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A Just Energy Transition: Impacts on European Power Producers

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European power generation companies are critical actors in a Just Transition to renewable energy. At Candriam, as ESG analysts we have surveyed and evaluated the extent to which these companies are integrating the social consequences into their planning and decisions. Can we be comfortable that "no one is left behind"?

The European Union has embarked on a grand plan to decarbonise the European economy and achieve carbon neutrality by 2050. This very ambitious but necessary objective will undoubtedly require a massive reallocation of resources -- human, financial, and regulatory -- from carbon-intensive activities to low-carbon or completely new realms. Some activities, such as thermal coal power generation, will be eliminated.

This industrial shift, like most industrial transformation, will make some jobs obsolete, while others will be in high demand. The concept of "Just Transition" was coined in the 1970s to highlight the social dimension of workplace change. Management of the social impact is the central challenge in the European energy transition. This possibility of unequal benefits and costs is magnified by the uneven distribution of emission-intensity of power generation plants across the continent. If Europe is to achieve its decarbonisation objective, the most carbon-intensive countries will need assistance from their more energy efficient peers.

Part I: Concept of the Just Transition

Transition: *noun*. The passage from one state to another

The 'Just Transition' is a journey from a society relying largely on fossil-fuel based energy since the Industrial Revolution[1], toward a society based on low-carbon power and energies.

As part of the European Green Deal, a Just Transition Fund has been established to help exposed regions succeed in this transformation. The ancillary effects and potential upheavals are too often overlooked.[2]

The switch from biomass -- originally firewood -- to fossil fuels enabled the Industrial Revolution and the subsequent period of economic growth.[3] Since then, economic growth has been intertwined with ever-rising fossil fuel consumption.[4] Today, the world relies on fossil fuels for more than 80% of our primary energy supply.[5]

A 'decoupling' of fossil energy and economic growth is a huge challenge in itself. It is the begin of a hoped-for changeover from an extractive economy to a regenerative economy.[6] As inequality increases worldwide, further accelerated by the Covid-19 pandemic, we should manage this transition with foresight to prevent an even greater divide.

"If the process of transition is not just, the outcome will never be", says the Climate Justice Alliance. As inequality increases worldwide, further accelerated by the pandemic, we should manage this transition with foresight to prevent an even greater divide. This is where the Just Transition concept must be applied.[7] Transition is only the goal. 'Just' is a concept to guide us in how we choose to manage the transition.

The phrase 'Just Transition' was coined by the 1970s US labour movement.[8] Trade unions demanded improved physical protection for atomic and chemicals workers to make their jobs safer and cleaner, modelled on policies to support soldiers returning from war.[9]

This idea expanded to other stakeholders and countries. Today, 30 million workers are employed in the conventional energy sector. With ten million in the coal industry alone[10], entire communities are organized around the coal economy. For example, in South Africa, more than 100,000 people are employed in the extractive industry and in fossil fuels-fired power generation.[11] The Institute for Public Policy Research estimates that 28,000 jobs in coal, oil and gas industries could be lost in the North of England by 2030.[12] In Germany, 20,000 people are directly dependent on the coal industry in Brandenburg, North Rhine-Westphalia, Saxony and Saxony-Anhalt.[13]

In today's transition to a low-carbon economy, the Just Transition is about protecting workers, communities and consumers. The Just Transition is about ensuring that this is a constructive process rather than a destructive one, with a new economy bringing decent work, human well-being and fair sharing of the costs and benefits.[14]

At Candriam, as a responsible investor, the impact of the energy transition in the European power sector is an ongoing interest. Candriam ESG Team recently conducted a survey to better understand the role of the companies in this new paradigm. We present company case studies within this document. Our work on this topic is aligned with global efforts, including those of academics.

For interested stakeholders, including investors, The Grantham Research Institute on Climate Change and the Environment at the London School of Economics has published a useful global guide on why the Just Transition is material to investors.[15]

"If the process of transition is not just, the outcome will never be."

