 to 63,500); other services (from 47,000 to 57,100); the information and communication sector (from 91,800 to 107,100); professional, academic, and technical activity (from 137,700 to 159,100); the real estate sector (from 23,800 to 27,900); public administration, defence, and social insurance systems (from 149,700 to 166,900); education (from 208,000 to 230,200); the human health and social work sector, which has an extremely high number

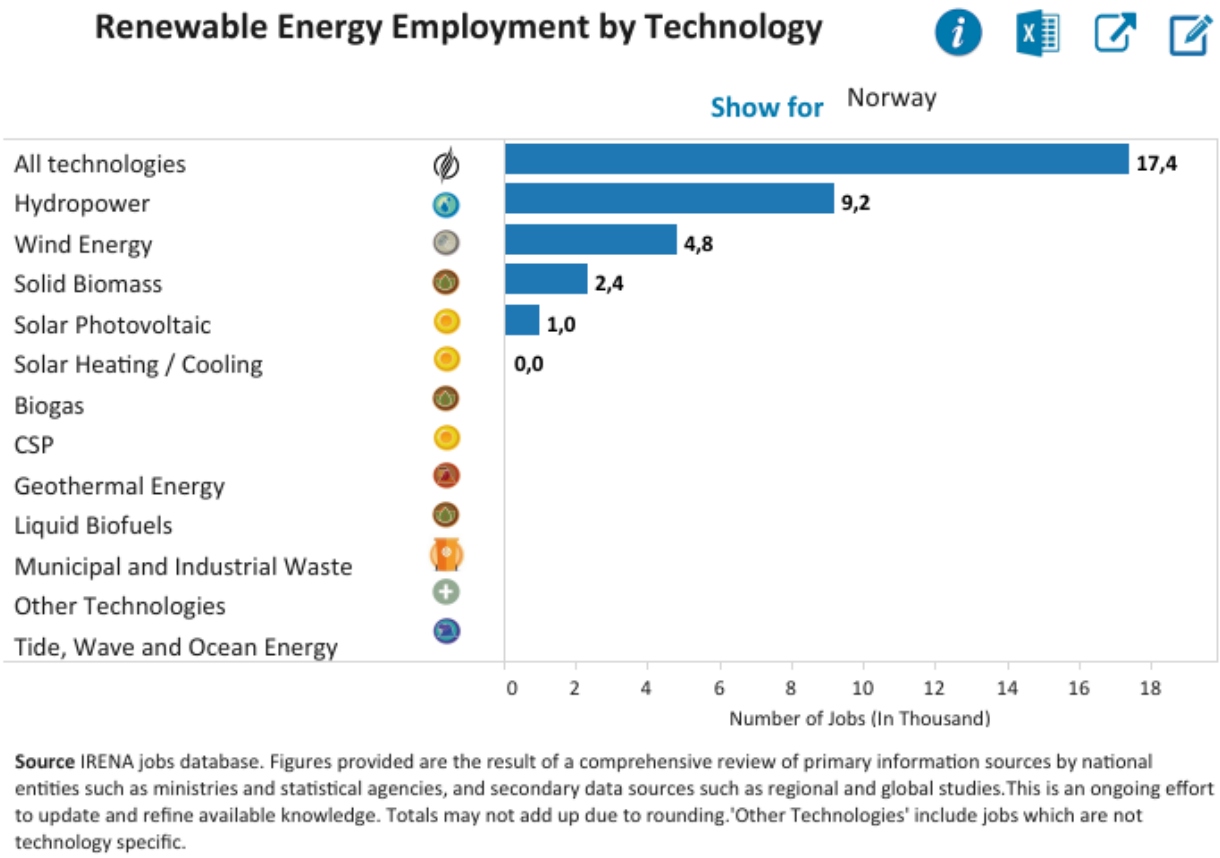
of employees compared to other nations in the study (from 529,900 to 563,800); and finally wholesale, retail, and vehicle repairs (from 346,400 to 357,600). Therefore, there was very little shift between employment in industry and in services, and the shifts within the service sector were less pronounced than in many other countries (and above all in Sweden, which can be compared directly to Norway). In the industrial sector, in contrast, there were clear shifts in employment between different sub-sectors. (OECD 2020k, 3).

8.3 Green Jobs

There is no specific information available on employment in "climate jobs", as green jobs are generally called in official documents. Data is only available on certain sectors, such as renewable energy, along with occasional surveys in affected sectors. The last available survey was from 2013, and counts a little over 37,000 employees in industries involving renewable energy and environmental technologies, of these a little more than 10,000 in electricity distribution and trade, about 10,000 in generating renewable energy (hydropower, bio-energy, wind power, solar energy, and other renewable energies), 9,500 in waste management and recycling, and 6,700 in the environmental technology sector (consulting, environmental measures in industry and transportation, energy efficiency and environmental monitoring) (Gran et al. 2017, 26). Although everyone agrees that Norway has a high potential to create "climate jobs" due to its rich renewable resources, high level of technological expertise, and extensive financial means, there are neither reliable estimates on this nor targets to achieve this goal (except for the "100,000 climate jobs" campaign).

8.3.1 Employment in the renewable energy sector

Norway covered 98 percent of its electricity needs using renewable energy sources in 2016 - 95 percent of this from hydropower, and a small percentage from thermal energy and wind power. The percentage of wind power, however, is increasing (Ministry of Petroleum and Energy 2016). Total employment in the renewable energy sector was around 17,400 workers in 2020. However, this only includes direct jobs. There are also other indirect jobs in this area. Nevertheless, a comparison to the 51,900 employees in the gas and oil industry in 2018 (although this figure has dropped steadily since 2014), clearly shows how many new jobs will be needed in order to move away from fossil fuels altogether. Many of these employees will need extensive re-training. Others, such as engineering firms in the oil industry, have already started to convert to renewable energy sector services (Circle Economy and Circular Norway 2020, 67).



Source IRENA jobs database. Figures provided are the result of a comprehensive review of primary information sources by national entities such as ministries and statistical agencies, and secondary data sources such as regional and global studies.This is an ongoing effort to update and refine available knowledge. Totals may not add up due to rounding.'Other Technologies' include jobs which are not technology specific.

(IRENA 2020b)

8.3.2. Public policies and measures

The basic framework for Norway's climate policy was set forth between 2008 and 2012 by a variety of resolutions from coalition governments, led by social democratic Jens Stoltenberg (with the socialist left party and ecologically-focused rural Senterpartiet, 2005-2009 and 2009-2013). All parties represented in the parliament, the Storting, at the time voted for these apart from the populist right wing Progress Party. Norway has committed to reducing greenhouse gas emissions by 30 percent by 2020, compared to 1990 levels, and to be CO2 neutral by 2050 (Ministry of Climate and Environment 2014).

8.3.2.1 Climate Change Act

In 2017, parliament passed the Climate Change Act (CCC), which went into force on 1 January 2018. At that time, the government was led by a coalition of three conservative and economically liberal parties that had been in power since 2013. Once again, all parties except for the populist, right-wing Progress Party agreed to the CCA. The socialist left party and Greens, however, criticised the government’s commitments as not going far enough. The CCA was designed to implement previously defined climate targets, and promote transparency and a public debate regarding

the status, focus, and progress of implementation (Ministry of Climate and Environment 2018). The resolution from 2015 to compensate for Norwegian greenhouse gas emissions through climate protection measures in other countries, via the EU quota market, international collaboration on emissions reductions, quota trading, and project-based collaboration by 2030 was included. The actual emissions level was to be reduced by 80 to 95 percent by 2050 compared to 1990 levels, then net zero emissions were to be achieved through other mechanisms. Five primary areas were outlined for reducing emissions: Transportation, strengthening Norway's position as a supplier of renewable energy, developing low-emissions technology industries and clean production technology, environmentally-friendly shipping, and environmentally-friendly CO2 management. The act also resolved to continue the past R&D focus on implementing and distributing low-emissions technologies. In doing so, it was to ensure that the public sector would contribute as a customer to the use and development of new, environmentally-friendly and climate-friendly technologies and solutions, and that investment would be made in innovation in public-private collaborations (Stortinget 2018). Norway, therefore, gives greater meaning to the public sector than other countries. However, Norway also has the highest rate of public ownership of all OECD states. The Norwegian state and local administrations are heavily involved in transportation, postal services, energy, telecommunication, and industry (Knudsen et al. 2020, 10). In addition, decarbonisation of the transport system was defined as a goal in the National Transportation Plan 2018-2029, through extensive investment in and expansion of public passenger transit (Climate Action Tracker 2021). The government's climate policies do not include any specific employment policies or targeted measures to create "climate jobs", nor do they include specific discourse on ensuring the quality of employment or sustainable work.

8.3.2.2 Circular economy

With 44.3 tons of material consumed per person per year, Norway has one of the world's highest rates of consumption. The circularity rate is just 2.4 percent. This means that over 97 percent of materials that are used are not recycled or otherwise returned to the economic cycle (Circle Economy und Circular Norway 2020a, 6). The figures show that, apart from a more pronounced circular economy, a drastic reduction in material consumption is also essential. No data is available on employment in the circular economy. The examples of existing circular economy range from classic recycling to manufacturing trainers from recycled materials. Evidently, there is a large amount of potential. The construction industry, transportation and repair, reuse and recycling are particularly relevant areas both in terms of preventing wasted resources and in the potential to create jobs. Other relevant areas include renewable clean energy, food, circular forestry, and timber products (Circle Economy and Circular Norway 2020, 44–45). The Norwegian model of social partnership is named by innovative entrepreneurship groups as a key factor in expanding the circular economy and as part of the just transition; however, from a corporate perspective, this mainly means investing in continued training and upskilling. The government is tasked with creating the framework conditions and providing funding. Social partners are supposed to motivate employees and support them in converting their skills into value (Circle Economy and Circular Norway 2020, 6, 64, 70–71).

Through the Innovation Norway programme, the Norwegian government provides funding for innovative corporate projects and employee training in the circular economy. However, the topic only plays a marginal role on the programme websites. In light of results to this point and statements

made in governmental documents, which barely go beyond the stated intentions, the topic is of no importance. It is only relevant – without being named as such – in economically lucrative areas such as renewable energy or sustainable forestry, however these either have only a limited potential to create jobs (like renewable energy) or are not work-intensive, like forestry.

8.4 Criticism and other actors: Parties, trade unions and environmental associations

Although climate policies in Nordic states are similar to one another in many ways, and supported by a broad political spectrum ranging from social democrats to conservatives, there are significant differences between the context in Sweden and Norway. The social debate appears to be controversial in Norway and, beyond just the environmental movement, trade unions, left-leaning organisations, and even the church issue more definitive positions. In contrast to Sweden, there are broad-based social alliances that talk about a just transition.

8.4.1 Parties

Only the populist right-wing Fremskrittspartiet (Progress Party), which had the third strongest showing in the parliamentary elections in 2017 with 15.2 percent of the vote, rejects climate policies. The two largest parties, the social democratic Arbeiderpartiet (27.4 percent) and conservative Høyre (25 percent) agree on all climate decisions. Resolutions are also supported by the Senterpartiet (10.3 percent), the socially liberal Venstre (4.4 percent) party, and the Christian People's Party (4.2 percent). The socialist Left party (6 percent) and the greens in the Miljøpartiet Dei Grøne (3.2 percent) support the resolutions, but critique them as not extensive enough, and demand more radical measures. The Marxist-socialist party Rødt (2.4 percent), which is seeing significant growth, expresses strong critiques and demands a fundamental change in the policy, alongside with collectivisation and redistribution (Wikipedia 2020). The socialist Left party suggests a Green New Deal, calling for the Norwegian social state model to be reinforced and occupational safety instead of ongoing erosion. This is the only way, they say, to bring about the needed ecological transition. They demand further emissions reductions, by 60% by 2030. They say the state must be a stronger leader and supporter of the transition. A Green New Deal is necessary, they claim, in order to carry out and reinforce the restructuring necessary of work and the educational system. They state that qualification is needed in all sectors, along with educational opportunities for people both in and outside of their working lives. Based on assessments of the ageing of Norwegian society (although this is occurring more slowly than in other European nations), special investment and qualifications in the healthcare and nursing sector will be important, they state (Sosialistisk Venstreparti 2020). The Greens call for specific “support for employers, who have taken extraordinary measures to develop competency in green specialisations and retraining skills in the oil industry” (Miljøpartiet De Grønne 2017, 58).

8.4.2 Trade unions

The largest Norwegian trade union, the Norwegian Union of Municipal and General Employees (Fagforbundet), the Norwegian Civil Service Union (NTL) and the Electrician and IT Workers' Union (ELogIT) issued a declaration on climate policy in 2012 alongside the Oslo headquarters of the Norwegian Confederation of Trade Unions (Landsorganisasjonen i Norge - LO). In it, the trade

unions critiqued the existing system and took a position in favour of a much more radical climate policy and a just transition. Trade unions were then mobilised on the topic and became involved in broader coalitions, ultimately participating in the "Bridge to the future network" as one of their central steps (Wahl 2016).

In the 2017-2021 action plan, the Confederation of Trade Unions LO declared that greenhouse gas emissions must be radically reduced, in compliance with the Paris Climate Accords (LO Norge 2017, 4). The action plan stated that human-caused climate change is the greatest challenge of our time, and that we are responsible for handing the planet over to the next generation in better condition. It encouraged developing ways to live and produce, while keeping environmental impacts as low as possible. It asserted that Norway has the competence, capital, and expertise needed for a successful green transformation, and that the state is responsible for actively promoting this transformation. LO argued that investments in R&D should be increased in order to transform Norway into a low-emission society, and that the state should take a broader role in funding new, more climate-friendly production (LO Norge 2017, 11–12).

Compared to statements from many individual trade unions and the trade union participation in the coalition for 100,000 climate jobs, the action plan is more of a generalised compromise. In reality, there are different interests within the trade union movement due to the importance of oil production for certain local sections. In the run up to the LO conference in 2017, the unity of the trade union association was primarily maintained through recourse to institutional standards and procedural regulations, which, in turn, resulted in compromises in wording (Houeland, Jordhus-Lier, and Angell 2020).

8.4.3 Environmental movements

The highest court of the land rejected a suit by Greenpeace Norway and the Norwegian group NGO Natur og Ungdom (Nature and Youth) against crude oil drilling in the Barents Sea in December of 2020. The environmental organisations had argued that granting licenses to drill for crude oil would endanger future generations' prospects for living in an intact environment. The highest court was of the opinion that there had been no gross negligence of the state's responsibilities, and that the state was likewise not responsible for crude oil produced in Norway that was consumed elsewhere. This decision was critiqued as absurd by environmental associations and major legal experts (Hermann 2020)

8.4.4 Building a Just Transition: Alliances of trade unions, environmental movement, and church

Before the parliamentary elections in 2013, over 100 different organisations joined together to issue a joint declaration on climate change and assert six central demands on the topic, with the goal of making them a focus of the upcoming campaigns. The organisations involved in the CE2013 coalition include a variety of individual trade unions from the three umbrella organisations LO, the smaller Yrkesorganisasjonenes Sentralforbund (YS) and the Confederation of Trade Unions for Professionals. Most of these trade unions are from the public sector. The two largest farmer's associations, the Norwegian farmer's union and the Norwegian association of farmers and small

farmers, were also part of the alliance. Most of the signing organisations, however, did not actively take part in mobilisations, and the reasons that motivated them to participate were extremely divergent. Public sector trade unions were primarily moved by new job creation, while farmers argued that there must be more local food production (Nilsen, Strømsnes, and Schmidt 2018, 20, 32–33).

In 2015, the trade unions, environmental associations and the Norwegian church joined to form a campaign calling for 100,000 climate jobs under the name Bridge to the Future. The initiative was started by scientists concerned that the transition to a CO2-free economy and society was proceeding too slowly. The coalition organised several large conferences, protests, a petition to parliament and a series of publications where scientists presented why a massive state programme to create 100,000 climate jobs was necessary, and how it could be implemented. The campaign argued that neither the market nor individual behavioural change could bring about the needed transition quickly enough. Likewise, only a planned and democratic just transition that created 100,000 climate jobs could accelerate the phase-out of crude oil and natural gas production (Bridge to the Future 2015a; 2015b).

8.5 Preliminary conclusions

Climate Change Tracker[28] evaluates Norway's climate policies as insufficient to achieve the goals of the Paris Climate Accords to keep warming to under 1.5°C, unless other countries reduce their emissions much more significantly. If all countries took a comparable path, this would result in average global warming between 2 and 3°C (Climate Action Tracker 2021).

The primary tools of the Norwegian climate policy are participating in EU trade in CO2 emissions certificates, investing in carbon capture and storage, and taxes and fees. However, only the taxes and fees aspect has led to a reduction in emissions, although this has not been sufficient. The results of high investments in capturing and storing CO2 have been meagre. There are three billion excess quotas on the EU quota market, and even if the (slow) reforms to the system should result in financial compensation for cutbacks at some point, there is no guarantee that Norway will receive the necessary investments in renewable energy (Gran et al. 2017, 35–36).

The economic structure of the country and its high dependency on oil and natural gas exports, as well as the investments it has made in the sector, are certainly also some of the key reasons for why Norway's energy transition is in no way exemplary, contrary to the nation’s self-presentation and international perception. Norway has a high level of consumption and a poor environmental balance. Investments in high-tech innovation with the possibility to generate high levels of value are preferred. Sustainable work in the sense of the SDGs plays only a minor role, and the global dimension of the just transition plays no role at all. The question of employment in the transition to an ecologically sustainable society does not seem to play an important role in climate policies, apart from general commitments to highly qualified jobs. The majority of political and economic actors (among the conservative government and the social democracy) have a strong belief in the technological fix and that technological innovation and high levels of qualification will ultimately create high-quality jobs.

[28] Climate Change Tracker is a scientific consortium to analyse and evaluate the climate policies of EU states along with another 36 countries, and consists of the Potsdam Institute for Climate Impact Research, Climate Analytics and the New Climate Institute.

The Norwegian climate policy is not able to guarantee new jobs to compensate for employment losses during the transition, let alone create added “climate jobs”. Socioeconomic analyses, however, have found that this would be possible with a different public policy to eliminate oil production and sustain the welfare state. A study on the campaign’s call for 100,000 climate jobs criticises deficient public framework conditions as an obstacle to creating climate jobs. The transformation, it states, will also need long-term planning and relevant infrastructure. The study emphasises that it will be necessary to prioritise climate jobs in corporate funding as well, for instance with respect to risk credit programmes, support for business-oriented collaboration, and in collaboration between research, companies, and the public sector. Likewise, the study indicates that it will be necessary to make building regulations more strict to promote energy-efficient renovations and the construction of self-sustaining buildings (Gran et al. 2017, 38–39).