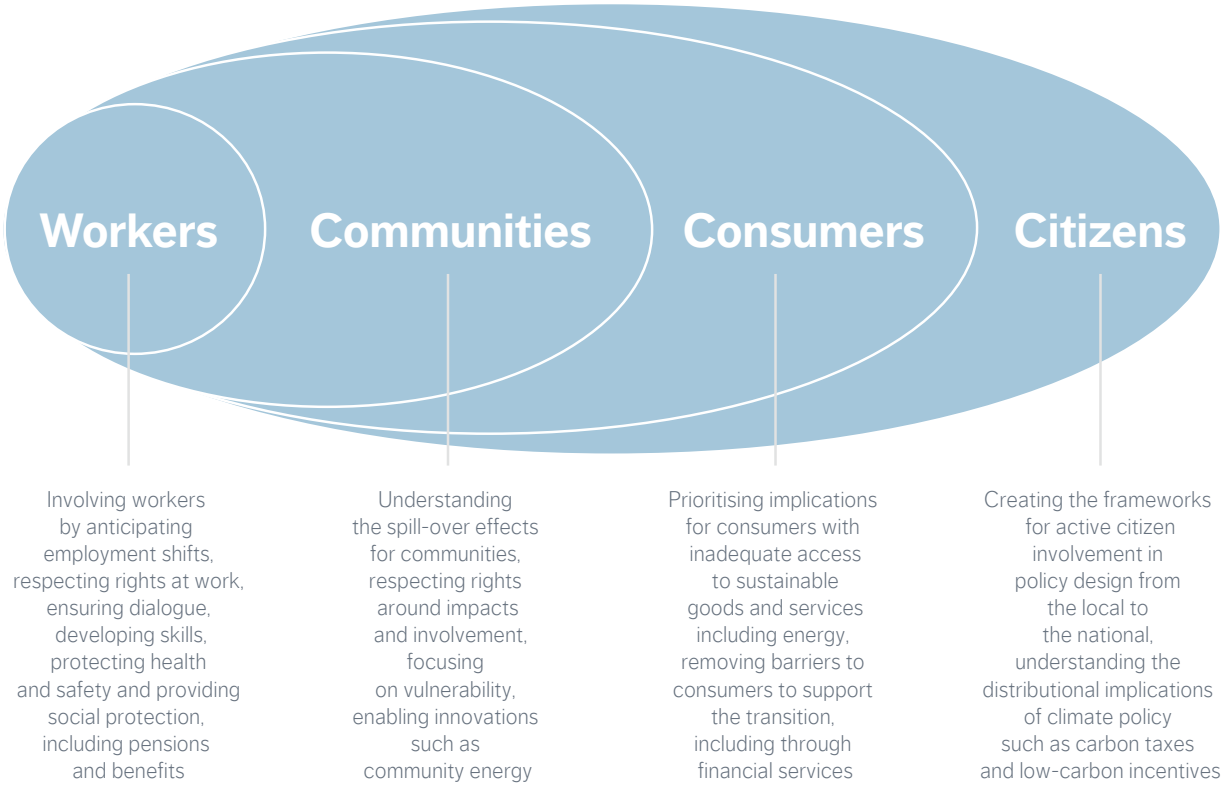
Climate Justice Alliance

Stakeholders: From no one left behind, to all-inclusive growth

"Managed well, transitions to environmentally and socially sustainable economies can become a strong driver of job creation, job upgrading, social justice and poverty eradication." – International Labour Organization.

How can we achieve this? What are the broad social implications of an energy transition, and what are the specific challenges and opportunities for utilities companies in continental Europe and the UK.

Figure 1:
Human dimensions of the Just Transition



Source: PRI and Grantham Research Institute [Robins and Ridge].

Employees: From mitigating job losses to net job creation

The shift from fossil fuels technologies to renewables creates challenges for the workforce. The problem has two elements, a 'macro' element of net job creation as new technologies create jobs, and a much more difficult-to-manage 'micro' element. This 'micro' element means that any new jobs that are created must to some degree align with jobs that are lost, not just in quantity, but in quality. Net new job creation is an easy top-down concept, but the challenge will be matching jobs with people, matching skills needed and retraining with education and ability, creating jobs in the right geographic locations, and timing – new job opportunities must be in sight as existing jobs disappear, not five years later.

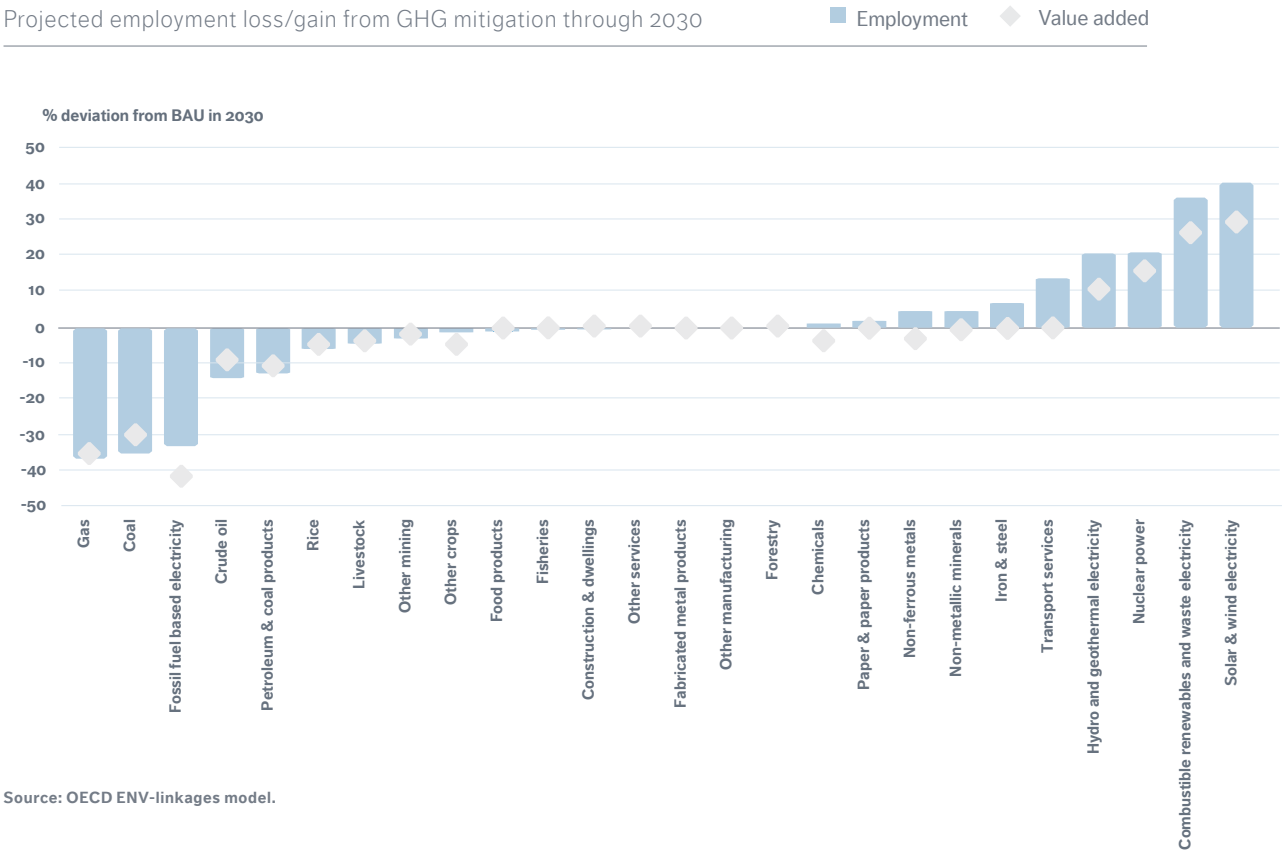
Social dialogue and protection underscore the 'Pledge for a Just Transition to Decent Jobs'.[16] Union involvement has increased. In a forum timed to present views in contrast with the Davos World Economic Forum, eight representatives from environmental associations and trade unions such as the CGT, Oxfam France, Attac France and Greenpeace France called for a "response to the dual climate and social emergency".[17] Engaging with both employee representatives and power production managements can help increase understanding of key issues (Part II, Figures 5 and 6).