9. Poland: Initial situation, debate, policies, and actors

Climate change has caused extremely hot summers, a reduction in precipitation, and more droughts in Poland (Climate Change Post 2021b). This is intensifying the problem of water scarcity. Poland's water reserves are around half of the EU average; the groundwater level is deep, and the majority of the water is contaminated with pollutants (Kortas 2019). According to a survey, however, 22 percent of the population believe climate change is definitely or likely not a serious threat to humanity, which was the highest percentage among eight countries studied (Szulecki 2017, 23). Two surveys from 2010 and 2015 found that the percentage of those surveyed in Poland who felt climate change was "a very serious problem" actually dropped, from 31 to 19 percent. The only other European country to see a similar development was Russia, where the percentage dropped from 43 to 33 percent (Asadnabizadeh 2019, 278). This is reflected in the positions of the Polish governments, and is a consequence of those positions. The populist right government obviously does not take climate change seriously. It always emphasises that it is only necessary to expand renewable energy as part of Poland's EU membership. Up to just a few years ago, there was no movement advocating the use of renewable energy in Poland, and there was only a small environmental movement (Szulecki 2017, 23). Therefore, there is no public debate regarding ecologically and socially sustainable employment, although climate laws and programmes to promote renewable energy, as well as a (very slow) energy transition have been past in recent years. The Polish Green party, which joined a conservative - economically liberal coalition in 2019, likewise does not talk about sustainable work.

75-85 percent of Poland's electricity is generated from coal, which is also central for producing heat (Thomas and Doerflinger 2020, 388). Coal is of the utmost political importance and salience. After the Second World War, the country's programme of electrification and industrial rebuilding was carried out entirely with electricity generated using coal. The coal came from Poland, and exporting coal brought in foreign currency. Coal was considered the foundation of the Polish economy and as a national treasure. Even through its economic, military, and energy importance have dropped, its political importance remains enormous (Żuk and Szulecki 2020, 5). The Polish government has always defended the use of coal, and has called EU specifications to reduce CO2 emissions to zero by 2050 unrealistic (Harper 2020). Energy Minister Krzysztof Tchórzewski has even rejected decarbonisation multiple times (Szulecki 2017, 23). The high level of trade union organisation in coal mining, its central importance in structurally weak coal-mining regions, and the fact that coal mining is controlled almost completely by state-run companies, makes the topic highly complicated for the government (Zinecker et al. 2018, 17). In September of 2010, an agreement followed to end coal mining by 2049 (Harper 2020). Poland focuses heavily on nuclear power for its energy transition. It does not yet have any nuclear power plants, but is building a reactor with US support that is slated to go into operation in 2033. Others are scheduled to follow by 2043 (Asadnabizadeh 2019, 277).

9.1 Statistical data on the economy, population structure, and employment

9.1.1 Population (overall population and age structure 2020)

In 2020, Poland had 37.8 million inhabitants. The percentage of over 65-year-olds is relatively low, at 18.7 percent. However, the negative population growth, the low percentage of 0-14 and 10-24-

year-olds, and the relatively high percentage of 15-64-year-olds indicate the country will see a progressive reduction in the working-age population.

Total population (in millIons)	Annual population growth %	Population structure (age)			
		0-14 (%)	10-24 (%)	15-64 (%)	65 + (%)
2020	2015-2020	2020	2020	2020	2020
37.8	-0.1	15.2	15.0	66.0	18.7

(UNFPA 2020, 145)

Emigration by young people and the government's strict anti-immigration policies are further reinforcing this trend.

9.1.2 GDP, economic growth, and economic structure

The per capita GDP in 2018 was US$ 31,393 annually, below Slovakia and in last place among comparable nations. The growth rates, however, were the highest at between 3.1 and 5.1 percent from 2014-2018. The sector of trade, repairs, transportation, and hotel and hospitality made up the largest percentage of the economy, with 26 percent of total value creation, followed by industry including energy at 25 percent, while agriculture, forestry, and fishing made up the smallest share at 2.6 percent (OECD 2020d). The latter figure stands in stark contrast to the high number of workers in agriculture.

9.2 Workforce, employment, and labour market

9.2.1 Labour market data

Table 1. Labour force

Annual average estimates

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Labour force, thousands										
All persons	17 123	17 221	17 340	17 361	17 428	17 388	17 260	17 267	17 143	17 019
Males	9 446	9 504	9 551	9 568	9 593	9 568	9 514	9 530	9 440	9 398
Females	7 677	7 717	7 789	7 793	7 835	7 820	7 746	7 737	7 703	7 620
Unemployed, thousands										
All persons	1 650	1 659	1 749	1 793	1 567	1 304	1 063	844	659	558
Males	881	856	900	927	815	701	581	464	363	284
Females	769	802	850	866	752	603	482	380	296	274
Employment, thousands										
All persons	15 473	15 562	15 591	15 568	15 862	16 084	16 197	16 423	16 484	16 461
Males	8 566	8 648	8 651	8 641	8 778	8 867	8 933	9 066	9 077	9 115
Females	6 907	6 914	6 940	6 927	7 084	7 217	7 264	7 357	7 407	7 346
Employment (%)										
Males	55.4	55.6	55.5	55.5	55.3	55.1	55.2	55.2	55.1	55.4
Females	44.6	44.4	44.5	44.5	44.7	44.9	44.8	44.8	44.9	44.6
Unemployment rate (% of labour force)										
All persons	9.6	9.6	10.1	10.3	9.0	7.5	6.2	4.9	3.8	3.3
Males	9.3	9.0	9.4	9.7	8.5	7.3	6.1	4.9	3.8	3.0
Females	10.0	10.4	10.9	11.1	9.6	7.7	6.2	4.9	3.8	3.6

(OECD 2020l, 1)

Table 2. Unemployment rates by age

The unemployment rate dropped from 9.7 percent in 2010 to 3.3 percent in 2019. Youth unemployment (15-24-year-olds) likewise dropped (from 23.7 percent to 9.9 percent), however this drop was proportionally much smaller than that in other age groups, and youth unemployment remains at a high level.

Annual average estimates, percentage

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
All persons										
15-24	23.7	25.8	26.5	27.3	23.9	20.8	17.7	14.8	11.7	9.9
25-54	8.3	8.2	8.8	9.0	7.9	6.6	5.4	4.2	3.4	2.9
55-64	7.1	6.9	7.4	7.7	6.8	5.4	4.4	3.7	2.8	2.4
65 and over	1.9	1.2	1.6	1.8	1.8	1.5	1.4	1.0	0.8	0.6
15-64	9.7	9.8	10.2	10.5	9.1	7.6	6.2	5.0	3.9	3.3

(OECD 2020l, 2)

The working-age population in Poland dropped slightly from 17.123 million in 2010 to 17.019 million in 2019. At the same time, the number of workers increased from 15.473 to 16.461 million. One unusual fact about the data on employment between 2010-2019 is that, compared to all other countries investigated, Poland had an above average high loss of jobs in agriculture, hunting, and forestry of over 25 percent (from 2.019 million to 1.499 million, although the share of the total population is still the highest among all of the countries investigated at 9.1 percent). The ratio of employment between industry and service is 1:1.84, the second highest share of industrial employment after Slovakia. The growth in industrial employment is actually the highest among all comparable nations at 12 percent (4.686 million to 5.260 million) which, at best, show an increase less than half of this or even a drop (such as Spain and Portugal). This growth is also greater than that in the service sector, where it was just around ten percent (from 8.769 million to 9.702 million). The majority of new industrial jobs were also created in the manufacturing industry (an increase of 517,000 to 3.393 million) (OECD 2020l, 3). This development clearly contrasts with the trend in all other countries investigated, and even Slovakia's development was quite different.

What is notable about the industrial sector is that employment in mining in 2019, with 216,500 workers, was almost the same as it was in 2010 (221,400), with ongoing fluctuations up and down. Contrary to the tendency of growing employment in electricity, gas, steam, and air conditioning during the energy transition, Poland actually has dropping employment in these areas (from 177,900 to 159,300). In the water supply, waste water, waste management, and avoidance sector, in contrast, which is considered important for a sustainable transition, employment increased from 150,800 to 186,000. However, this must be examined in more detail, in light of Poland's growing role as a destination for household and industrial waste from other EU countries (such as Germany). Employment increased slightly in the construction industry from 1.257 million to 1.306 million (OECD 2020l, 3).

The service sector saw an above average, consistent growth in employment in information and communication (from 302,800 to 430,600); professional, academic, and technical activities (from 477,000 to 626,000); hotel and hospitality (from 338,100 to 403,300); transportation and storage (from 864,300 to 1.04 million), and finance and insurance (from 353,900 to 403,900). Employment in other services increased at a slightly above average rate (from 238,300 to 267,400). There was only a minor boost in employment in wholesale and retail and vehicle repair (from 2.286 million

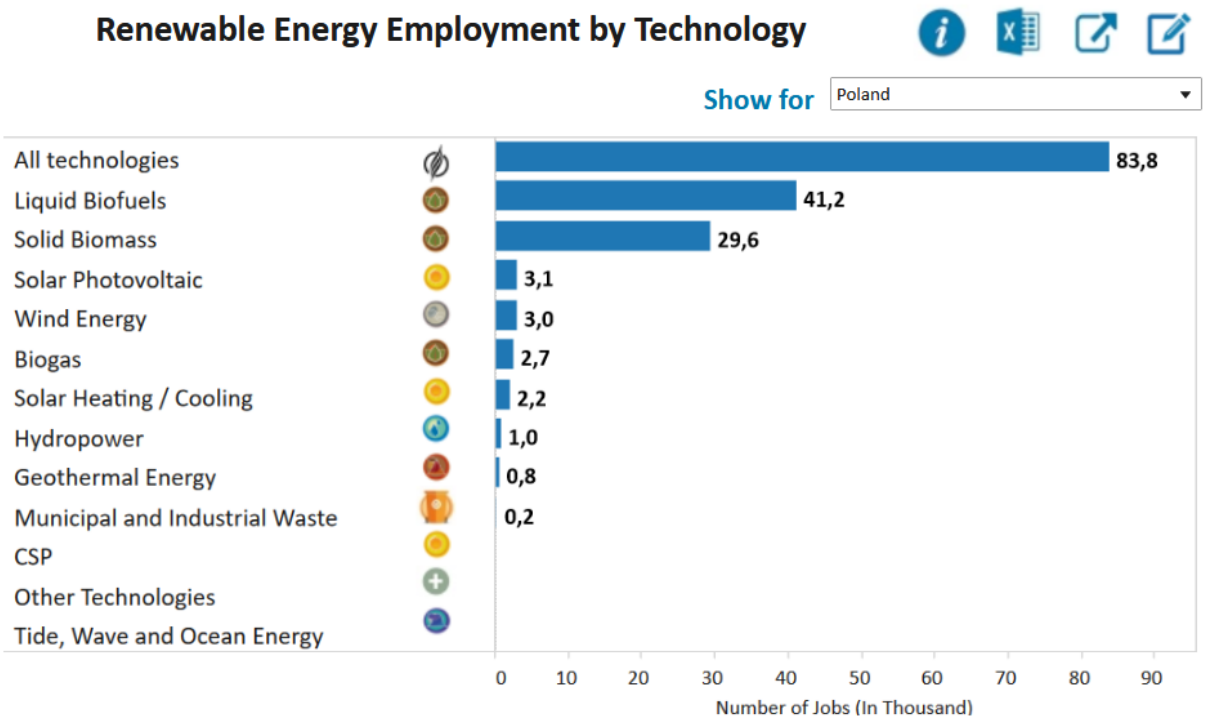
to 2.305 million) and in administration and support services (from 396,500 to 418,700). Above all, and indicating a developmental trend, employment growth in public and social areas was low. Poland already has a low level of employment in these areas compared to comparable nations. They include public administration, defence, and social insurance systems (from 1.009 million to 1.053 million); education (from 1.206 million to 1.284 million); human health and social work (from 900,700 to 985,100); culture, entertainment, and recreation (from 192,700 to 215,100). Employment in the real estate sector fluctuated significantly, but dropped from 168,500 to 159,700 (OECD 2020l, 3).

9.3 Green Jobs

With 59 points in the EU-28 Eco-innovation scoreboard for 2019, and just 46 points for employment in eco-industries, Poland is well below the EU28 average (European Commission 2020). The circularity rate in 2018 was 9.7 percent, below the EU28 average, and has been dropping continuously since its 2014 level of 12.5 percent (eurostat 2021a). Employment in eco-industries and the circular economy is relatively low, at 1.02 percent of total employment in 2017. However, income in the sector - 2.02 percent of income for all companies - is higher than the EU average of 1.74 percent (Mitsios 2019, 10). The figures could indicate a concentration of a large number of green jobs in technologies and in sectors with high profits, or on the other hand a significant percentage of jobs in the low wage sector. One fact that would seem to indicate the latter is that 15 percent of young adults (16-24-year-olds) have a green job as their first job, and fluctuation in this area is high (Sulich, Rutkowska, and Popławski 2020, 1). The investigation does not explain which sectors young adults are employed in. In light of the UNEP definition it uses, and the high percentage of employment in agriculture and natural conservation areas, they could be employed in these sectors. This would also explain the fluctuation.

Among the different professional training, continued education, and retraining programmes to improve employability and transversal skills that have been established by the Polish government between 2018-2020 for the next ten years, there are none with the direct goal of promoting ecologically sustainable employment, or justified as part of the transition to a CO2-free society and economy (EURYDICE 2020). There are references to green jobs in governmental programmes and papers on energy, the labour market, employment, and regional development, although they are not referred to as such. These mainly refer to employment in renewable energy. Generally, an increase in employment is expected as a consequence of funding certain companies and sectors, without any specific employment programmes as such (Bartniczak and Ptak 2015).

9.3.1. Employment in the renewable energy sector



Source IRENA jobs database. Figures provided are the result of a comprehensive review of primary information sources by national entities such as ministries and statistical agencies, and secondary data sources such as regional and global studies.This is an ongoing effort to update and refine available knowledge. Totals may not add up due to rounding.'Other Technologies' include jobs which are not technology specific.

(IRENA 2020b)

Most of the 83,800 jobs in the renewable energy sector in Poland in 2020 are in bio-energy, with liquid biofuel the chief source of this energy, followed by bio-energy from biomass. All other renewable energy sources are marginal. In 2013, the number of employees in this sector was 38,000. From 2010 to 2013, the growth rate in employment was four percent (Bartniczak and Ptak 2015, 6). Bartniczak and Ptak provide an overview of policies enacted through 2015, along with expected employment development in the renewable energy sector through 2020: Most of the government's plans and strategies on economic modernisation, innovation and efficiency, human capital development and regional development only include references to supporting the creation of green jobs as a way to generate new employment (Bartniczak and Ptak 2015, 7–9). None of the documents contains any figures on the new jobs to be created in the renewable energy sector. Actual figures only come up in the declaratory memorandum on the law on renewable energy sources from 2015, which states that one of its goals is to create new jobs by expanding renewable energy. This memorandum expects a growth of over 56,000 new jobs between 2015 and 2020. Of these, over half would be created through solar collectors, and almost a quarter through wind energy (Bartniczak and Ptak 2015, 10). As the figures from 2020 show, this was an erroneous assessment. Both the prediction for total growth was false - it was actually just 45,800 from 2013 to 2020 instead of 56,000 - and the sectors. In reality, the sectors of solar and wind energy practically did not grow at all; only the biomass sector grew. Most of these jobs were likely less qualified jobs in the agricultural sector.

9.3.2 Public policies and measures

9.3.2.1 Strategy for Responsible Development for the period up to 2020 (including the perspective up to 2030)

In 2016, the government under the populist right party PiS (Prawo i Sprawiedliwość, Law and Justice) presented the "Strategy for Responsible Development (referred to in the following as the SRD), with the primary objective of "protecting Poland from the trap of medium incomes, the averageness of products, a lack of balance, the demographic trap and the trap of weak institutions". The projects and guidelines outlined in the plan apply to a wide range of different sectors of the Polish economy, with the goal of implementing extensive restructuring in these sectors. To do so, it defines twelve central projects and 173 strategic projects. An "eco-friendly" construction industry is among the new sectors to be promoted (Brusilo 2020; Council of Ministers 2017). The goal set by the strategy is to create "good income conditions for the residents of Poland, while improving social, economic, and territorial cohesion" (Riedel 2018). The plan was known as the Morawiecki plan, named after the author Mateusz Morawiecki, a bank manager, millionaire and at the time the deputy Prime Minister as well as the Economic and Financial Minster. He has been the Prime Minister since 2017. In February of 2017, the Polish Council of Ministers passed the SRD as a guideline to implement the Morawiecki plan. The document, which was ostensibly preceded by extensive consultation with business leaders, administrative levels, and NGOs, is called a key document for the Polish state (Council of Ministers 2017, 1).

The SRD intends to be a model for "responsible as well as socially and territorially sustainable development". It states that it encompasses "the competitiveness of the economy, the maintenance of natural balance, and quality of life, while maintaining the sustainability of public finances" (Council of Ministers 2017, 3). It says that the state must be more efficient to fulfil a leadership function, and that it is extremely important to support innovative companies, since they are the foundation of a modern, competitive, and sustainable economy for sustainable growth (Council of Ministers 2017, 3). Territorial sustainability means more rural development and enhancements to small and mid-sized urban areas (Council of Ministers 2017, 3, 13). Social sustainability generally means the promise of achieving higher incomes and a better standard of living through better qualification (Council of Ministers 2017, 5), while ecological sustainability refers to an expansion of Industry 4.0. Employee competencies and skills should be improved continuously in this context. One core goal is to increase the efficiency and effectiveness of professional training and continuous learning, and bring these practices in line with the labour market (Council of Ministers 2017, 8).

The plan was criticised from many angles right from the start. Even the national developmental council of the President's Office criticised the plan, stating that the legal standard would be insufficient; that it does not include a road map with clear intermediate targets (which must be included according to a parliamentary resolution of 2006); that the descriptions of the central and supplementary projects are not well-developed enough, which could cause problems with implementation; and ultimately that the immense amount of resources needed and how they would be covered is not described in sufficient detail (for instance, how local administrations should come up with the third of public investment they were supposed to be responsible for). Experts from the Polish Society for the Economy expressed the critique that the SRD does not conform with EU directives on decarbonising the economy, reducing greenhouse gas emissions, and natural conservation, and

above all that the SRD does not even include a cost-benefit analysis, a fundamental element of any developmental strategy (Brusilo 2020, 8–9). In actuality, ecological sustainability does not play a particularly important role in the SRD. Strategies for reduced CO2 emissions are mentioned only in conjunction with urbanisation plans, and renewable energy is mentioned in conjunction with innovative industries. Even sympathetic analyses certify that the results one and a half years after it was passed show no clear qualitative change, and indicate that one of the plan's fundamental problems is that it is based on continuously increasing growth, although the causes for this growth are not actually in Poland's hands, but rather dependent on external factors (Riedel 2018).

9.3.2.2 National Plan for Energy and the Climate for 2021-2030

The plan exists as a draft from January of 2019 - English translation (Ministry of Energy 2019) and as a revised version (after objections by the EU Commission) of December, 2019 - only in Polish (Ministerstwo Aktywów Państwowych 2019). Both versions of the plan begin with extensive praise for the advantages of a Polish energy model based on coal. The plan makes clear that "coal is the foundation for electricity generation which offers Poland an appropriate level of energy security and stability" (Ministerstwo Aktywów Państwowych 2019, 8). Graphics and statistics show how Poland has one of the lost ratios of dependency on energy imports in the EU, and that there is also no relationship between increasing GDP and an increase in emissions (Ministry of Energy 2019, 2–8). In addition, lignite and black coal mining also plays an important role socially, with around 113,500 direct jobs in 2016 (Ministry of Energy 2019, 5) and 135,000 direct jobs in 2018 (175,000 in 2010) (Ministerstwo Aktywów Państwowych 2019, 8), an increase of 21,500 jobs in two years.

The first draft does not mention the energy transition, a just transition, jobs, or employment at all. The plan is 157 pages long, and addresses only technical measures (Ministry of Energy 2019). Only the revised version from December 2019 does deal with these topics in mining regions, under the title of "just transition". The energy transition is declared as playing an important "role in achieving ever more restrictive climate targets" (Ministerstwo Aktywów Państwowych 2019, 84). The plan emphasises the importance of minimising social costs by promoting a transformation to a low-carbon economy, but also clarifies: "The speed of the energy transformation must be adapted to the economic conditions and financial capacities of mining regions". (Ministerstwo Aktywów Państwowych 2019, 84)

In response to the first draft on 18 June 2019, the European Commission requested an improvement to aspects of the just transition, "in particular by providing more detailed information on the social, employment, and qualification-specific impacts of the planned targets, as well as on policies and measures". It stated that the Ministry only partially fulfilled the recommendations through additions, "however, a comprehensive analysis of the impacts of the energy transformation on mining regions (including society, employment, and qualifications) during" (Ministerstwo Aktywów Państwowych 2019, 205) the period before the resubmission was not possible, and was to be submitted as part of the 2020 restructuring plan.

The formulations contained in the plan, which are often fairly vague or even doubtful, information on the interim targets and the lack of an analysis of impacts make it appear doubtful that there is actually a well-developed and coordinated strategy for a just transition. Overall, the plan gives the impression that the Polish government is relying primarily on private industry to develop and implement innovative technologies.

9.3.2.3 GreenEvo – Accelerator of Green Technologies

GreenEVO is a funding programme by the Climate and Environmental Ministry for "green technologies", and was renewed for the seventh time in 2019. The programme was launched in 2009, with renewals in six successive years through 2015. The programme funds industries in the areas of water and waste water management, water management, renewable energy, energy efficiency, air pollution control, maintaining biodiversity, passive houses, low emission transport, and climate protection technology. Under the current funding programme, 33 companies are receiving funds to develop and produce 34 different technologies in these areas. The programme primarily emphasises the aspect of exporting technologies, and measures to fight climate change without reducing economic growth. No information is available on the types of funding and any relevant conditions. Employment is not addressed at all in the presentation of the funding programme or the funded companies (Ministry of Climate 2019).

9.3.2.4 Circular economy

Poland is an EU nation that produces comparatively little waste per inhabitant; however, it also has a low recycling rate and a high rate of landfill usage (EP-VÖ 2020). In addition, waste management is plagued by scandals on illegal disposal, illegal dumping, and fires at landfills. However, available figures are from 2017, and based on experience, the above-average industrial growth in subsequent years in Poland likely resulted in larger amounts of waste. Despite EU support, investments in recycling and reuse have dropped again since 2018. All of this indicates that Poland will not be able to fulfil EU specifications on the circular economy that went into force in 2020. After an admonishment by the EU, Poland enacted a series of stricter laws in 2019 and 2020 on separating waste and recycling, as well as a *Road map for the transition to a circular economy.* It names many possible areas and initiatives, most of which boil down to only collaboration between research and industry for innovative solutions. The most specific information is provided for the large sector of energy and fuel from biomass. It states that this sector poses major opportunities to create "financially attractive jobs" (Ministerstwo Rozwoju, Pracy i Technologii 2019, 22).

9.3.2.5 Coal mining and the end of coal mining by 2049

Originally, the Polish government planned to reduce the percentage of coal used to generate electricity within the nation from its current level of over 75 percent to 56 to 60 percent by 2030, then to 28 percent by 2040. In September of 2020, the government, trade unions and the state mining company PGG agreed that coal mining would be ended by 2049. This elimination of coal would take place step by step. According to the agreement, the percentage of coal used to cover the nation's energy needs would be reduced to 37-56 percent by 2030, then to eleven to 28 percent by 2040. The convention was enacted only after days of negotiations. Hundreds of miners stayed in the mines after the ends of their shifts in protest against the end of coal mining. The convention granted all coal miners guaranteed jobs until they reached pension age, as well as extensive severance payments should they be let go sooner. The Polish government also announced that it would be investing 60 billion Zloty (around 13.3 million euros) from the EU just transition fund in Polish

coal-mining areas, primarily in the otherwise structurally weak area of Silesia, in order to protect the labour market there and promote a cleaner economy (Farand 2020; Harper 2020).

In reality, coal production has been dropping for quite some time. Coal mining became increasingly unprofitable after the 1980s. Costs have increased, and quality has decreased. This resulted in extensive restructuring measures in the coal sector, and the government funded the sector with very high subsidies. Nevertheless, the number of active coal mines dropped from 70 in 1990 to 30 in 2014. At the same time, production dropped from 147.7 million tonnes to 73.3 million tonnes (Baran, Szpor, and Witajewski-Baltvilks 2018, 9–10). When Poland became an EU member in 2004, the country had to restrict subsidies and – although it had spoken out against the EU plans for low-carbon economies – implement a low-carbon path. In this respect, the EU policies of the last 17 years have actually shaped Polish climate policy (CEPS 2015).

9.4 Criticism and other actors: Parties, trade unions and environmental movement

9.5.1 Parties

There are no or only very small differences between the climate policies of most parties in Poland (Żuk and Szulecki 2020, 5). The climate policy of the Polish government is that of the PiS, which has been in power alone since 2015. It led a coalition government from 2005 to 2007. It received an absolute majority of votes in the Sejm, Poland's parliament, in the 2019 elections with 43.59 percent of the votes. However, the PiS takes a very environmentally-friendly tone in its platform, praising its supposed climate policy. It claims to have made unprofitable coal mining profitable after it came to power in 2015 (PiS 2019, 86). The PiS emphasises that Poland has been among the leaders in the EU since 2016 in industrial modernisation. Employment in the industrial sector, it notes, has increased twice as fast as elsewhere in the EU, especially in the automotive industry, which is the key to electric mobility through electric vehicles. It states that Poland is "Europe's market leader in the sale of electric buses ... 1/3 of electric buses from EU countries and 46% of vehicle sold domestically that are produced in the EU" come from Poland (PiS 2019, 86). The PiS applauds the fact that the draft of the EU's agricultural policy for 2021-2027 provides for "at least 30% of funds for agricultural development to be dedicated to environmental and climate protection". They call this "an opportunity for small family-owned operations, which are naturally adapted to sustainable agricultural production" (PiS 2019, 112–13). However, the PiS avoids making binding statements. It only generally states that it is "in favour of the 'green economy' and 'green energy', which promote economic development and improve the standard of living and quality of life for Polish men and women" (PiS 2019, 147). They state their government is working "actively to prevent and limit climate change" (PiS 2019, 163), that they took the initiative at the COP24 in Katowice and "successfully [led] the process to streamline the global climate policy" (PiS 2019, 163). The party promises development of offshore wind energy, and above all of nuclear power "at a large scale", which it states will be important for climate protection. In addition, it plans to promote electric mobility (PiS 2019, 169).

The other parties are almost all conservative right-leaning parties, or economically liberal. The party with the second highest number of votes after the PiS in the 2019 elections was the Koalicja Obywatelska (KO) electoral alliance with 27.4 percent of votes, consisting of the conservative Platforma Obywatelska (PO, Civic Platform), the economically liberal Nowoczesna (Modern) and the Polish green party, Partia Zieloni. PO led a variety of coalition governments between 2007 and

2014. The greens ran as part of a centre-left coalition in 2015, although they failed to pass the alliance threshold of eight percent and make it into the Sejm. The left-leaning coalition Lewica (The Left), consisting of three social democratic parties, came in third with 12.56 percent. They were followed by a Christian socialist and economically liberal coalition led by the farmer's party PSL with 8.55 percent, and the nationally conservative, far right coalition presenting itself as a party, Konfederacja, with 6.81 percent of votes ('Parlamentswahl in Polen 2019' 2020).

The Polish green party put forth a classic green platform like those of other green parties in Europe. They call for a Green New Deal in order to facilitate the ecological transition, and argue for it based on the number of jobs it will create. Topics like the quality of work, labour rights, etc., however, play only a minor role (Partia Zieloni 2018). The party was founded in 2003 and fairly marginal; it was not even able to win one seat in the Sejm in 2019. In 2019, it succeeded for the first time in sending three delegates to the Sejm as part of a right-liberal electoral coalition. Similar to other countries, it is based mainly on urban middle-class members, with a high level of education. Transformations in the Polish economy, the growing importance of the environmental movement, and advancing climate change, however, all indicate that they could see higher levels of support in the future (Kwiatkowska 2019).

9.4.2 Trade unions

Polish trade unions are decisively against any measures to fight climate change. They even deny that there is any scientific consensus regarding whether climate change is caused by humans. Poland is the only country in this investigation in which trade unions oppose climate policies. They have always been against any declaration on wide-ranging climate policies in all of the international trade union associations to which these Polish unions belong. Employment in coal mining strongly influences the trade union movement. Around 90 percent of workers in that sector are organised, compared with 13 percent of all workers. Wages in coal mining are also much higher than in other jobs with similar characteristics. Before the climate conference in Katowice in 2018, the three largest trade union associations in Poland, the populist right to radical right NSZZ Solidarność (which has close ties to the PiS), the All-Poland Alliance of Trade Unions OPZZ, and the FZZ (Trade Unions Forum) organised a conference in order to call for analysing climate policies in terms of their costs and consequences for employment, stating that each country should be able to produce energy from its available raw materials. The NSZZ Solidarność denies that climate change is caused by humans, and the coal mining trade union faction and Silesian regional association issued a joint declaration on the occasion of the 2018 COP24 with a right-leaning US think tank in which reports on climate change were dismissed as false and simple alarmism (Thomas and Doerflinger 2020, 389–90).

In contrast to trade unions in other countries, which generally call for stricter climate policies and a just transition, the platform for the more moderate umbrella organisation OPZZ for 2018-2022 states that, in light of Poland's heavy dependency on coal, Polish workers need assurances that any change in the sector will not negatively impact their employment or their standard of living. They state that "the project of the green economy can have a completely different meaning in practice for different countries and regions, even if the underlying idea behind it is the same" (OPZZ 2018, 6). The costs for the transition will be borne primarily by countries like Poland; therefore, they say

it would be unacceptable for Poland to have to bear the financial and social costs alone (OPZZ 2018, 7)

9.4.3 Environmental movement

Besides *Greenpeace Polska*, which primarily works to distribute information on renewable energy (Greenpeace Polska 2019a) and works against the use of coal (Greenpeace Polska 2019b), there are currently a large number of small environmental groups which together form an environmental movement. In 2019, secondary school students took part in a youth climate strike, submitting a series of demands to the parties in advance of the upcoming election (Greenpeace Polska 2019b). This is a relatively new development. For many years, Poland at most had only small local groups focused on specific environmental issues, with no larger overarching movement. Attempts were made to use momentum from the two COPs in Poznan in 2008 and Warsaw in 2013 in order to form an environmental movement, however this momentum disappeared again right after the climate summits (Asadnabizadeh 2019, 278). Over the last decade, however, grassroots activism has grown outside of NGOs. Investigations show that divisions within Polish society have been growing since 2014: While scepticism regarding climate change and mistrust about environmental issues grew among the conservative and nationalist population, concerns regarding climate change and environmental issues grew in liberal and left-leaning circles. The issues of energy, air quality/public health, and preserving biodiversity have become politicised (Szulecka and Szulecki 2017, 20). There was a critical mobilisation in Poland for the COP24 in Katowice in 2018. Over 400 people took part in Poland's first Klimacamp in July of 2019. In addition to many members of different local environmental groups, most of those involved were from Catholic environmental groups. Some of them had already appeared at the COP24 in Katowice, and were able to play an important role in Poland as a strictly Catholic country (Asadnabizadeh 2019, 278). However, the environmental movement continued to have only a very limited impact on political decisions. The Polish political culture is characterised by institutional rejection of participation in civil society. There are few public hearings on governmental plans, and such hearings have actually dropped significantly in recent years (Szulecka and Szulecki 2017, 27).

9.5 Preliminary conclusions

The contradictions between different plans for the energy transition, the confusion due to using different reference years (such as lowering CO2 emissions compared to 2005 levels instead of the customary 1990), and imprecise statements all indicate that Poland has no intention of transitioning to an emissions-free (or even net emissions-free) economy and society by 2050. The different governmental programmes give the impression that they are trying to meet EU regulations with their wording, without actually giving details on real measures. This impression is reinforced by the fact that the transition will only be one to a "low-emission" economy and society, justified by strict EU regulations and not by any environmental or climate-related necessity. However, EU regulations have also been decisive for exercising pressure towards more support for renewable energy. At the same time, internal political legislation on renewable energy is described as a "soap opera": "Drafts, new plans, supplements, and legal instability" (Szulecki 2017, 23). Funding mechanisms

for renewable energy are conditional on the dominance of state-owned energy companies in the coal sector. Therefore, these funding mechanisms are designed such that they cannot represent added competition to the state companies and coal as a strategic priority. This also has negative consequences for any possibility of democratising the energy sector (Szulecki 2017, 23).

The above-average increase in industrial employment in Poland, which has been greater than in the service sector, indicates Poland's increasing importance as a low-wage country for the EU manufacturing industry. The country's success in industry, energy, trade, and transportation, from a traditionally growth and value creation-oriented economic standpoint, is primarily based on low wages and essentially non-existent climate protection policies, as well as the country's expansion of its position as a logistics hub and inexpensive site for industrial production in the supply chains of Western European companies, in addition to serving as a bridge to Eastern Europe. This is likely also one of the most important causes for the Polish government's and trade unions' dismissive attitude towards sustainability and sustainable work.

Economic development seems to indicate that Poland will face increasing environmental problems, growing emissions, higher resource consumption and energy needs, increasing traffic, and a larger volume of waste in the near future. In light of the country's poor performance on environmental protection measures in all areas, it is likely that Poland will not meet any emissions specifications unless it radically changes course.

The country focuses mainly on the private sector with respect to both the transition and employment, assuming that Poland's economic growth will continue on as it was before the pandemic. Accordingly, programmes and declarations on employment remain vague, and always aim to improve prosperity. A public debate on these matters is growing, although very slowly. Likewise, a movement for an ecologically and socially just transition is forming only slowly, and began forming only recently. It cannot count on participation by the trade unions.

10. Slovakia: Initial situation, policies, debate, and actors

Sustainable work or ecologically and socially sustainable employment are not discussed in Slovakia, either in public debates or in governmental documents. Green jobs are discussed only rarely. The just transition was not widely mentioned in governmental documents before 2020. Since 2020, the government has been led by a coalition headed up by a populist, conservative party that includes a conservative, a right wing populist, and a liberal party. From 2016 to 2020, the government was led by a coalition headed up by social democrats including a nationalist conservative party and a party from the Hungarian minority. The social democrats ruled alone with an absolute majority from 2012 to 2016. Climate change, a just transition, and ecologically sustainable employment have not been central issues for any of the parties or governments in the past.

Under pressure by the EU, a wide range of strategic papers were enacted in recent years to fight climate change, transform the country's energy policy, etc. However, most statements are not very concrete, and implementation is either unclear or wanting. There are very few state programmes to create ecologically sustainable employment, and there are none at all that also consider the aspect of social sustainability or the criterion of good work.

Nuclear power is central to the country's energy strategy, with over 50 percent of domestic electricity production from two nuclear power plants (Diallo et al. 2020, 5). There are plans to commission two additional reactor blocks at one of the nuclear power plants. Electricity production from coal has dropped significantly in the last decade, however in 2018 it was still responsible for 19 percent of total domestic energy production (OECD 2020t). Electricity generated from coal is highly subsidised. A resolution was passed to end subsidies at the end of 2023. This is presented by the Slovakian government as well as internationally as an abandonment of coal. However, this is not exactly true. A plan has been passed for replacement jobs in the lignite producing region, however the end of subsidies does not automatically mean the end of lignite mining, nor necessarily the end of power generated from coal (Beňová 2020, 3–4). It is possible that coal mining will be continued and power will continue to be generated from it, as investments in renewable energy sources are very low and have actually dropped in recent years.

10.1 Statistical data on the economy, population structure, and employment

10.1.1 Population (overall population and age structure 2020)

In 2020, Slovakia had 5.5 million inhabitants. With 16.7 percent of its population over 65 years of age, Slovakia has the lowest such percentage of all the nations reviewed. The percentage of 0-14-year-olds is fairly low, slightly above Portugal, Spain, and Poland.