Jobs are being destroyed in fossil fuel-based activities

Employees are on the front line of the energy transition, due to the changes that will occur in productive assets. As highlighted by the OECD (Figure 1), the electricity sector workforce will be one of the most affected in OECD nations. Fossil-fuel-based electricity employment will be very negatively affected despite the potential job opportunities in low-carbon electricity production. Even if the number of employment opportunities generated offsets the number of jobs lost, it will be important to consider how the losses and gains will apply to different people. Will the unemployed find employment? What if new production facilities are in a different region? These issues need to be addressed as part of the Just Transition.

Figure 2:

Projected employment loss/gain from GHG mitigation through 2030



Source: OECD ENV-linkages model.

The German Coal Commission estimates that 60,000 jobs are directly and indirectly dependent on the use of thermal coal in Germany alone. This raises the question about how Germany will manage the employment impact as it reduces its thermal coal production. Across Europe, it is estimated that 11 million jobs will be impacted by the new EU climate law according to the global trade union *industriALL*. The union clarifies that "Those jobs won't necessarily disappear ....but there needs to be a future perspective for jobs in these industries" (extractive, energy, and automotive), which is currently not clear. The unions fear a lack of funding for the 'green transition', but admits that the transformation of the European Investment Bank into a climate bank and the reshuffling of 25% of the EU budget will help. We address this in Part II.

More directly, green policies will reshape the electricity workforce. The shift from fossil fuel technologies to renewables creates challenges for the workforce, and for companies. Even more difficult to manage, while at a macro level these new technologies might create net employment, other issues are to necessary to assure a Just Transition. The change in technology creates intrinsic workforce management challenges such as relocation of assets, educational gaps, and working conditions. This lead to a restructuring across the industry. We must be aware of these intrinsic challenges while promoting a just transition.

No one left behind: The green economy will create jobs

Although the energy transition will make some jobs in the electricity sector obsolete, through careful management the sector can protect workers and ensure they are not left behind during the transition.

"The renewable energy sector tends to require more workers per megawatt of energy generated than fossil fuel-based energy sectors," states the OECD. Factors such as energy efficiency improvements, energy consumption patterns, and technological progress, must also be considered when assessing the overall impact of the energy transition on the workforce. A recent econometric model of the socio-economic impacts of the energy transition indicated its potential to increase net employment by as much as 1 to 1.4 million jobs in the European Union through 2030.[18]

Figure 3: Power generation employment – renewable versus fossil-based generation

Average employment over the life of a facility, jobs per Megawatt

	Construction, manufacturing, installation	Operations, maintenance, and fuel processing	Total employment
Solar PV	5.76 – 6.21	1.20 – 4.80	7.41 – 10.56
Wind	0.43 – 2.51	0.27	0.71 – 2.79
Biomass	0.40	0.38 – 2.44	0.78 – 2.84
Coal	0.27	0.74	1.01
Gas	0.25	0.70	0.95

Note: Ranges refer to the results of different studies. Employment is shown relative to the average installed capacity, correcting for differences in capacity factor. (Because renewable installations operate only 20% of the time, compared with 80% for fossil fuel plants, 4 MW of renewable capacity is needed to produce the same output as 1 MW of fossil fuel capacity.).

Source: University of California Berkeley, and LSE; 2004, 2006, 2014.

Governments and companies must both be involved in helping employees to navigate this evolving landscape, including managingjob losses, increasing job opportunities and thoughtfully re-skilling and up-skilling affected workers. For example, in the industrial Jiu Valley in Romania, five thousand former coal miners are being re-skilled as wind technicians over ten years.

Socioeconomic impacts on communities: United by differences ?

A Just Transition must avoid the creation of a new generation of rust belts. Net job creation is not enough, the Transition must prevent the stranding of populations of former workers. This takes a collaboration among governments, employers, communities, and investors.

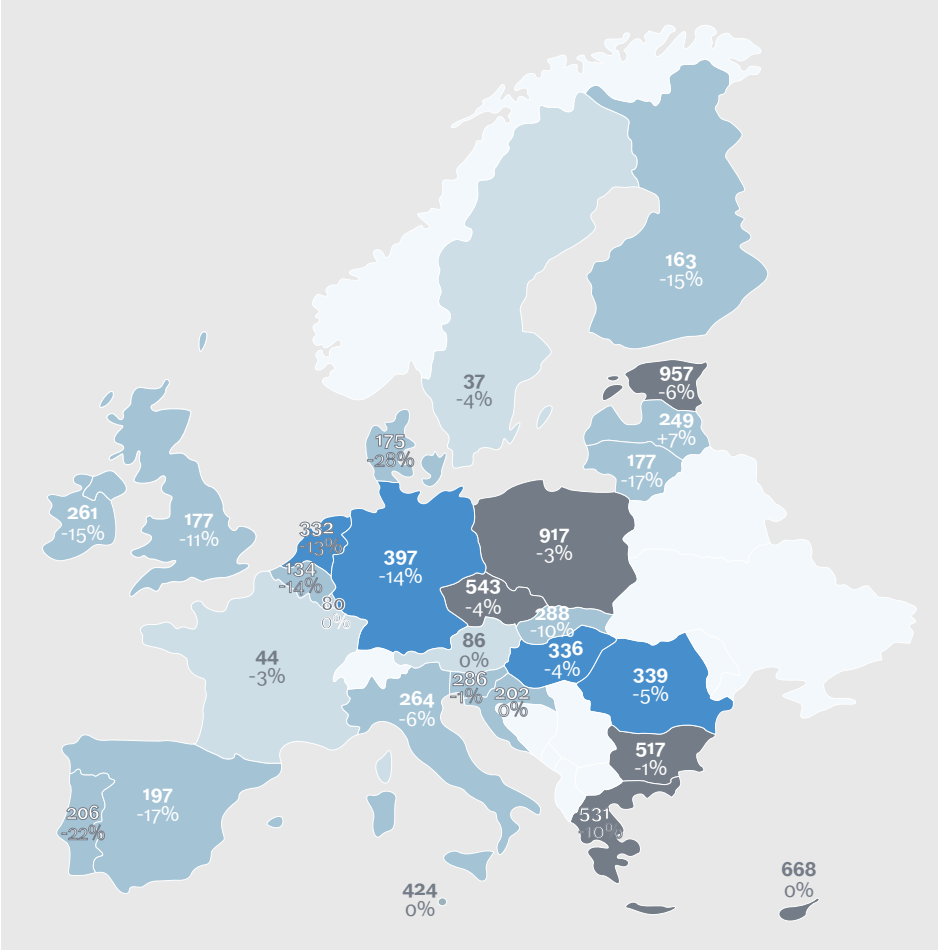
The impact on economic activity varies by region

In continental Europe and the UK, where coal accounts for nearly a quarter of electricity production today, the energy transition presents a wide range of situations across regions. Electricity fuel production sources, and their emissions, vary widely.(Figure 4). Regional and local policymakers can help in advance the transition and create a framework to transform infrastructure, technology and attitudes in their respective territories.

To ensure that no region is left behind in this heterogeneous transition, the European Commission launched the 'Platform for Coal Regions in Transition' in 2017. They recognized the need for a tailored approach to manage the socio-economic impact across regions and to support local authorities in reconciling the short-term impact of the transition on communities with the long-term need to develop a low-carbon economy.

Figure 4:Carbon intensity in power generation varies dramatically by country

CO2, grams/kilowatt, 2019



g CO2eq/kWh 2019
%-Change since 2018

- <100 CO_2eq/kWh
- 100-300 CO_2eq/kWh
- 300-500 CO_2eq/kWh
- > 500 CO_2eq/kWh

Source: European Environment Agency, 2020.