Total population in millIons	Annual population growth %	Population structure (age)			
		0-14 (%)	10-24 (%)	15-64 (%)	65 + (%)
2020	2015-2020	2020	2020	2020	2020
5.5	0.1	15.6	15.3	67.7	16.7

(UNFPA 2020, 145)

Since the percentage of 10-24-year-olds is also fairly low (just slightly above Spain and Poland and equal to Portugal), and the percentage of 15-64-year-olds is highest, a progressive reduction in the working-age population is expected. This will likely be reinforced by the new government's anti-immigration stance.

10.1.2 GDP, economic growth, and economic structure

Per capita GDP in 2018 was US$ 32,621 annually, just above Poland in second-to-last position. However, Slovakia had growth rates between 2.1 and 4.8 percent from 2014 to 2018, the second highest growth in GDP after Poland. Industry including energy made up the largest share of value creation at 25.7 percent, while agriculture and forestry and fishing made up the smallest at 2.6 percent (OECD 2020f).

10.2 Workforce, employment, and labour market

10.2.1 Labour market data

Table 1. Labour force

Annual average estimates

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Labour force, thousands										
All persons	2 707 |	2 680	2 707	2 715	2 722	2 738	2 759	2 755	2 746	2 741
Males	1 497 |	1 496	1 507	1 506	1 510	1 505	1 511	1 504	1 506	1 501
Females	1 210 |	1 185	1 200	1 210	1 212	1 234	1 248	1 251	1 240	1 240
Unemployed, thousands										
All persons	389 |	365	378	386	359	314	267	224	179	158
Males	213 |	204	204	210	194	155	133	119	92	84
Females	177 |	161	174	176	165	159	134	105	87	74
Employment, thousands										
All persons	2 318 |	2 315	2 329	2 329	2 363	2 424	2 492	2 531	2 567	2 584
Males	1 285 |	1 292	1 303	1 295	1 316	1 349	1 378	1 385	1 414	1 417
Females	1 033 |	1 023	1 025	1 034	1 047	1 075	1 114	1 145	1 153	1 166
Employment (%)										
Males	55.4 |	55.8	56.0	55.6	55.7	55.7	55.3	54.7	55.1	54.9
Females	44.6 |	44.2	44.0	44.4	44.3	44.3	44.7	45.3	44.9	45.1
Unemployment rate (% of labour force)										
All persons	14.4 |	13.6	14.0	14.2	13.2	11.5	9.7	8.1	6.5	5.8
Males	14.2 |	13.6	13.5	14.0	12.8	10.3	8.8	7.9	6.1	5.6
Females	14.6 |	13.6	14.5	14.5	13.6	12.9	10.8	8.4	7.0	6.0

(OECD 2020n)

The unemployment rate was moderate in 2019 at 5.8 percent. From 2009 to 2015, it fluctuated between 11.5 and 14.4 percent. However, at 16.1 percent (2019), the youth unemployment rate is still high, and has even increased from 14.9 percent in 2018, although the overall unemployment rate dropped. There are major differences between regions. There is a lack of trained professionals in western Slovakia, while the East has a higher unemployment rate. There is also a large amount of migration in Slovakia. This does relieve the labour market, but also contributes to the lack of trained professionals. In total, over half a million Slovakians have emigrated to western Europe since Slovakia joined the EU in 2004, almost ten percent of the total population (European Commission 2019; Szczurek and Tomaszewski 2017, 7–8).

Table 2. Unemployment rates by age

Annual average estimates, percentage

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
All persons										
15-24	33.6	33.4	34.0	33.6	29.7	26.4	22.2	18.9	14.9	16.1
25-54	12.8	12.1	12.4	12.8	12.0	10.5	8.6	7.6	6.1	5.3
55-64	10.1	10.1	11.2	11.0	10.6	9.3	9.0	6.0	5.3	4.7
65 and over	4.1	2.4	3.4	4.1	6.4	2.3	2.5	1.9	0.7	0.2
15-64	14.4	13.7	14.0	14.3	13.2	11.5	9.7	8.2	6.6	5.8

(OECD 2020n)

The working-age population increased slightly in Slovakia between 2010-2019, from 2.707 million to 2.741 million. Employment increased from 2.318 to 2.584 million. Slovakia has the highest percentage of industrial employment among comparable nations. The ratio of employment between industry and service is 1:1.5. Like Poland, Slovakia is considered western Europe's extended workbench. However, there are also differences in the structure of production. In contrast to Poland, the percentage of employment in agriculture, hunting, and forestry is very small. In 2019 this was 72,000 of 2,583,700 workers, almost the same level as in 2010 (75,000), despite fluctuations up and down. The increase in industrial employment between 2010 and 2019 was a little over eight percent (from 860,100 to 932,600), while the increase in the service sector was over 14 percent (from 1.383 to 1.579 million). A closer look at the data shows, however, that the growth in employment in the industrial sector was entirely seen in the manufacturing industry (from 530,000 to 635,900). This industry grew by 20 percent, stronger growth than in Poland (18 percent). Employment dropped in Slovakia from 2010-2019 in almost all industrial sectors: In the construction industry, it dropped from 258,300 to 235,900; in mining from 13,900 to 8,800; and in water supply, waste water, waste management and avoidance from 31,100 to 22,600. It increased only in electricity, gas, steam, and air conditioning, from 27,000 to 29,400 (OECD 2020n).

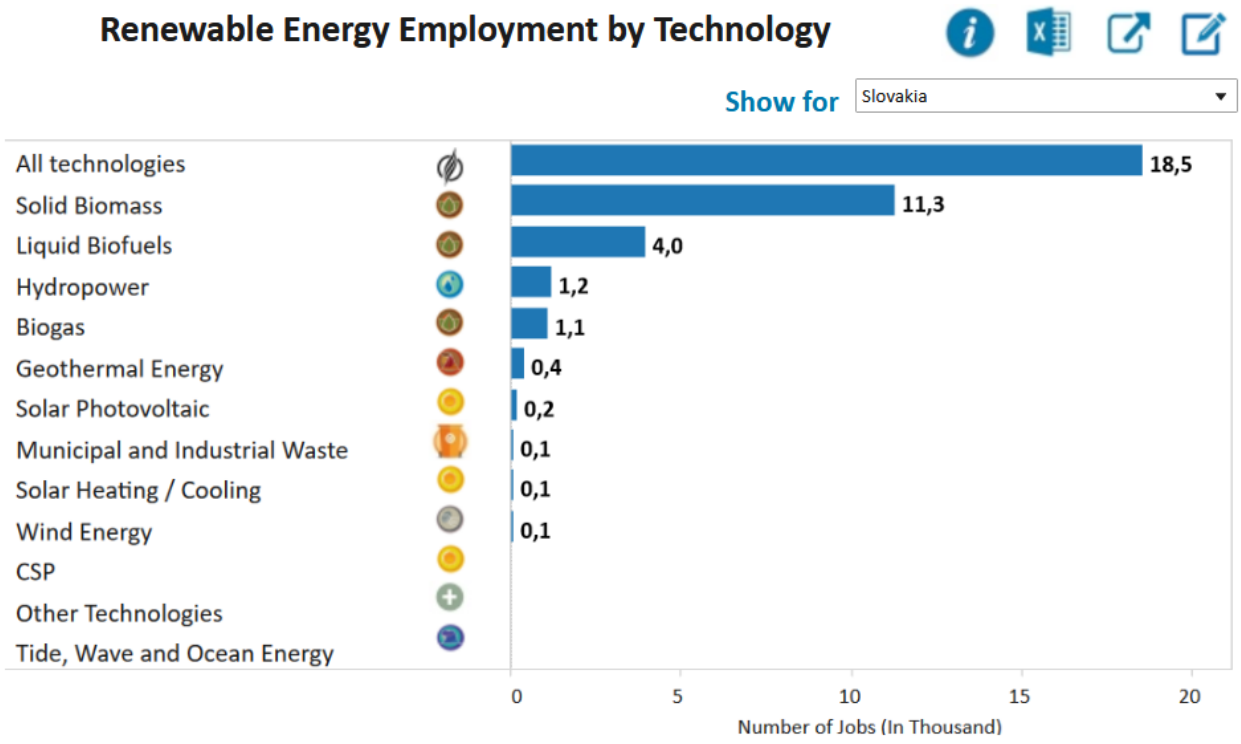
Employment grew in almost all sub-sectors of the service sector. Interestingly, the information and communication sector saw the largest growth in employment (from 55,900 to 76,600). The following service sectors saw high growth, confirming once again the country's differences from Poland: Education (from 165,000 to 200,000, with continuous growth since 2014); hotel and hospitality (from 68,900 to 92,700); human health and social work (from 157,100 to 198,100); public administration, defence, and social insurance systems (from 188,900 to 216,800); professional, academic, and technical activities (from 75,400 to 90,700); culture, entertainment, and recreation (from 51,600 to 63,500); other services (from 31,200 to 37,700); the real estate sector (from 13,800 to 15,100); and finance and insurance (from 47,800 to 54,700). Despite a small amount of growth, employment in wholesale and retail and vehicle repair stagnated (from 306,300 to 306,500); administration and support services (from 59,500 to 59,900); and transportation and storage (from 103,600 to 107,900) (OECD 2020n).

10.3 Green jobs – Zelená práca

With 62 points in the EU-28 Eco-innovation scoreboard for 2019, and just 52 points for employment in *eco-industries*, Slovakia is well below the EU28 average in 23rd place (European Commission 2020). In general, Slovakia was close to last place in almost all areas related to eco-innovation (Eco-Innovation Observatory 2020). On the one hand, this is partially due to the economic

structure and position of the country in national goods manufacturing chains. Slovakia is one of the most successful exporters of medium and high-tech products in the EU, however its exports of ecologically innovative technology are just half of the EU average (Eco-Innovation Observatory 2020, 7). On the other, however, state and private investments in research and development are very low, compared to other EU countries. State funding for research institutions and companies to develop and implement ecological innovation is very low, and non-financial support for companies is practically non-existent (Eco-Innovation Observatory 2020).

10.3.1. Employment in the renewable energy sector



Source IRENA jobs database. Figures provided are the result of a comprehensive review of primary information sources by national entities such as ministries and statistical agencies, and secondary data sources such as regional and global studies.This is an ongoing effort to update and refine available knowledge. Totals may not add up due to rounding.'Other Technologies' include jobs which are not technology specific.

(IRENA 2020b)

Most of the 18,500 jobs in the renewable energy sector in Slovakia in 2020 were in bio-energy sources. Production of bio-energy from biomass leads, followed by liquid bio-fuel. Hydropower and bio-gas play a minor role. Solar energy has 300 employees and wind energy has 100, making them marginal sectors (IRENA 2020b). Employment in energy production from biomass increased from 2010 to 2020 (from 800 to 11,300) as well as in bio-gas (from less than 50 to 1,100), an almost 1,500 percent increase. Solar energy saw only 20 percent growth during the same time period, and wind energy has only been in use since 2017 (Kułyk u. a. 2019, 577–79; IRENA 2020b). The percentage of renewable energy in overall energy consumption in 2019 was 16.9 percent, a jump from the 11.9 percent it made up in 2018, following stagnation in this percentage between 11.7 and 12.88

percent from 2014 to 2018. However, no new capacity for generating power from renewable energy has been installed since 2018, so the increase is due to biomass. The percentage of renewable energy in power generation in Slovakia was just five percent in 2020, the lowest of any EU nation (Twidale 2021). Increasing energy consumption in transportation and building heating has not been offset with renewable energy (eurostat 2021b; Diallo et al. 2020, 6).

10.3.2 Public policies and measures

Since 2018, the Slovakian government has enacted a large number of different plans, guidelines, and programmes announcing ambitious targets to completely transform the Slovakian economy and society. These focus on digitisation and the environment. The plans are designed to create a large number of jobs. However, this investigation was not able to find specific programmes for directly promoting green jobs or ecologically sustainable employment, nor any specific professional training or continued education programmes. The "Operational Programme Quality of Environment for 2014-2020 Period" (OP QE) announced that funding programmes would be established for green jobs. According to it, unemployed workers would have the opportunity to apply for funding from labour agencies if they obtained employment in a green job. A specific programme was to be created for young workers up to 29 to promote green jobs in the environmental sector (Ministry of Environment of the Slovak Republic 2014b, 158). However, in the course of my limited research, I was not able to determine any specific meaning for this programme.

Education is mentioned in governmental documents in general statements, which say that lifelong learning and improving digital competence are the focus of strategies for the future. Such documents refer to the environment, however the ecological transformation or eco-innovation are not specifically mentioned (Eco-Innovation Observatory 2020). The Slovakian government apparently assumes that eco-innovation and the circular economy will be an automatic consequence of digitisation (Eco-Innovation Observatory 2020, 16) and green jobs, or that ecologically sustainable employment will almost inevitably result from new framework environmental guidelines, educational programmes, and funding private business.

In 2018, the Slovakian government passed the 2030 Economic Policy Strategy with framework guidelines. In 2019, this was followed up by a 2030 Economic Policy Action Plan to support implementation of the strategy. This plan includes measures to investigate "opportunities and challenges for introducing circular economy principles into select economic sectors". Results are supposed to be available by 31/12/2020. In addition to electrifying the entire railway network, the action plan primarily mentions promoting recycling and the industrial use of recycled materials, as well as ensuring longer service lives for products (Eco-Innovation Observatory 2020, 15, 27–28). Neither document deals with employment specifically.

10.3.2.1 Update to the Climate Change Adaptation Strategy

In 2018, the Climate Change Adaptation Strategy (Ministry of Environment of the Slovak Republic 2014a) was updated to investigate the effects of climate change on geology, soils, the natural environment and biological diversity, water supply and management, settlements, human health, agriculture and forestry, traffic, energy, industry, and tourism, and a proactive adjustment was drafted.

The consequences for employment were analysed, and the plan stipulated that policies for adapting to climate change should also improve the resilience of companies and corporate activity in the face of shifts caused by climate change (Eco-Innovation Observatory 2020, 15, 26). No specific employment measures were included.

10.3.2.2 Vision and Strategy of Slovakia's Development until 2030

This document, enacted in 2019, was an orientation for local implementation of the 2030 Agenda for Sustainable Development and the 17 SDGs it contained (DIRD 2019). In line with the SDGs, "good work" is formulated as one of the goals in the document, which postulates the goal of transforming the Slovakian economy into an innovative green economy. It stipulated that this economy should use education and available resources and be ecologically and socially resilient against negative internal and external impacts (Eco-Innovation Observatory 2020, 14).

10.3.2.3 Strategy of the Environmental Policy of the Slovak Republic until 2030

This policy document, enacted in December of 2019, establishes framework guidelines and the orientation of Slovakia's environmental strategy, along with targets through 2030 (the predecessor document was from 1993) (Ministry of Environment of the Slovak Republic 2019). According to the document, the economy should be transformed into a sustainable circular economy by 2030. By 2030, support for green innovation and green R&D should be at the EU average level. The term employment occurs only once in the paper, and the term work is not used at all (Ministry of Environment of the Slovak Republic 2019). The document states that environmental training and environmental educational programmes should be offered for all age groups. Through a collaboration of public and private institutions, universities, and NGOs, "the system of formal and informal environmental education and training for sustainable development", it states, will "will become more efficient" (Ministry of Environment of the Slovak Republic 2019, 43).

10.3.2.4 Integrated National Energy and Climate Plan for 2021 to 2030

The Slovakian government also passed an energy and climate plan for 2021-2030 in December of 2019. The plan states: "The Slovakian Republic takes air quality, reducing greenhouse gas emissions, lessening climate change, ensuring the security of supply for and affordability of all kinds of energy very seriously (Ministry of Economy of the Slovak Republic 2019, 19). The Slovakian Republic, it emphasises, committed in 2019 to achieve CO2 neutrality by 2050. At the same time, however, the plan barely addresses how the step-by-step reduction in emissions should be achieved. It also bypasses the fact that the targets announced in the report are actually worse than targets set previously in many areas. The goal set for 2030 was to have renewable energy cover 19.2 percent of total energy requirements, and 27.3 percent of electricity requirements (Ministry of Economy of the Slovak Republic 2019, 19). Under former plans, the percentage of renewable energy in total electricity requirements was to have been 24 percent already in 2024 (Diallo et al. 2020, 6). It is very unlikely that the intermediate targets announced in the climate plan will be achieved, and it will not be possible to achieve CO2 neutrality by 2050, in any case, without further measures. The plan does not contain any strategy for creating ecologically and socially sustainable employment.

Quite the contrary - the plan notes that demand for workers will drop and therefore the employment rate, which will exercise strong pressure on wages in the long-term, with this pressure only growing the closer we get to 2050 (Ministry of Economy of the Slovak Republic 2019, 238).

10.3.2.5 Low-Carbon Development Strategy until 2030 with an Outlook until 2050

The Low-Carbon Development Strategy until 2030, which was enacted before the new government came into power in late March 2020, contains a variety of suggestions for achieving CO2 neutrality by 2050 (Ministry of Environment of the Slovak Republic 2020). These include expanding the circular economy, increasing the service life and options for reusing materials, expanding recycling, and providing support to companies that specialise in sharing, rental, and repair (Eco-Innovation Observatory 2020, 14). The strategy refers to the EU just transition fund as part of the potential funding available. It indicates that Slovakia will participate, but provides no information on what Slovakia could use the fund for, or in what form. It also does not explain what a just transition is.

However, the document does speak extensively of green jobs. In its analysis of the socio-economic consequences of the suggested policies, it states:

> "Such a low-carbon transformation will therefore require large investment costs on the one hand, but will also bring new economic benefits (green jobs, new sectors) and sustainability to the levels of economic growth on the other hand (decarbonisation based on WAM scenario impact modelling should bring GDP growth in the long term). Green jobs mean mainly new jobs created in the housing, building, agriculture and forestry sectors (in terms of nature conservation and biomass use, as well as jobs in the electricity, heat production and new economy sectors).". (Ministry of Environment of the Slovak Republic 2020, 73).

According to the study, the negative consequences for the labour market far outweigh the positive ones. It states that decarbonisation will weaken industrial production in sectors such as chemicals, rubber, iron, and steel. The iron and steel industry, it states, will require high levels of investment, resulting in significant price growth, and demand for the oil refineries will decrease. Energy costs for heavy ferrous metals, however, would drop and facilitate a boost in production. Motor vehicle production would remain important for the economy, and the strategy assumes that this would transition to the production of electric vehicles or vehicles using alternative fuels. According to a model calculation, it indicates that there would be comprehensive investment in renovation, and the construction industry would grow. Changes in the industrial sector would result in a redistribution of workers into many different sectors. Services, export-oriented industries, and goods production would grow and hire more workers, while significant consumer goods industries would let employees go. Ultimately, not all of those who lost their jobs would find new ones, resulting in an increase in unemployment. Pressure on wages would increase through 2050 because of this. The study states these issues would need to be counteracted with social programmes and better education, in order to prevent negative social consequences for the unemployed. In addition, it says poor people, especially the Roma community, would need to be taken into consideration in the course of the energy transition. On the other hand, more extensive strategic planning would also be necessary, in order to guarantee the human resources, and in particular qualified workers who would be needed for the transformation to a low-CO2 economy (Ministry of Environment of the Slovak Republic 2020, 76–77).

As imprecise and insufficient as the projects presented are, the objectives for reducing greenhouse gas emissions are much more extensive than in the model calculation. The introduction states that the measures would have to be more extensive to achieve CO2 neutrality by 2050, and would result in significantly higher costs than presented in the strategy. (Ministry of Environment of the Slovak Republic 2020, 6). It explains that the data necessary to complete a model calculation in line with the new obligations was not available, and that the calculations needed to be repeated with updated data (Ministry of Environment of the Slovak Republic 2020, 75).

10.3.2.6 National Reform Programme of the Slovak Republic

The terms just transition, green jobs, and ecologically and socially sustainable employment are not used in the reform programme enacted in May of 2020 by the new government. Sustainability is primarily related to public financing. The only specific environmental aspects mentioned in the planned professional training and continued education measures are improving employee competencies in the public sector with respect to green purchasing and green tendering processes. Otherwise, the programme refers to a continued professional training programme passed in 2019 which describes adaptations to market requirements, for which a total of less than € 20 million had been provided by 2023 (Ministry of Finance of the Slovak Republic 2020, 25).

The programme postulates the importance of decoupling economic growth as far as possible from environmental destruction. The planned ecological measures include promoting electric mobility through purchasing incentives for electric cars (689 electric and 98 hybrid vehicles in 2020) and financing 144 charging columns, announcing a programme to replace old boilers with newer, more energy-efficient models, and a programme for energy-efficient building renovations (Ministry of Finance of the Slovak Republic 2020, 28). In order to promote renewable energy, it stipulates that the tendering system for concessions should be converted into an auction system, in order to select larger projects and achieve targets with respect to expansion.

The priorities listed there, energy-efficient renovation, renewable energy, energy efficiency and "clean" mobility, are areas in which Slovakia has long been deficient, as the European Commission has highlighted (Slovak Foreign Policy Association 2020, 4). Whether the announced measures will be sufficient, if they are even specified and implemented, is doubtful. The first auction for renewable energy was slated to be held in February of 2020, but was initially delayed to April and then cancelled by the new government without any replacement date (Diallo et al. 2020, 4).

10.3.2.7 Phasing out coal: Action Plan for the Horná Nitra Coal Region

The criticism of coal in Slovakia primarily deals with the extensive state subsidies given to power generated from coal, which totalled almost € 116 million in 2018 (Beňová 2020, 4). The subsidies will expire in 2023, although this is not the same thing as phasing out coal (OECD 2020t). In 2019, an action plan for the Horná-Nitra coal mining region was passed, in order to prepare for the long-term phase-out of coal. Three of the nation's four underground lignite mines are located in the region. In 2018, mining companies in the region directly employed 4,017 people, of them 3,244 in mining. According to the government, there were also another 7,000 indirect jobs (Lamačková 2018, 4).

The action plan says that it was created with the participation of civil society actors (Eco-Innovation Observatory 2020, 18). In reality, regional media invited individuals to register via e-mail to take part in consulting meetings. 60 individuals responded to the offer, mainly local representatives from public administrations, business owners, directors of schools and social institutions, and representatives of NGOs. 15 meetings were held between March and September 2018 for the purpose of collecting suggestions to be forwarded to the responsible ministry (Bankwatch Network 2019, 2). Later on, Greenpeace and Friends of the Earth took part in two working groups to further develop the plan. Their ideas were heard, however, discussion and implementation of their suggestions were limited.

After the action plan was passed, 200 suggestions were submitted with total costs of € 3.1 billion, in order to create 10,000 jobs. However, it does not mention how much financing is available, or what kinds of jobs the plan will create, nor how many of the projects are feasible and will be financed (Ministry of Finance of the Slovak Republic 2020, 28). The number of jobs the plan intends to create seems highly overblown. According to an earlier state assessment, there would only be the potential to create 6,472 jobs. However, 3,019 of these were in the tourism sector, which would make financing very difficult to obtain from available EU funds (Filčák, Baláž, and Jeck 2018, 76–77). Past experience with suggestions to create new employment have also shown that the capacities to develop projects locally in research and development, alternative energy, or agriculture are low (Filčák, Baláž, and Jeck 2018, 83–84).

10.3.2.8 Circular economy

Slovakia's circularity rate in 2018 was just five percent. This figure was actually slightly higher in 2010, at 5.1 percent. This is much less than half of the EU28 average for 2018, which was 12.2 percent (eurostat 2021a). Industry was the largest producer of trash in 2018, followed by transportation and storage (Eco-Innovation Observatory 2020, 3). According to presentations by the Slovakian government from 2016-2020, the circular economy was to be promoted in the future primarily as a consequence of introducing higher taxes for higher resource consumption and lower employer contributions for workers as a result of lower resource consumption or higher recycling rates. Tax policy is considered the most important instrument to bring about a progressive transformation of the economy (Ministry of Environment of the Slovak Republic and Slovak Environment Agency 2019, 19). Additional mechanisms were resolved in the Waste Prevention Program 2019-2025. These include increased fees for disposing of waste in dumps, increasing public awareness, public tendering processes which take ecological criteria into consideration, and introducing voluntary eco emblems (Eco-Innovation Observatory 2020, 14).

10.4 Criticism and other actors: Parties, trade unions and environmental movement

10.4.1 Parties

The government led by the social democratic party SMER-SD lost in the 2020 elections. The SMER-SD fell from 28 to 18 percent of votes. They were voted out after revelations of abuses of power, corruption, and governmental agents' connections with organised crime. The revelations followed the murder of investigative journalist Jan Kuciak and his partner Martina Kušnírová in

February of 2018. When the SMER-SD was in power alone (2012-2016), it showed very little interest in ecological sustainability or the green economy. The party did not mention and did not take any clear position on climate change (Filčák 2016, 15–16). This is probably partially due to the fact that its core voters were industrial sector employees. This changed – at least, by all appearances – after around 2018, likely due to increased pressure from the EU. The right-left coalition government led by the SMER-SD (2016-2020) signed the Paris Climate Accords and passed a wide range of different programmes and declarations that made use of EU climate vocabulary. No actual implementation of these has taken place. It seems unlikely that the ecological specifications will be fulfilled. Likewise, the new conservative - economically liberal coalition government is not expected to implement any more extensive climate policy, and they are certainly not expected to undertake any more state measures or interventions in order to promote ecologically sustainable employment. These topics do not play any significant role in the electoral platforms of the coalition parties, and topics such as the environment and climate change were not mentioned at all in the platforms of small coalition partners like the populist right-wing party Sme Rodina. The Green party essentially no longer exists. In 2016, it received 0.67 percent of votes (Filčák 2016, 17).

10.4.2 Trade unions

Up to a few years ago, Slovakian trade unions showed very little interest in climate change or policies to counteract it. This is most likely due to dropping membership, increasing pressure by companies, and a strong concentration of industrial jobs (Filčák 2016, 18). The largest trade union association KOZ SR (Konfederácia Odborových Zväzov Slovenskej Republiky) has also cooperated closely with the SMER-SD. While it was in charge of the government alone, it was able to exercise a right of co-determination on limited operational matters, and took part in the discussion on new labour laws (Kahancová and Sedláková 2018, 371–72).

Environmental issues and climate change are not mentioned in the 2017-2021 platform of the metalworker's union OZ KOVO (Odborový Zväz KOVO). OZ KOVO is primarily active in the automotive production sector and associated supply chains. In 2019, OZ KOVO signed the election manifesto of the European faction of the global trade union association IndustriALL, which took a position against right-wing populism: It called for "finally placing workers first, after ten years of austerity measures and deregulation" and called for a "'Made in Europe' industrial strategy to create urgently needed jobs and to move industry to the forefront in handling social challenges such as climate change", as well as a "transition to a low-carbon economy in order to ensure that ambitious environmental policies are supplemented with ambitious social policies" (OZ KOVO 2019).

In the meantime, the KOZ SR has taken up the topic of climate change, as Vice Chair Monika Uhlerová explained:

> "Climate change is evidence of the impact and the non-sustainability of the current economic model, which is founded on unlimited growth and profits. ... the only way we can transition to a socially just, sustainable, and green economy is through fair climate protection measures that modernise business and create new jobs, and by actively fighting climate change, as well as through social justice and social security" (KOZ SR 2019b).

At the same time, the trade union association noted that many employees have difficulty thinking and talking about environmental issues if they do not even receive proper wages sufficient to cover

their own basic needs. She stated that bringing the topic of climate change and the ecological transition into the discussion in trade unions is necessary, yet at the same time difficult (KOZ SR 2019a).

10.4.3 Environmental movement

Environmental awareness and concern about climate change are growing among the population of Slovakia. Although, according to one survey, in 2019 60 percent of the population thought increasing waste production was the biggest environmental problem, and only 27 percent thought it was climate change, this still represented a jump of eleven percentage points since 2017. In one survey from 2020, 87 percent of the population agreed that the state should provide support for renewable energy. This growth in awareness is also reflected in increasing environmental activism. This activism ranges from increasing activity related to the circular economy, waste avoidance and sustainability, to growing protests by an environmental movement (Eco-Innovation Observatory 2020, 8).

As in other eastern European countries, Slovakia has a relatively well-developed and established network of NGOs. In the environmental sector, groups which have been active for a longer period of time include Greenpeace Slovakia and the Slovakian Friends of the Earth, which are made up of three groups (Filčák 2016). In addition, a wide range of activist groups have been formed in Slovakia to carry out protests. These include, for instance, Turnaround, Extinction Rebellion Slovakia, Students without names **(**Študenti bez mena) and Concerned mothers **(**Znepokojené matky). On 7 October 2020, activists from these organisations joined together to block the entrances to five ministries and the central governmental office of the Slovakian Republic as part of the international "Climate Care Uprising" campaign, calling for better protections for the climate and biological diversity. They demanded that the government make these issues a priority, rather than dealing with them in a fragmented manner through individual Ministries, and that the government advocate for a 65 percent reduction in emissions by 2030 before the European Council (Greenpeace Slovensko 2020).

10.5 Summary of preliminary conclusions

For many years, governmental interest in climate policy in Slovakia was very low. The large number of plans, papers, and programmes that have been passed up to this point generally seem to be in response to EU resolutions. They do not provide any clear information on how Slovakia intends to achieve climate targets, nor how jobs will specifically be created. Sustainable work and ecologically and socially sustainable employment are not addressed in public debates or in the discourse among political actors. Slovakia is the only country in this study whose government does not primarily highlight the presumed opportunities for significant numbers of new, high-quality jobs as a result of the transition to a low-carbon economy and society. The government's primary concern is digitisation. Any other concerns seem to be an expected consequence of private business strategies and the force of the market, including the ecologically sustainable transformation of the economy and the creation of green jobs.

The fact that the past success – from a conventional, growth-oriented standpoint – of the Slovakian economy and employment growth have been based primarily on a lack of climate protection policies and the expansion of the government's own position in value creation chains of western European industrial companies, as well as the fact that the country serves as a bridge to eastern Europe, are likely some of the main reasons that the Slovakian government shows a general lack of interest in renewable energy, sustainability, and sustainable work.

However, various studies do indicate that Slovakia has a high potential for usable renewable energy. In the Košice region, which is the country's most important industrial region, studies indicate that 50 percent of energy needs could be covered using geothermal energy. Other potential renewable energy sources available in the region include hydropower, biomass, solar energy, and wind energy (Zelenakova, Vilcekova, and Zvijáková 2016, 9). An evaluation of solar energy production in Slovakia, covering installed capacity, political and technical framework conditions, and the government's plans and ambitions by Solar Power Europe, an interest group made up of energy and tech group companies for the expansion of solar energy, in contrast, came to a negative conclusion regarding solar power (Solar Power Europe 2021).

11. Preliminary conclusions from the national discourses

The goal of this study was to investigate the policies, discourses, and actors salient for the topics surrounding "sustainable work" in nine different European countries. Sustainable work is an explicit part of the Sustainable Development Goals (SDGs), 17 global targets for sustainable development included in the 2030 Agenda. These have been discussed by the United Nations since 2012. In late September of 2015, final wording for a motion was enacted by the UN General Assembly at the World Summit on Sustainable Development. The term and topic of sustainable development, therefore, also should have become part of national policies and debates in the nine countries investigated here, as well as in the EU. In reality, however, the results of this investigation are fairly sobering on this point. The SDGs seem to have been implemented in the areas of labour and work to only a rudimentary extent, or not at all, in political programmes and state policies. In most countries, the term sustainable work does not even appear in programmes, measures or broader public debates. In the few cases in which it is used, its meaning normally does not match up with the content of the SDGs. Spain is the only exception, as far as can be discerned. The quality and sustainability of work have played a central role there since 2018, both in governmental programmes as well as in the extensive critiques of such programmes. This is evidence that there is a public debate on this issue, and that there are actors advancing this discussion, even if they have not yet said very much regarding implementation.

The term or concept of a more comprehensive social and ecological perspective on sustainable work in the sense of the SDGs does not even appear in the documents of EU institutions that deal with the ecological transformation of the economy and society five years after the motion was passed. However, these, in turn, provide a point of orientation for EU nation policies, since they formulate joint goals and since programmes and financing are subject to relevant conditions in these areas.

Hardly any topics, indicators, and instruments supporting a more comprehensive social and ecological perspective on sustainable work seem to have been developed. There are not even uniform criteria or indicators available, nor any common terminology. Different countries not only use different terms and umbrella terms, they also differ on which sectors are attributed to these terms. In some areas, this is associated with completely different perceptions and strategies. This makes it more difficult to research sustainable work in the individual countries, and in particular makes comparative research difficult - such research does not appear to exist. Therefore, during the course of this research I have had to review a larger number of original documents and programmes from more different institutions (public and private), the research literature, and individual positions from various political and social actors than was initially planned. This is likewise reflected in thee extensive – yet certainly not exhaustive – bibliography.

The results and conclusions of the research, summarised in the following section, should therefore be seen as the result of unavoidably limited research, and should not be considered final. The results will be presented in four blocks: (1) The first section deals with the specific range of topics surrounding sustainable work. How is this issue addressed in the individual countries, or what other terms are used in relation to work and employment, and what is their meaning? (2) The second section discusses additional important findings through statements on renewable energy, self-organisation and localisation, as well as the role of labour administrations, that are not included or only partially covered by the first block. (3) This is followed by a discussion on the possibility of associating the different countries in clusters, thereby establishing a system to describe them based

on their commonalities. (4) Finally, this section provides an outlook on social and ecological transitional perspectives for work and earning, postulating further research questions and research fields that could be of interest based on this investigation.

11.1. Sustainable work

The assumption expressed at the outset of the investigation that there is no common understanding of the term sustainable work in Europe was sustained following an initial evaluation of the topic, then confirmed following review of hundreds of documents. Likewise, there is no academic discussion on the European level regarding the actual definition of the term, nor regarding how to make a relevant concept useful for the labour market and labour market administration.

Most EU governments – at least rhetorically – align their measures to promote ecologically sustainable transformation (in which strategies to create ecologically sustainable jobs are embedded) to EU declarations and programmes. These now include, above all, the "Long-term strategic vision for a prosperous, modern, competitive, and climate-neutral economy by 2050", submitted by the European Commission on 28 November 2018 (Europäische Kommission 2018). In it, the Commission presents "its vision for a climate-neutral future that encompasses almost all EU policy areas and conforms to the goals of the Paris Accords to keep temperature increases well below 2° C and undertake efforts to limit increases to 1.5° C" (Europäische Kommission 2018), at the request of the European Parliament and the European Council. The topic of sustainable work is not addressed.

The Horizon 2020 framework programme for research and innovation (also known as the Horizon 2020) also plays an important role in the EU with respect to the sustainable social and ecological transformation of the economy and society. As a "funding programme, its goal is to establish a knowledge and innovation-based society and a competitive economy throughout the EU, while at the same time contributing to sustainable development. To have a targeted impact on society, the programme establishes focal points and includes a comprehensive range of measures" (BMBF 2021). Aspects relevant to sustainable work are discussed primarily in conjunction with types of production that use resources efficiently in order to avoid climate change. In the four major focus areas described for 2018-2020, connections with sustainable work were primarily evident under the program points of "Building a low-carbon, climate resilient future" and "Connecting economic and environmental gains – the Circular Economy". Opportunities to support sustainable forms of production through new technologies are also described in the focus area "Digitising and transforming European industry and services". These areas are ruled by a heavily technology-centred perspective, while any further social and ecological transformation of the work-oriented society is neither planned nor addressed (European Commission 2020a).

The term sustainability plays little or no role in most European nations included in this investigation in relation to work, or it is used differently than in Germany. In France, for instance, sustainable work (*travail durable*) generally means long-term employment, or stable work. Only Spain and Scotland are exceptions. Sustainable employment has been explicitly mentioned in several governmental documents since the first social democrat - left coalition government in 2018. This is postulated as part of a larger framework of socially just, cost-efficient decarbonisation of the economy based on solidarity, but not defined in more detail. The term sustainable work is not normally used in Scotland - fair work is used instead, but is defined with many of the characteristics of sustainable work. I have already established that a variety of related terms are used in different languages and

countries, and that terms are interpreted differently, which begs the question of whether sustainable work or aspects of sustainable work are actually addressed. However, a review of different aspects of sustainable work addressed in the introduction as part of this extensive, yet unavoidably limited investigation, is also fairly sobering.