Tailwinds for value co-creation and inclusive growth

Electric utility assets are often of a large scale, potentially impacting neighbouring and distant communities. However, the services they provide are crucial for socioeconomic development of regions. To balance these trade-offs, almost all large-scale utility projects require environmental and social impact assessments including formal community consultation as part of their regulatory approval process.

Gaining and maintaining good collaboration with local communities is key to managing utilities' long-run risk profiles By proactively engaging with local communities, companies are more likely to understand the needs and interests of local communities, and to have support for building plants and launching operations, helping to create a more inclusive transition. For renewables, the lower expected lower emissions can also aid community acceptance; conversely, developers must manage aesthetic concerns and fears of reduced property values.

Customers: Service is key to a decarbonised electricity system

Carbon pricing and taxing systems should be designed so as not to overly burden low-income consumers with the cost of the Transition. Regulators can involve both consumers and corporates in their policy design process so that consumers can be net beneficiaries of the Transition through revenue recycling.

Maintaining equitable and reliable service from intermittent power sources

Due to the increasing role of renewables energy in Europe, electricity utilities are facing the challenges of maintaining service reliability and continuity. Wind and solar production remains variable and grid operators need sufficient reserves. Utilities are investing in solutions such as storage. Interconnection, and demand management, to stabilize the grid and compensate for intermittency Those utilities that have not sufficiently invested are increasingly concerned about the impact of service interruption for their customers.

Another challenge is the allocation of costs equitably and providing equal access to the benefits generated by the energy transition among different regions and populations, particularly cities versus rural areas and by income levels. According to Jan Willem Goudriaan, General Secretary of the European Federation of Public Service Unions . “Fighting energy poverty which affects nearly 11% of the European population today, as well as democratising energy production and distribution, will also be crucial elements to make the energy transition just for the workers and fair for European citizens”.

Prosumers offer competitive edge

The European Clean Energy Package acknowledges and supports citizens who want to invest in and take personal ownership of the energy transition – both individually and collectively, through 'renewable energy communities' (RECs) and 'citizen energy communities' (CECs). This is the first time consumer participation has been officially recognised in the electricity system. Electricity users can become prosumers, interacting with the electricity market by producing their own electricity and/or through energy storage. In this way, electricity produced by individually-owned photo-voltaic 'solar' panels will interact with a reasonably open energy market through an array of pricing mechanisms such as time variable tariffs.

Companies are preparing for the need to provider better services and transparency in this new consumer-driven free market, which might result in a win-win situation. Historically, due to the technology and cost of building a grid, even the most free-market countries recognized that power production and distribution was the classic 'natural monopoly'. For example, energy efficiency services, while reducing direct revenues to the utilities since they reduce customer demand, are often economically beneficial to electric utilities, through decreased operating costs and increased customer retention. Energy efficiency can be supported by offering incentives to and educating customers (demand-response tools). This results in both a low-cost method to reduce GHG emissions and can help lower customer utility bills. Leading to more customers retention rate in a more competitive space.

Part II: Materiality and issues of a Just Transition for European utilities

Candriam: Active engagement

We see it as part of our role as asset owners and responsible stewards to assess the progress achieved and the needs which still need to be met for a Just Transition. We engage in ongoing dialogues with the largest European power producers on their efforts, along with other stakeholders. Our aim was to understand their actions in support of all stakeholders -- consumers, employees and local communities -- during the multi-year transition toward a low carbon economy. Since 2015, Candriam has concentrated our direct engagement with investee companies on three Conviction Topics – Energy Transition, Fair Work Conditions, and Business Ethics. In 2018, we joined the PRI-led *Statement of Commitment to Support a Just Transition*.

As part of our efforts to increase transparency, we conducted interviews with corporates, trade unions, think tanks and consumer associations. Our research extended beyond investee companies, as our goal was to obtain a wider perspective on the Just Transition theme. An understanding of the nature of all the stakeholders was necessary to better evaluate and manage investments. Our aim was to understand the needs of multiple stakeholders across a variety of issues, and to asses both the expectations and the true capacity of companies to act on these.