Governmental discourses and documents generally underscore the fact that the ecological transition will require comprehensive qualification measures, and will make it possible to create more profitable employment opportunities. However, as this investigation makes clear, this understanding bears little resemblance to reality. Satisfactory work, job security, and employee well-being tend to be addressed more in calls or critiques of governmental policies issued by a range of trade unions or broader coalitions advocating for a just transition. Aspects such as dignified work and the reproductive capability of labour and life, which are part of a comprehensive understanding of sustainable work, are likewise at most discussed by environmental organisations, social groups, and trade unions in individual countries. They are only part of a public debate to a very limited extent, insofar as could be determined. Fairly addressing aspects of generational justice, from planned climate protection measures, measures related to the ecological transition, and planned energy and resource policies addressing the reproductive capabilities of work and life, as well as ecosystems and resources for future generations, also formed the basis for class action suits in the Netherlands and Spain against climate protection measures, and in Norway against oil drilling in the Barents Sea.

Nowhere is an expanded understanding of work in the sense of sustainable work, understood as overcoming the work-oriented society by eliminating or at least partially overcoming the separation between productive and reproductive activity, part of the public debate. Calls for shorter work hours and gender equity are likewise made only in individual countries, by left-leaning environmental organisations, social associations, and trade unions. In countries in which gender-specific data or information on new employment associated with the ecological transition was available (such as France and Spain), jobs impacted by downskilling tend to be primarily held by young men. In the case of Spain, available data from several years actually shows a continuous increase in the majority of men in newly created green jobs. The problem has at least been identified in Spain, with the goal being defined to integrate more women by including gender perspectives in employment programmes (MITECO und ITJ 2020, 37).

Only very few actors advocate for a perspective that considers ecology, social issues, and the economy as a whole – the foundation for a comprehensive understanding of sustainable work like the one presented in the introduction. And this is only if they understand the economy as an economic system that includes maintaining the reproductive capability of work and life as well as ecosystems and resources for future generations as well. Such an understanding represents a radical shift in consumption and lifestyle habits. It is true that this call has been sounded by a variety of actors and even governments, such as Greenpeace or the governments of the Netherlands and Spain, however their concrete positions and policies contradict it. A radical shift in the economy and north/south relationships on the global level was never part of it. Consequently, such an approach is adopted only by a few, small, left-leaning environmental organisations such as Ecologistas en acción. Likewise, a few just transition coalitions made up of environmental movements, trade unions, and social organisations formulate such calls. To what extent the individual members of the coalitions actually stand behind this understanding, however, is doubtful - since their individual organisational positions often contain no mention of these issues.

Ecologistas en acción, an association of environmental groups in Spain, is the entity that most intensively addresses the issue of sustainable work in the sense of an ecological and social

transformation of the work-oriented society. The network underscores the need for an expanded understanding of work that both includes invisible, unpaid reproductive work and stops privileging the dimension of employment (Ecologistas en acción 2019a). There are certainly other actors that discuss sustainable work. However, Ecologistas en acción is the most important of these among the nations compared in this study. The alliance, which consists of over 300 environmental groups, is the largest and most active participant in Spain's environmental movement, and also the most active in fostering relationships with trade unions.

In France, broad and formidable federal initiatives made up of trade unions, environmental associations, and social organisations call for a shorter work hour of 32 hours per week at full wages and without making work hours flexible, as well as absolute gender parity. They state, these are "a necessary part of a post-productive economy' (Jobs-Climate Platform 2016, 10). The trade union association TUC from the UK also calls for shorter working hours as part of the social and ecological transition.

The following section summarises aspects related to quality of work in a broad sense once again based on the individual countries investigated in this study. The section also addresses terms frequently used to discuss work as part of a sustainable social and ecological transformation of the economy and society. The just transition, which should be considered as an aspect of sustainable work, green jobs, and the circular economy are presented and discussed together in the following sub-section (11.2.1), since the three terms also stand for the different perspectives of different actors.

11.1.1 Quality of work

In *France*, the majority of employees in green jobs or "greening jobs" are male and relatively young. The majority of them have no qualifications, or low qualifications. Governmental programmes focus almost exclusively on the quantitative aspect of jobs that are defined as green jobs and jobs in the green economy. Trade unions and movements criticise governmental policies as not being ecologically or socially sustainable. The green jobs strategy neglects the quality of work and qualified training, and is critiqued for not being comprehensive enough. In addition, the Macron government has deregulated labour law, which generally contradicts the goal of high-quality work. On the local level and in individual cases, however, qualification and training measures can certainly be focused on quality, and above all on making work more stable, since measures in France are transferred to private entities. Often, these are social associations that value such aspects.

In *Portugal*, the topic of the quality of work in the ecological transition has become part of the public debate only recently, through the increasing engagement of trade unions and social organisations for a just transition and through the just transition coalitions that have been formed. Previously, this debate was heavily dominated by a corporate perspective on bio-industries that leaves the aspect of employment out entirely, and does not address the continuity of governmental policies in the environmental area. Quality and social protections for work in the ecological transition of the economy and society do not play a role in the national strategic plans enacted by different governments up to 2017. An investigation based on a survey of 2.8 million workers found in 2017 that the standards for health and safety in green jobs were lower, and that work-related accidents were more frequent and more severe. Likewise, the percentage of employees with low levels of professional qualification is higher (Moreira, Vasconcelos, and Santos 2018; 2017). A few years

previously, the majority of workers in green jobs actually had a level of qualification below a secondary school-leaving certificate.

The quality of work has not played a role in *Spain* for many years, apart from giving the issue lip service. Since the centre-left coalition came to power in 2018, governmental programmes and the new National Plan of Adaptation to Climate Change emphasise different aspects of the quality of work. Generally, they speak of good employment (empleo decente), which should be long-term and should require qualification. However, Spain is the only country in which the creation of good, ecologically and socially sustainable employment is also focused heavily on rural regions, in order to counteract demographic shifts within the country. Left-leaning trade unions, environmental movements, and research have long discussed the quality, social protections for, and sustainability of work in relation to the ecologically sustainable transition. Ecologistas en Acción is engaged in a comprehensive discussion which includes the transformation of the work-oriented society. The National Integrated Climate and Energy Plan (PNIEC) 2021-2030 expressly speaks of the just transition (transición justa). The law enacted to implement the plan designates the just transition as the strategy to be used for implementation. As part of making the transition from fossil fuels and nuclear power to renewable energy, just transition commissions will be formed for affected regions to develop plans with the participation of local actors and trade unions. These will be based around the ILO specifications for a just transition, and will expressly include the quality of the work to be created, in consideration of ecological sustainability, local resources, local and regional economies, stability, and qualification.

In the *Netherlands*, the public debate focuses on employment for the transition to a sustainable economy and society. Worker qualification plays an especially central role. The quality of work is also often discussed, however normally only in relation to creating local jobs. The topic of the quality of work does not come up at all, or comes up only rarely, in the numerous programmes and documents regarding the circular economy that the Netherlands posits as central to its future orientation. Trade unions underscore the central nature of the quality of new jobs, meaning dignified working conditions and tasks, as well as well-developed working relationships and working conditions. They criticise the chasm between the quality of work in traditional and in new sectors, a lack of agreements on wages and flex time, lower pay, fewer long-term jobs, and a lack of trade union organising. The tripartite SER voices the same concerns.

In the *United Kingdom*, the question of the quality of work does not go beyond general, pithy announcements about creating “high-quality” jobs in national policies and documents. However, neither any criteria or measures to achieve this are set forth. During the course of Brexit, there were repeated calls to lower environmental and labour law standards, in order to ensure Britain could remain competitive. The focus of these was to qualify employees to meet the anticipated needs of more export-oriented industry and private businesses. The government of *Scotland*, in contrast, has made “fair work” a cornerstone of its economic strategy. The concept of fair work includes a large number of qualitative characteristics, including stability, overcoming the gender pay gap, and liveable wages. Corporate funding and public funds are supposed to be linked to corporate obligations to comply with these and other criteria, and to invest in qualification and professional training. Scotland intends to be a leader in fair work by 2025. Trade unions and just transition coalitions in which they participate discuss aspects related to the quality of work even more in depth. The TUC calls, among other things, for shortening weekly work hours and for the right to flexible working hours, as well as giving employees access to programmes so they can build their skills.

In *Sweden*, the quality of employment in the transition is, at best, highlighted in general declarations. Ultimately, however, no further details are provided and this is not a central topic of discussion. Even trade unions discuss the social aspects of employment primarily in relation to economic safeguards and the continuance of social systems. There is no discussion regarding redefining work, the quality of work, or any criticism of the work-oriented society. This study was not able to find any participation by trade unions in broader coalitions for a just transition. Programmes and measures against climate change and to adapt to climate change include qualification and employment measures, as well as adjusting lesson plans. However, the "needs of industry" remain central. In addition, retraining courses and continued education are offered to prepare employees whose jobs are endangered by the transition for the requirements of the labour market. However, the discourse and focus are characterised heavily by the objectives of high-quality employment and cutting-edge technology.

Likewise, the quality of employment in the transition is very rarely discussed by the government in *Norway*. Climate policies do not even include any specific employment policy or measures to create jobs for an ecological transition. Significant political and economic actors simply generally highlight the automatic creation of high-quality employment through technological innovation and high levels of qualification. Quality and the social aspects of employment are discussed, in contrast, in trade unions and just transition coalitions in which Norwegian trade unions take part, in contrast to trade unions in Sweden.

In *Poland*, the question of the quality of work is mainly restricted to "good income conditions". There is no debate regarding sustainable work or ecologically and socially sustainable employment. New jobs and qualification in ecologically sustainable areas is expected as simply a consequence of funding and supporting private businesses in innovative sectors. Therefore, economically sustainable development in Poland means expanding Industry 4.0, and social sustainability means higher income through qualification. In most cases, however, the term sustainability refers to balanced finances. The first draft of the National Plan for Energy and the Climate for 2021-2030 does not even mention the energy transition, just transition, jobs, employment, or the quality of work. Only after objections by the European Commission did the Polish government add some remarks on the topic, declaring that they were not able to address the EU's requirements in more detail due to the short amount of time available.

In *Slovakia*, topics associated with the quality of work play no role at all in public debate. Likewise, they almost never come up in governmental documents. Eco-innovation and the circular economy are considered automatic consequences of efforts surrounding digitisation, which are seen as central. Green jobs are expected to follow more or less inevitably from new environmental guidelines, qualifications, and funding for private business. Good work is only formulated as one of the goals, in accordance with the SDGs, in the Orientation Guidelines for implementing the 2030 Agenda for Sustainable Development (DIRD 2019). Slovakia is the only country in which the government assumes that the negative consequences of the ecological transition will outweigh the positive ones for the labour market. They state this will result in increased pressure on the labour market and high pressure on wages.

11.2 Terms and focal areas, further overarching topics and actors

11.2.1 Green jobs, the circular economy, and just transition: Different perspectives from different actors

As I have stated several times already, over the course of my research I discovered how terms are interpreted and used very differently by different actors and in different countries. Only Poland and Slovakia are somewhat out of the ordinary in this respect, since no socially relevant actors in either country show any commitment to an ecological transition. State institutions and private businesses, notably, tend to simply throw around keywords and interpret terms freely, without concern for the concepts attached to them. Roughly, however, it is possible to identify three terms that can be used to associate different perspectives with different actors, based on how they are generally used in the public discourse: green jobs, the circular economy, and just transition.

Green jobs, as described in the introduction, normally refers to paid work associated with a green economy. According to the European Commission, therefore, this is resource-efficient and low-carbon employment. The ILO has added the dimension of "decent work" to the definition as well . However, the latter characteristic rarely goes beyond the level of declarations of intent in governmental definitions. Normally, this aspect is only described in more detail as part of green jobs by different trade unions. If the term is used, then it is generally linked to a more economically oriented perspective of governmental institutions and private business. The term green jobs is a focus of governmental and private business discourses primarily in France (*emplois verts*), Portugal (*emprego verde*), Spain (*empleo verde*) and the United Kingdom (the alternative term *climate jobs* is also used, without difference between the two).

From a content standpoint, the term green jobs, is interpreted very freely. In France, the government has also created the additional category of "greening jobs". These include all jobs that could be affected by taking environmental concerns into account, without further detail on whether they have already been transformed, and in what manner, or if they are currently in transition. In the UK, the term green jobs is more imprecise and broadly understood than anywhere else. Even employment in the nuclear sector (from nuclear power plants to training specialists) and emissions trading are explicitly considered to be green jobs. In addition, jobs are differentiated into "light green" and "dark green" jobs. The former are jobs that require green skills in some cases, while the latter are fully green jobs. However, this differentiation remains imprecise. In Portugal, early studies commissioned by the government even used an interpretation of green jobs that goes beyond strictly ecological aspects to encompass social equality, economic efficiency and effectiveness, environmental protection and environmental management, good governance, and institutional dynamics – even though these are not reflected in this form in governmental policies. In Spain, green jobs are also differentiated into core employment as well as direct or indirect employment. However, the boundaries between these are not solid, and there are different ways of counting them. The term is rarely used in the Netherlands, and normally means employment in the renewable energy sector.

The concept of the **circular economy** originally comes from the environmental movement, and aims to reduce raw material and energy consumption through recycling, upcycling, and reuse. It is actually also linked to a critique of consumerism and questioning the use of certain materials that are harmful to the environment and energy-intensive to manufacture (such as plastics). Today, the term has been adopted wholesale by private business and governmental actors. The circular

economy has become linked to a technology-centred perspective, and the concept has been emptied of most of its critical aspects. The Davos World Economic Forum has initiated a *Platform for Accelerating the Circular Economy* (PACE), composed of policy and business leaders. There are corporate forums on the circular economy in each of the countries investigated, and all of the governments have programmes to promote the circular economy. The circular economy is addressed primarily, if not exclusively, from an economic standpoint. According to one report by a Dutch research office which provides consulting to the government on environmental matters (Planbureau voor de Leefomgeving, PBL), which is cited in a Dutch government document, the transformation to a circular economy could bring the EU economic growth of 550 billion euros (Ministry of Infrastructure and the Environment and Ministry of Economic Affairs 2016, 13). The ecological benefits of the circular economy, at least in this form, are at least doubtful.

The circularity rates of the nations investigated differ greatly. The EU28 average in 2018 was 12.2 percent. The Netherlands had the highest circularity rate in the EU28 at 29 percent, while Portugal had the lowest with 2.1 percent (eurostat 2021a), followed by Norway with 2.4 percent. However, ultimately in almost all nations, the circularity rate ten years ago was higher than today, and all states also recorded an increase in material consumption per person. This, alongside the raw materials included in the circular economy (such as petroleum-based, one-time use plastics or aluminium), clearly underscores once again the consequences of a lack of critique of consumption. Instead of contributing to an ecological transition, the circular economy seems to be more of a way of avoiding questioning patterns of consumption and raw materials usage, and continuing the current growth model.

The term **just transition**, as explained in the introduction, comes from social movements, environmental organisations, and trade unions. The global climate movement first used it to discuss the aspect of global climate justice, since the countries and regions that contribute the least to climate change are not only suffering the most under it, but also the least able to handle the transition without support due to their poverty. The term just transition was initially interpreted in trade union movements mainly as a call for a transition that would not be carried out at the cost of workers and finally weaker classes or social groups. Today, the concept just transition is used broadly and with wide-ranging meanings in social movements and trade unions, and particularly in coalitions between these actors for a socially and ecologically sustainable transition of the economy and society. Such coalitions exist with different levels of intensity and different breadths in France, Portugal, the United Kingdom, and Norway. In Spain and the Netherlands, left-leaning trade unions and environmental organisations cooperate with one another in different ways. Collaboration plays only a minor role in Sweden, however, and there is no collaboration at all in Poland or Slovakia. However, even in the wide-ranging coalitions, the aspect of global climate justice mostly remains a marginal issue that normally does not go beyond general proclamations. This is the case, for instance, with the TUC in the UK, which expressly calls for a just transition that overcomes inequalities between the genders, due to ethnic or national background, and between north and south, but presents almost no concrete suggestions or demands for doing so.

Today, the term has also become common in EU declarations, programmes, and measures, and likewise in national programmes and policies of the governments in most of the nations investigated here (in Poland and Slovakia, however, only as a consequence of EU demands and EU funding). The meaning of the term in this context is generally greatly reduced. Except for in Spain and, above all, in Scotland, where the term just transition is also used by the respective governments, it is primarily used in the sense of social compensation for the energy transition, with respect to

creating replacement jobs and the economic consequences for regions affected by jobs lost in the course of the energy transition. This primarily impacts sectors like coal mining and coal-fired power plants, and drilling for oil and natural gas, along with downstream sectors. The discourse centres primarily on the end of coal mining and using coal for electricity generation. In Poland and Slovakia, the term just transition is used in conjunction with coal mining and electricity generation from coal, and is also often used to justify a slower transition and extend the use of coal. Therefore, there is no uniform definition for the term just transition. The global dimension of climate justice plays no role at all in this context, nor in any of the governmental policies labelled as being part of the just transition. As this investigation shows, they do not fulfil other generally recognised criteria for a just transition in many other respects as well. As previously described, a concept of the just transition based on the ILO's definition has only been used to guide activities related to the energy transition in Spain, and only since 2018, under the new government. The just transition has been discussed for many years in Scotland – in contrast to the national policies of the UK – and a participative just transition commission was even established in 2019.

11.2.2 Further overarching topics: Renewable energy, self-organisation, and the role of labour administrations

The following section discusses further overarching topics that play a role in all of the countries, and which have not been addressed specifically in the summary up to this point.

11.2.2.1 Renewable energy

In almost all countries included in this study (except for in Slovakia) and in reports from international institutions (as well as the EU), the renewable energy sector is defined as a central sector in the transition to an ecologically sustainable economy and society, and an important sector for creating new jobs. However, an assessment of available statistics shows a variety of problems. These range from the question of which jobs are classified as part of the sector, to the numbers of jobs and the actual ecological benefit of the types of renewable energy generated.

First of all, we can clearly ascertain there are many different ways to count employment in renewable energy. However, a review of the figures used in this study makes clear that employment in the sector is very low, and does not show the growth rates needed for the sector to be considered a significant source of employment. In some countries, employment in the sector has actually dropped. Generally, it is heavily dependent on state funding programmes.

In addition, we can question to what extent certain types of renewable energy can actually contribute to an energy transition in any meaningful way. This is the case, for instance, for liquid biofuels, which are ethanol additives for petroleum or a replacement for diesel that are made of cultivated plants - normally sugar cane, corn, or rapeseed. In Poland, almost 50 percent of employment in the renewable energy sector is in liquid biofuel production, while the figure in France is approx. 28 percent, and 23-24 percent in Sweden and Slovakia. The critique of liquid biofuels is well-known: "Biofuels in general have been criticized for diverting both land and crops from the food system, leaving fewer resources for food production and indirectly contributing to rising food prices" (Balaam and Dillman 2014, 330). This, in turn, has led to increased food imports from the global south to the global north (where the majority of plants for liquid biofuels are cultivated, since it is not

labour-intensive and can be carried out with the extensive use of machinery in an industrialised agriculture model), and has rapidly increased so-called land grabbing, primarily by transnational and multinational agricultural groups in the global south. In addition, cultivation of the types of plants needed to produce liquid biofuels is very water intensive. Likewise, there is the critique that the fuels ultimately help maintain the practice of individual motorised transport, which is neither sustainable nor ecologically acceptable.

11.2.2.2 Self-organisation and localisation

Since this investigation does not specifically address self-organised initiatives and localisation with respect to sustainable employment for a socially and ecologically sustainable transition, I am only able to provide a rough overview here. The role of decentralised and self-organised actors is generally poorly described in almost all institutional programmes, policies, and investigations, and in the majority of the scientific literature. This is the case with respect to sustainable business and sustainable work, as well as for self-organisation in decentralised, small-scale energy projects which is more commonplace above all in Sweden, the United Kingdom, and the Netherlands. In Sweden, for example, there are 81 wind energy cooperatives that produce around 10 percent of the country's total wind energy. In addition, there are six existing solar energy cooperatives, and four more currently being developed (Kooij et al. 2018, 58). In Scotland, a decentralisation process for formulating and implementing projects and measures has been launched through the establishment of the just transition commission. In this framework, local initiatives to mobilise finances for measures and new employment have increased, and trade unions and environmental organisations have taken the leading role in these. In Spain, there are a large number of initiatives, ranging from alternative projects to small and mid-sized companies that have created ecologically sustainable jobs. This would be an important area for further research, and could provide interesting findings for identifying opportunities for local action. However, it should be noted that this cannot replace a targeted state management of the transition.

11.2.2.3 Role of labour administrations

During the course of my research, I found only few references to the role of labour administrations. Therefore, their role is mentioned very rarely or not at all in the individual country studies. In most countries, they continue to play their classic role of providing support through qualification, training, and recruitment. Several nations (such as France or Spain) have created additional institutions and programmes for monitoring presumed needs of business for professional training, qualification, and retraining, and for taking on these tasks for an ecologically sustainable transition. In Spain, the 2020 just transition strategy stipulates that better coordination between labour agencies and regional institutions and social actors should be promoted (MITECO und ITJ 2020, 37).

To all appearances, the most extensive planning has been undertaken, and the most complex system for employee qualification has been created in the Netherlands. The topic is ascribed a central role in the social transition, from changing and adapting school lesson plans to professional training. The government is expressly defined as a key driver behind the necessary processes, however, these are aligned to the needs of private business. They are implemented through a large number of additional conventions and programmes on the regional and local levels, concluded between

social partners, state institutions, and educational and research institutions, and result in additional training funds in different sectors and public-private partnerships. Labour agencies also play an active role. In the UK, in contrast, public financing is provided for corporate-led professional training programmes.

The situation in Norway is similar, where the state provides funding for qualification and retraining measures at companies, and trade unions are expected to get involved and support broad participation. This is the case even for state-owned companies. In Sweden, qualification and employment measures are concentrated on offering retraining and continued education, in order to get employees with full-time, permanent contracts who have been employed for at least one year and whose jobs are endangered ready to meet the requirements of the labour market. This is done through non-profit institutions, the "job security councils", which contain equal numbers of trade union members and employers, and which are run on a social partnership model. The companies also pay contributions to these councils. They also handle all of the training, and in some cases bring in external experts. The labour agencies are not involved. No such support is provided to others who lose their jobs, those in weaker positions or who are more poorly qualified. There are no professional training, qualification, or retraining programmes in Poland specifically focused on ecologically sustainable employment in relation to the ecological transition. Only one minor programme was mentioned in Slovakia, with a budget of € 20 million.

11.2.3 Actors and constellations of actors: Independent bodies, just transition coalitions, and employee participation

There are actors and constellations of actors in all of the countries investigated outside of state institutions, parties, trade unions, and private business. The most notable and most forward-thinking of these are the just transition coalitions, consisting of environmental movements and trade unions. There are other actors as well in some countries, such as social movements and organisations in Portugal and France, or the church in Norway. The following section will mainly focus on providing an overview of potential cooperation between trade unions and environmental movements. A brief overview of participation by employee representatives follows. However, firstly we will address the establishment of "independent expert commissions"[29]

In the UK and Sweden, climate policies also create independent expert commissions commissioned with controlling and evaluating climate policies that annually evaluate the status, effectiveness, and fulfilment of statutory regulations in annual reports, and provide recommendations for the government. These are the Climate Change Committee (CCC) in the UK and the Climate Policy Council (CPC) in Sweden. Both of these bodies prepare very comprehensive and critical reports, yet they are mainly ignored by the governments of both countries. There is no obligation to follow their recommendations either in the UK or in Sweden, and neither the CCC nor the CPC have any legal power.

[29] Their supposed independence is rarely questioned, although the modalities by which they are named, their financial dependencies and political connections would give ample reason to do so.

11.2.3.1 Coalitions of NGOs, trade unions, environmental movements, and other social movements

For around a decade, increasingly larger and broader coalitions consisting of trade unions, environmental movements, NGOs, farmers' organisations, left-leaning organisations, and social movements mobilising for a just transition have been formed in many countries, as the most hopeful actor on the scene. On the one hand, this is because trade unions and traditional left-leaning groups recognise the diversity of mechanisms for exploitation and control, and the existential threat posed by climate change and environmental destruction. They must also realise that they do not (any longer) have the strength and social anchoring necessary to bring about social change, and must go beyond a "traditional fixation on class or a perspective reduced to a trade union, social democratic policy of redistribution" (Dörre 2021, 23). On the other hand, environmental movements and NGOs must question similar fundamental matters. For a successful alliance to form, the ecological question cannot be separated from the social, and must be linked with the class question. Likewise, it is important to not only think about these two aspects together, but to also discuss gender justice, anti-racism, and the relationship between the global north and south. "There is no reason to believe the overdue sustainability revolution will be carried out primarily, or even exclusively, with the tools of the market economy (Dörre 2021, 23). Broader coalitions of 'absolute solidarity' are needed to take the necessary radical steps - a form of solidarity practised regardless of belonging to different political groups or their usefulness, in light of the urgent need to act.

There are broad coalitions in the United Kingdom, France, Portugal, and Norway. In Spain and the Netherlands, trade unions and environmental associations cooperate in different contexts, while no such coalitions exist in *Poland***,** *Slovakia* and *Sweden*. In *Poland*, trade unions are outspoken opponents of climate policies, and some trade unions even deny the existence of human-caused climate change. They cooperate with international, right-leaning think tanks and the right-wing PiS government, and put pressure on the government to prevent any further climate policies in line with EU specifications. Trade unions in *Slovakia* have showed no interest in climate policy for a long time. However, in the last few years they have recognised the need to move away from an "unsustainable economic model". In calls for fair climate protection measures, economic modernisation and the creation of new jobs are linked to social security and justice as the only way to achieve a socially just, sustainable and green economy. At the same time, trade unions state that it is difficult to bring the topics of climate change and the ecological transition into trade union discussions. Trade unions in *Sweden* do not oppose climate policies; quite the contrary. Nevertheless, they do not collaborate with environmental movements. Trade unions primarily focus on the idea of a technological fix and an institutional solution. The intensive social partnership model integrates them fully into a corporatist framework, and the general depoliticisation of society means that alternative discourses or mobilisation throughout the trade union spectrum are missing.

In countries where just transition coalitions do exist, they are the actors with the most extensive understanding of sustainable work and the most wide-reaching suggestions for a socially and ecologically sustainable transition. One of the oldest coalitions is the Greener Jobs Alliance (GJA) in the *United Kingdom*, which was formed in 2010. It was initiated by trade unions, and includes student organisations, environmental associations, and campaign groups as well. In *France*, the declaration in the Jobs-Climate Platform from 2016 (Plateforme Emplois-Climat 2016) and the 34-point plan on paths out of the crisis from 2020 (Attac France, CGT, Oxfam France et. al. 2020) were consulted on and enacted by around 20 of the most important grassroots actors and organisations from different sectors, including the trade union associations (as well as those of students and

farmers) and the French sections of international environmental groups. In *Portugal*, other environmental organisations, the trade union association and individual trade unions of the CGTP, and other smaller trade unions and social groups and movements are part of the campaign coalition *Empregos para o clima* (Jobs for the climate) initiated by the movement for climate justice, Climáximo. In *Norway*, a joint declaration on climate change and six central demands were issued by over 100 different environmental and farmers' organisations and trade unions in advance of the 2013 parliamentary elections. In 2015, the trade unions, environmental associations and the Norwegian church then joined to form a campaign calling for 100,000 climate jobs under the name Bridge to the Future.

In *Spain*, left-leaning trade unions and environmental associations cooperate intensively. However, this cooperation does not have the character of a broad coalition as it does in France or Portugal. The discourse and practice of the umbrella association of the base environmental association Ecologistas en Acción go farther than all others with respect to affirming the alliance between trade unions and environmental movements, and it cooperates with CCOO, CGT, and ESK. In the *Netherlands*, the Polder model of social partnership establishes an institutionalised cooperation between the trade union association FNV and the environmental organisation Milieudefensie.

11.2.3.2 Participation by and representation of workers

Almost all governments and governmental institutions postulate the need for participation by workers' representatives – although some go farther in this respect than others. In some countries, this means involving employee representatives in corporatist social partnership models from the company level to national consulting boards. The results of this model in terms of the socially and ecologically sustainable transition are – as the investigation has shown – lacking. In most cases, institutional discourse on participation does not result in relevant action. Apparently, the focus is on conforming to current participation discourses (especially because of EU funding criteria), and not any qualitatively meaningful participation as such. Trade union positions and mobilisation are evidence of this. In some contexts, qualitatively significant participation by employee representatives, especially in local and regional measures, has been developed – mainly in response to pressure and initiative from below.

In *France*, for many years it was common to consult with trade unions regarding decisions on the national level, and to integrated the workforce into certain decisions on the company level. However, the Macron government strictly rejects any collaboration with trade unions. In *Portugal*, the (previously conservative) government did form a network of around 100 representatives from private business, academics, finance, public administration, foundations, and NGOs, which was involved in formulating governmental policies as part of the *Green Growth Commitment* (GGC) strategic plan. Left-leaning environmental organisations or NGOs and trade unions were, however, explicitly not a part of this network. In *Spain*, employee representatives are involved primarily through participating in developing just transition plans for the regions impacted by the phase-out of coal and nuclear power. The trade unions were already part of the expert commission created by the conservative government in 2017 to develop the framework plan for the just transition, and are now part of the different regional just transition commissions under the social democratic / left government which has been in power since June of 2018. The governments have actually taken up key demands of the trade union CCOO for its just transition plans. Otherwise, participation by worker representatives has been fairly minor.

In the *Netherlands*, trade unions are closely involved in consultations on climate and sustainability policy resolutions through the neo-corporatistic Polder model. In some cases, environmental associations are involved as well. However, the results are criticised by both trade unions and environmental associations. Trade unions and a whole range of state and private institutions and groups, as well as different institutions of the Polder model and environmental organisations also make up a joint special commission in the Netherlands, for the purpose of consulting on implementation of the plans and orientations on "labour market and training" under the climate convention. According to the future industrial strategy published in 2017, which postulates "clean growth", national consultations should be held with companies, trade unions, and employees on all topics in the *UK*. In reality, there is no coordination for consultations with employees or their representatives, and no steps have been taken to implement this. The situation is different in *Scotland*, where trade union representatives sit on the just transition commission enacted in 2018 and help to develop recommendations for a zero emissions transition, professional qualification, labour market policy, and education.

By law, the fully corporatistic social partnership model used in *Sweden* requires that at least two company union members must be on the supervisory board of any company with over 25 employees. At the same time, however, trade unions are so deeply integrated into the model that they regularly support corporate policies with little resistance. The trade unions emphasise that they are in continuous discussions with the company, which they say understands that it will benefit in the long term from better trained employees. *Norway* also makes use of a model of social partnership, however the trade unions appear unsatisfied with the role that has been assigned to them, to inspire the workforce to take part in state funded measures within the company. The trade unions express significant criticism on their own, and as part of just transition coalitions – in some cases, these criticisms are even systematic, and call for more extensive measures.

There is no formalised mechanism for employees to participate in programmes and measures related to the ecological transition in *Poland*. Only the powerful miner's union has succeeded in taking part in negotiations regarding the phase-out of coal mining, which they reject. In *Slovakia*, in turn, the largest trade union association KOZ SR cooperated closely with the former governing social democrats, and was able to achieve a limited right of co-determination for employees in some company matters. In addition, it took part in the discussion on new labour laws.

11.3 Possible ways to systematise the countries

The question remaining is whether and how the in some cases overlapping and in some cases divergent findings in this study can be systematised. Is it possible to assign countries to different clusters based on the results of the study?

In general, we can say that countries with large, powerful national economies, above all France and the United Kingdom (and likely also Germany and Italy, which were not part of this investigation) primarily define a separate "special national path". This translates to an international dimension to only a very limited extent, and underscores the countries' own leadership position or claim to leadership with respect to strategies, mechanisms, technologies, and expertise for a sustainable transformation of the economy and society. Smaller countries, like for instance Portugal, orient their self-presentation and declared strategy primarily around EU specifications and EU documents, and underscore the opportunities that the sustainable transformation of the economy and society hold

for the country. Slovakia, in turn, also orients its activities on EU specifications today (albeit reluctantly), but is the only country to assume that the disadvantages will outweigh the opportunities. The Netherlands, which in some ways takes an intermediate position in terms of its economic position and mission, does both: They underscore the opportunities for the Dutch economy and formulate an international claim to leadership. Spain, Sweden, Norway, and even Poland likewise claim to be leaders (in the cases of Spain and Poland to a more modest extent) in certain areas of purportedly ecologically sustainable technology. This claim is always associated with an expected growth in the export sector. It is obvious that the fact, in and of itself, that almost all countries state they want to increase production and export is certainly not ecologically sustainable.

The evaluation of possible clusters that follows begins by outlining the potential option to divide the countries according to the three capitalist welfare states following Esping-Andersen (1990). As is common in academic investigations, the two typologies of rudimentary or Mediterranean welfare states and Eastern European transition states are added to the Esping-Andersen model. While this kind of division might seem plausible at first glance, a closer examination shows significant difficulties, which will be described briefly along the different typologies. Finally, the study will suggest division between four categories, although these may overlap, and may change over the course of long-term observation. The categories are based on divisions used in existing, comparable investigations.

11.3.1 Systematisation using the expanded Esping-Andersen model

a) *Nordic or social democratic Scandinavian: Sweden and Norway*

Characteristics of the social democratic Scandinavian model are that work is highly decommodified, a universal social state offers protection, and there is a highly active labour market policy. In reality, however, both countries act according to the conviction, with respect to employment in the course of an ecological transition, that high-quality work will be essentially an automatic consequence of technological innovation. In this sense, Sweden in particular focuses its schooling and professional training entirely on anticipating the (future) needs of private business (or state companies oriented towards the private economy, in the case of Norway) and specifically training students, or offering retaining and continued education for workers to qualify them for the needs of the labour market. Sovacool found that the transition in Nordic states remains “disputed, and potentially unjust despite all promises to the contrary” (Sovacool 2017, 581). Measures are directed mainly at the highly qualified sector. There seems to be no answer for the huge number of jobs to be eliminated in lower qualified sectors, and therefore no guarantee for continuance in social systems. Independent experts critique Sweden's policy by stating that the way the transition is approached further exacerbates the gap between social classes.

b) Liberal Anglo Saxon: United Kingdom

Liberal Anglo Saxon states are states with liberal market economies where market logic and private social safeguards dominate. State social services are less extensive, and are linked to means tests and “activating labour market policies”. A legally established minimum wage sets the lower limit for wages. This model is found in the UK as a whole, but only with restrictions in many areas in Scotland.

c) Continental / conservative - continental European: France and the Netherlands

The conservative - continental European model should be formally attributed to France and the Netherlands. The characteristics of this model includes that it provides comprehensive social services in many different life situations and phases of life. These are designed to maintain the standard of living (and are therefore conservative), however they are based on the amount and duration of time an individual has paid in. This only applies to a limited extent, since in France professional integration programmes and relevant payments are open to everyone, even persons who have never worked.[30] The relatively high level of unemployment in France and extremely low level of unemployment in the Netherlands lead to very different understandings of work in the framework of the ecological transition.

d) Rudimentary or Mediterranean welfare states: Spain and Portugal

The category of rudimentary or Mediterranean welfare states, in contrast, includes southern European countries according to the expanded Esping-Andersen typology. According to this typology, these states should have a dominant agricultural sector, with a less well-developed welfare state. Portugal and Spain would be assigned to this category. However, the agricultural sector certainly no longer dominates in either of the countries, even if it (even for purely climate-related reasons) has more weight than in northern European countries, while being much less important than in Poland. In addition, especially in Portugal, there have been shifts in the production structure and in work that are more wide-ranging than in many comparable nations. In addition, in both countries the centre-left governments are working harder to maintain and potentially expand welfare state structures than in most comparable nations.

e) Eastern European transitional countries: Poland and Slovakia

The last category of Eastern European transitional countries includes the restricted welfare states of the post-socialist political systems in Eastern Europe, which are still in the course of transformation. In this case, these would be Poland and Slovakia. However, the Esping-Andersen model requires further detail and differentiation in this case. Both countries do have some systematic and structural similarities, however they differ from one another fundamentally in many aspects, such as in the importance of the agricultural sector.

In this specific case, differentiating them into different welfare state regimes, in accordance with an expanded Esping-Andersen model, is only helpful to a limited extent.

[30] Due to the decentralised organisation of labour agencies and employment measures, there are a wide range of different programmes in France, and these are constantly changing. At least the statutory minimum wage, Salaire minimum interprofessionnel de croissance, SMIC, of € 10.25 per hour, is paid in all measures. There are also programmes for people with little or no previous employment, especially for young people. One of the most well-known programmes are the local initiatives called *Missions Locales*. The government's website with information on employment measures refers young people without professional experience to the Missions Locales (https://www.service-public.fr/particuliers/vosdroits/F21006). There are no workfare programmes in France (at least not on the national level, however, since the system is highly decentralised, it is possible that workfare programmes do exist in some municipalities ruled by right-leaning parties). The social welfare program RSA, Revenu de solidarité active, which is paid out without any return service, is € 565.34 per month for single people.