To gain a broad perspective we contacted ten non-investor stakeholders (Figure 5).

Figure 5:

Stakeholders contacted

Company name	Category
IndustriALL	Trade union
CFE-CGC Energies	Trade union
Eurelectric	Trade union
ETUC	Trade union
UFC-Que choisir	Consumer association
Climate Justice Alliance	Think tank or non-profit
E3G	Think tank or non-profit
Stockholm Environment Institute	Think tank or non-profit
RESCOOP.EU	Think tank or non-profit
CE delft	Think tank or non-profit

Source: Candriam

These results helped to determine the core issues:

- ***How much leeway do the Utilities calculate they have on the social impact of low-carbon transition on workers, local communities and consumers ?***
- ***To what extent were the Utilities incorporating employees and these other stakeholders in their transition strategies?***

We then contacted thirteen European Utilities (Figure 6) at the beginning of December 2019 to address these questions.

We received Eight responses representing 51% of the MSCI Europe Utilities Index (24 constituents, as at the end of March 2020).

Figure 6:

Utilities contacted

Company name	GICS Sub-industry	Main Market	Number of employees	MSCI Europe Utilities index weight	Responded?
IBERDROLA	Electric Utilities	Spain	34k	16.7%	Yes
ENDESA	Electric Utilities	Spain	10k	1.9%	Yes
EDP - Energias de Portugal	Electric Utilities	Portugal	11.7k	2.8%	No
CENTRICA	Multi-Utilities	UK	26.8k	0.8%	Yes
ØRSTED	Multi-Utilities	UK	6.5k	5.3%	Yes
FORTUM	Electric Utilities	Nordics	8.2k	1.8%	No
RWE	Multi-Utilities	Germany/UK	19.8k	4.2%	Yes
EDP-RENEWABLES	Renewable Electricity	North America	1.4k	Not in the index	No
E.ON	Multi-Utilities	Germany	43.3k	6.7%	Yes
ENEL	Electric Utilities	Italy	62.9k	16.1%	Yes
ENGIE	Multi-Utilities	France	170k	5.4%	No
ELIA	Electric Utilities	Germany	1.4k	Not in the index	Yes
EDF	Electric Utilities	France	164k	1.3%	No

Source: Candriam, corporate annual reports (most recent published employee figures), MSCI©(31 March 2020).

Case Studies: Diverse situations lead to diverse responses

The materiality of a Just Transition for a utility depends on its particular business mix, and its progress within the energy transition process. There is no one-size-fits-all approach. Yet, we believe all companies could have a role to play in the Just Transition. We present 'Case Studies', or synopses, of some of the relevant initiatives we examined during our research. These illustrate strategies from some of the biggest European power producers regarding their exposure to, and management of the Just Transition across their operations.

It becomes apparent that a Just Transition is not necessary just in European operations. Enel, for example, is considered a 'Just Transition champion' in its traditional markets, but has received some criticism in other parts of the world. Enel has expanded its program to Endesa, its 70%-owned Spanish affiliate, a task complicated by Endesa's separate equity listing. The example of Ørsted in the US illustrates that a multi-local approach is needed within its global operations.

Enel: Just Transition champion

As an integrated power producer, Enel is exposed to social issues along the length of the power generation value chain, from managing the closure of coal power plants to improving energy efficiency 'behind the meter'; that is, with the end business or home consumer. The company is converting its asset base by developing renewables and closing its coal power plants. Enel exhibits some of the best practices in managing the impacts of the transition on its different stakeholders.

To assess the risks and opportunities linked to the Just Transition, the company recently partnered with think tank The European House Ambrossetti to conduct a detailed analysis of the socioeconomic impacts of energy transition. Ambrosetti's **Just E-volution 2030** report analyses the year 2030 scenarios in for the energy transition in the EU. The study emphasizes Italy, Spain and Romania, highlighting the opportunities the transition could create and providing recommendations for policy-makers.