There seems to be little interrelationship between the type of social state and national discourse on sustainable work. However, to make a more specific assessment, it would be necessary to first adjust the Esping-Andersen model to include changes in recent years.

11.3.2 Suggestion for clustering nations along four categories

In order to cluster the nations investigated here, I would suggest four categories:

a) Climate and climate policy are discussed by the government as EU issues (EU driven)
b) Environmental and climate policies are drafted and justified without reference to jobs and work
c) The environment and jobs are equally important in environmental and climate policies
d) Jobs are the primary concern for how environmental and climate policies are designed and justified, while the environment is a side effect

There are corollaries for this division in the comparative research literature. Pociovălișteanu et. al. finds, in an investigation of policies in the areas of renewable energy, using resources efficiently, and other measures related to climate change, for Germany, Italy, the Netherlands, Norway, Hungary, Croatia, and the United Kingdom, that these countries "set environmental policies without referring to green jobs as the main objective of greening policies" (Pociovălișteanu et al. 2015, 9243). The same study refers to an OECD report which finds that "some countries (Germany, the Netherlands, Sweden and Norway) which are at an advanced level in terms of the introduction of measures to reduce carbon emissions have developed labour market programmes aimed specifically at green growth. In such situations the creation of jobs is seen as an indirect consequence of green growth policies" (Pociovălișteanu et al. 2015, 9243). Both of these findings line up with those from this study with respect to the Netherlands, the UK, Sweden, and Norway, as well as the categories suggested here. The results of this categorisation show that the respective national unemployment rates do obviously have a strong influence on justification for the environmental and climate policies; however this cannot be posited as a monocausal relationship.

a) Climate and climate policy are discussed by the government as EU issues (EU driven)

In Poland and Slovakia, the topics of climate and the transition to an ecologically sustainable economy and society are very clearly shaped by EU specifications, and discussed by the government as such. However, climate policy in Poland, more so than in Slovakia, is represented as an obligation forced on the country by the EU which the government does not necessarily support, but which it must follow.

Portugal could also have been categorised as EU-driven up to 2017, although in a very different way than Poland and Slovakia. All strategic plans of the Portuguese governments up to 2017 were based almost exclusively on data and formulations from the EU with respect to green jobs and the sustainable transition. However, governmental discourses never represented climate policies as a negative consequence of EU policies, or as forced. Instead, the country introduced few of its own initiatives, data, references, or formulations into the plans and measures. However, this changed increasingly, including in response to strong pressure from environmental movements and just transition coalitions, and there has been a clear shift in the justifications and orientations of the country's climate policies.

Poland and Slovakia both focus on expanding industry as a development strategy. Despite emphasising their own development in high-technology sectors, both countries ultimately serve as the extended workbench of old EU core nations. Their competitive advantage is based on their low labour costs (the lowest wages among all comparable nations) and deficient, negligent climate policies. The latter critique is true of their respective energy model as well. Therefore, it is no wonder that they reject stricter environmental and climate policies.

In Poland, the government posits climate policies as a consequence of EU dictates that must be grudgingly accepted. Industrial and development programmes and other relevant governmental programmes have usually only added references to sustainability or the just transition after the EU requested that Poland make revisions to them. However, they remain imprecise, and deficient in the ways they discuss implementation, financing, an agenda, timeline, and intermediate targets, and the goals that are set do not conform to defined EU objectives. In Slovakia, pressure by the EU starting in 2018 resulted in EU environmental and climate policy specifications being integrated into governmental programmes, and to the enactment of various plans. Digitisation and the environment are usually described as central, and they emphasise the creation of a large number of jobs. However, plans in Slovakia also mostly remain vague and insufficient, and fall behind the actual EU climate targets that have been set. Whether these targets will be implemented is also yet to be seen. The terms just transition, green jobs, and ecologically and socially sustainable employment are not used in the reform programme enacted in May of 2020 by the new, conservative government.

b) Environmental and climate policies are drafted and justified without reference to jobs and work

In the Netherlands, the UK, Sweden, and Norway, jobs play very little or no role in environmental and climate policies. In the Netherlands (2019: 3.4 percent unemployment and 6.7 percent youth unemployment), economic opportunities are underscored, but employment itself is barely addressed. Environmental and climate policies are not justified with the creation of jobs. In the UK (2019: 4 percent unemployment rate and 11.3 percent youth unemployment), the government does plan to create a large number of jobs, but there are no concrete policies for doing so. Economic growth, competitiveness, and an orientation towards exports are the focus of the discourse and of policies. A different mission is formulated only in the separate Scottish policy, which even indicates that the country intends to be a global leader in "fair work" by 2024. In Sweden (2019: 6.8 percent unemployment rate and 20 percent youth unemployment), governmental actors do emphasise job creation in conjunction with the ecological transition; however, in reality Sweden has one of the worst EU balances in terms of creating jobs in this context, and existing policies mainly aim at increasing technological innovation and creating highly qualified jobs. In Norway (2019: 3.8 percent unemployment rate and 10 percent youth unemployment), in contrast, employment is much less a focus of governmental discourse, while specific policies have the same focus as they do in Sweden.

c) The environment and jobs are equally important in environmental and climate policies

Portugal, France, and Spain are part of this category, although in concrete environmental and climate policies in all three countries, the quantitative aspect of work is linked to a strong national

focus on (especially in France and Spain) and measures for adapting to climate change. Here as well, we can draw a connection with the unemployment rate. In 2019, Portugal did have a more moderate unemployment rate of 6.5 percent, but a very high youth unemployment rate of 18.3 percent; France had an unemployment rate of 8.4 percent and a high youth unemployment rate of 20 percent; and Spain had an unemployment rate of 14.2 percent, the highest among all comparable nations, and the highest youth unemployment rate as well at 32.5 percent. In addition, Portugal and Spain saw negative population growth and experienced a rapid ageing of society due to emigration of young people.

d) Jobs are the primary concern for how environmental and climate policies are designed and justified, while the environment is a side effect

In Poland (2019: 3.3 percent unemployment rate and 9.9 percent youth unemployment), rejecting the climate policies of the EU has resulted in economic opportunities for Poland being the focus of justifications for climate and environmental policies, although Poland has a very low unemployment rate. This is probably due to fears that many jobs will be eliminated due to stricter environmental and climate policies (because this will eliminate the country's meaningful competitive advantage). However, new jobs are seen as an automatic consequence of developing sustainable technologies by funding private business. Slovakia (2019: 5.8 percent unemployment rate and 16.1 percent youth unemployment), in contrast, uses the same strategy but barely mentions new jobs (although the unemployment rate there is significantly higher than in Poland) and is the only country to expect – at least officially – to lose more jobs than gain new ones. Both countries have a high youth unemployment rate compared to their overall unemployment rate.

11.4 Outlook and suggestions for further research

After having summarised the most important aspects of the study and provided comparative classifications and evaluations of the individual countries, this final section will address several aspects of the different perspectives on the transition that have been outlined in the course of this investigation. It will then describe some potential areas for further research.

11.4.1 Perspectives on transition

First, we can state in general that the climate targets and measures of all governments, and of the EU, are considered insufficient by scientists to even slow climate change, let alone stop it or reverse it. Not even critiques and warnings issued by expert commissions established by governments themselves to evaluate their transition policies are taken seriously, as is the case for the CDC in the UK or CPC in Sweden. The different governments use various tricks to put their environmental and climate policies in a good light. The fact that defined emissions targets are always “net targets” is highly problematic, and certainly not in line with an effective strategy to fight climate change. This simply means that actual emissions can be reduced by deducting carbon stored in newly created CO2 stores (such as through reforestation) or even carbon that is “compensated for” via trading emissions certificates or by financing reforestation projects abroad. Another problem is whether or not the climate targets of the individual governments, which are insufficient in any case, are

binding. They may be legally binding, but who will enforce them if the government does not meet them? In some countries, it is possible to file a class action suit, as has been done successfully in the Netherlands and as is being done in Spain. However, whether a court's decision can be enforced if a government does not follow it remains uncertain.

Another problem is the sole fixation on emissions targets, without taking aspects of ecological sustainability into consideration. Many countries use nuclear power to achieve emissions targets. In some countries without nuclear power plants, or with plans to phase out nuclear, predictions of failure to meet emissions targets have even led them to rejuvenate their nuclear programmes. This is certainly not ecologically sustainable, in light of the risk of accidents and the question of storing atomic waste that has not, and cannot be satisfactorily answered. Only one reactor block is in operation in the Netherlands, and the country has actually resolved to phase out nuclear power; however, the government began discussing new reactors in 2020. In Sweden (39 percent of electricity produced by six reactor blocks), the phase-out of nuclear was scheduled for 2000, but has been pushed back several times. In the UK (20 percent of electricity produced by 15 reactor blocks), the country actually plans to build new reactors, and even nuclear fusion reactors. Employment in the nuclear sector is considered part of green jobs. In France (70 percent of electricity produced from nuclear power), the service lives of the 32 oldest reactors were extended to 50 years, and the country relies on nuclear power for the energy transition. Poland does not have any nuclear power plants yet, but is does plan to rely on nuclear power for its energy transition. One reactor is under construction with US support, and others are planned for construction by 2043. Slovakia (50 percent of electricity produced by two reactor blocks) also makes use of nuclear power. An operating permit was granted for a third block in May of 2021 despite scandals, and a fourth block is under construction. Norway and Portugal, in contrast, have never operated nuclear power plants and do not plan to do so. In Spain, the slow phase-out of nuclear power (20 percent of electricity produced by seven reactor blocks) is considered part of the ecological energy transition.

The problem, which has been noted many times, of obtaining transparent and reliable figures (and definitions) on employment in and for the ecologically sustainable transition of the economy and society results from the sole fixation on the number of current jobs and jobs to be created in the future, as well as resulting efforts by the government to declare as many activities as possible related to green jobs. This is the case even in relatively easy to quantify sectors such as renewable energy. In light of the widely varying work intensity, and actual sustainability, of the activities summarised under this term, the job figures are certainly not an indicator for sustainability, a successful energy transition, or the quality of work. The production of liquid biofuels (such as biodiesel or ethanol) is questionable when it comes to sustainability (it helps maintain a non-sustainable model of transportation, and increases food prices), and creates jobs that are in no way comparable to those in wind or solar energy, for instance, in terms of their stability, qualification, or quality. Overall, too little attention is paid to the quality of employment in the ecologically sustainable transition. It is of central importance to ensure that there are not only new jobs, but that those jobs are of good quality, at least as good as the jobs that are eliminated. In light of experiences with deindustrialisation processes, it is also important to consider other aspects besides just direct employment in particularly affected regions (Robins et al. 2019a, 5).

In relation to the many programmes, measures, and the extensive funding provided, the resulting surplus of new ecologically sustainable jobs seems fairly weak. In addition to the poor quality of employment and their questionable usefulness from an ecological standpoint, this approach to employment should be questioned. The number of newly created jobs in the respective sectors is

certainly not decisive for the ecologically sustainable transformation and for sustainable work, but rather the fact that the transformation actually takes place, or that the transition is accelerated. In terms of the numbers, new sustainable jobs can certainly be created in socially important areas like health, nursing, education, art, etc.

In addition, according to a study on Germany and the UK, three criteria can be generalised that promote the transition to a low-carbon society for capitalist nations. They are not surprising, however. First, the extent to which the state intervenes and issues specifications and laws, while providing funding and setting political priorities, makes a relevant difference (Stroud et al. 2015, 102). The second criteria is the central role of "governance without government", a relevant national political framework that makes it possible to successfully develop separate regional policies and follow these. The final criteria, is the conclusion that the "importance of skills and professional training is central for a transition to a green economy. Success here is based on sufficient supply and demand for 'decent', 'green' jobs. In this respect, employees and their representatives are central to achieving a transition to a green economy, and to ensuring that it is built on decent jobs" (Stroud et al. 2018, 103).

11.4.2 Further research

This investigation, therefore, posits a large number of open questions that could represent areas for further research. The first of these would be developing reliable and uniform criteria for defining sustainable or green employment, which would then facilitate comparisons between different countries, regions, and sectors.

There are relatively few studies on the role of decentralised and self-organised actors in sustainable business and sustainable work, or on self-organised, decentralised, small-scale energy projects. These certainly cannot replace an energy transition that is enacted by and controlled by the state, however it could be extremely interesting to conduct broad research on what mechanisms are most useful, how economic effort compares to output, how democratisation and decentralisation of energy production and management can be promoted, and how these self-organised initiatives are changing the relationship with institutions and private business. Such studies could also be fruitful in the context of ongoing high youth unemployment in almost all of the countries investigated (except for in the Netherlands).

In light of increasing resource and material consumption, it would be interesting to investigate what kinds of employment can be created for the purpose of drastically reducing resource consumption and expanding the circular economy. Beyond large-scale technological solutions, there are many different opportunities for expanding the circular economy on the local and regional level, including recycling and upcycling. An investigation of different local initiatives by decentralised actors could bring results to light that would be of broad interest. These could include, for instance, determining the quality of jobs created by local initiatives, and how these could be improved. Likewise, it would be interesting to investigate how extensive their impact is for the environment, local economies, and social coexistence (for instance, through upcycling computers for retirement homes and social institutions), how much existing expertise from lost jobs can be utilised, and what additional expertise is needed. Last, but not least, such a study would also provide empirical findings on the potential for employment in the local circular economy. However, such an investigation should also establish criteria of ecological sustainability for different materials and their reuse that

are linked to a debate regarding the general reduction of consumption, and above all reducing the production of materials that harm the environment.

Following from the last two suggestions, it would be interesting to complete a comparative study of state institutions, private capitalist businesses, and local grassroots democratic actors on the question of which sectors socially and ecologically sustainable work is created in, and by which actors, as well as under which conditions it is created, and what the scope and quality of such work is, as well as at what cost it can be created.

The as yet underexplored topic of gender aspects would be important in all further investigations in this area. A disproportionate number of newly created green jobs are filled by men. Therefore, the causes of this should be investigated, as well as how they can be counteracted. The ecologically and socially sustainable transformation of the economy and society should not lead to a return to old, gendered divisions in the world of work.

Finally, this study has made clear that the just transition coalitions that exist in some countries are the actors with the most extensive suggestions and greatest interest in the socially ecological transition. Therefore, the question is why and how environmental movements and trade unions can come together to promote greater relevance for sustainable action in the state and civil society.

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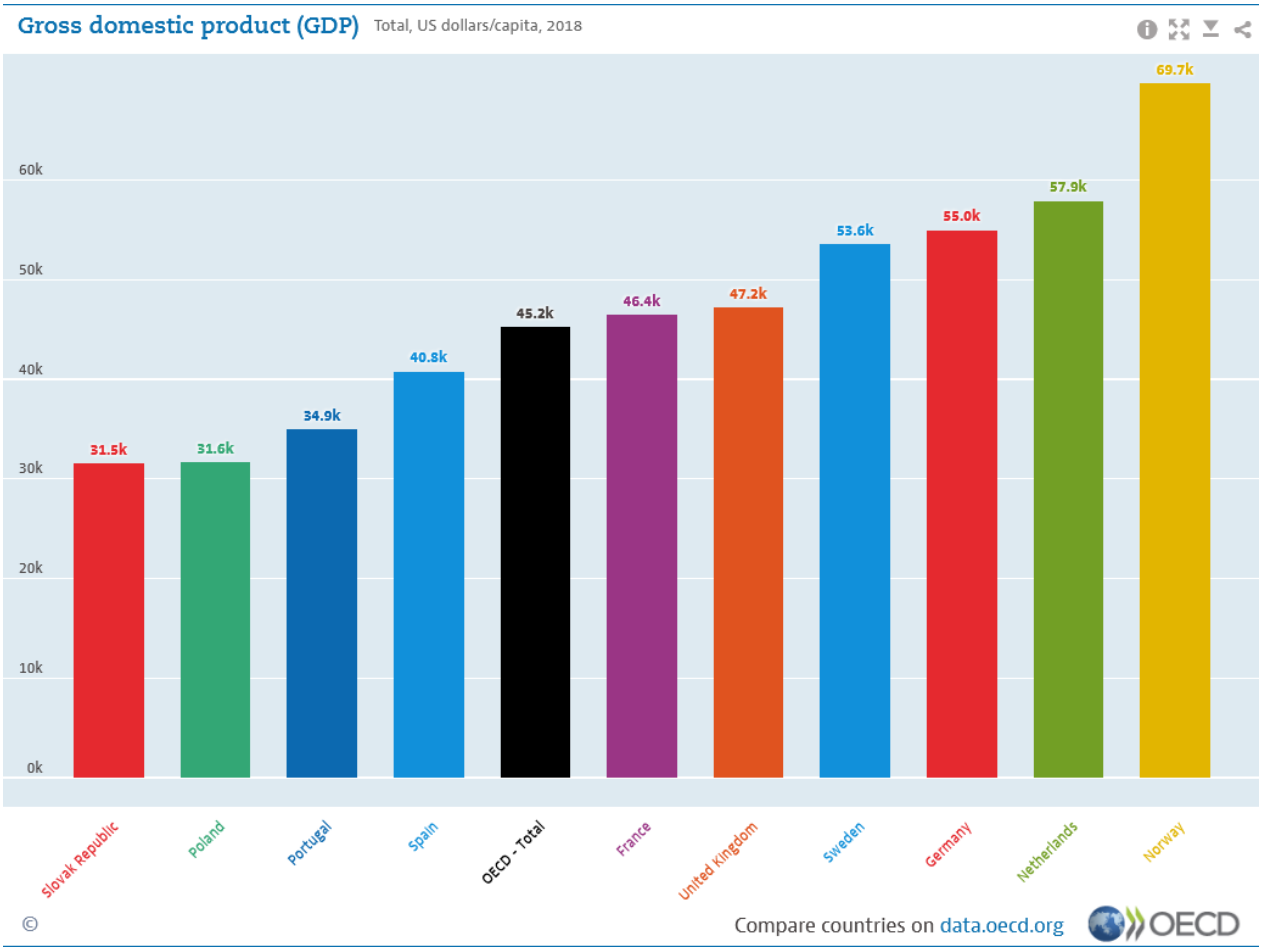
Appendix



(OECD 2021, Due to different counting methods in the OECD sources used, deviations of several hundred are possible from the figures used in the text)