At the operational level, Enel is engaging with communities potentially impacted by the transition through their *Futur-e* project, which aims to repurpose legacy fossil fuel power plants as projects to create shared value with the community and the surroundings of these industrial spaces. For example, after ceasing power production at its Porto Tolle plant in Italy in 2015, Enel created Delta Farm, a new tourist, sports and agri-food park that will play an important role in the life of the Po Delta by 2023 – with around 400 direct jobs. Engaging with its workforce is a strategic priority for Enel. A Just Transition framework has been agreed with its Italian union 'partners'. The framework covers retention, redeployment, reskilling and early retirement for elderly workers.

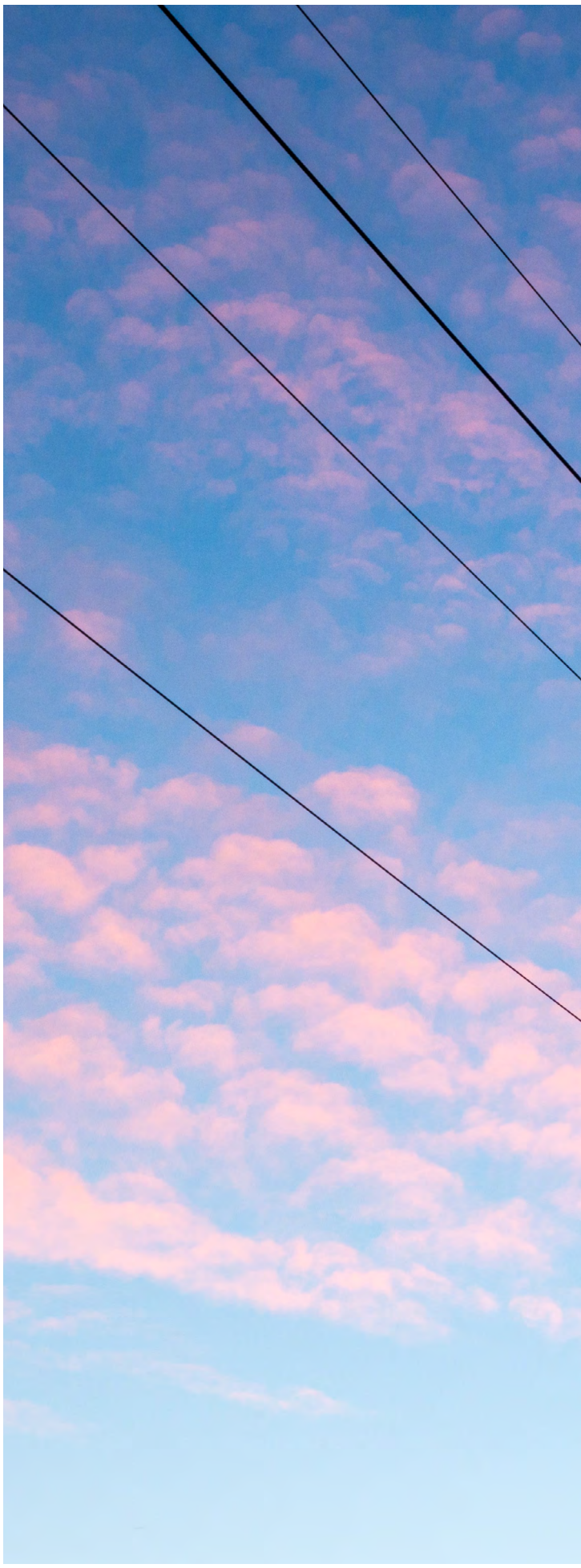
RWE: A regulated approach to Just Transition

RWE is well into a structural transformation from a fossil-intensive electricity production and distributor to a diversified power producer. The most material Just Transition issue for the company remains the management of workforce layoffs to adhere to the German government goal to phase out coal by 2038.

A the beginning of 2020, RWE announced it will cut about 6,000 jobs, or nearly a third of its current workforce, by 2030 as Germany phases out brown coal energy. To implement this reduction, the company negotiated €2.6 billion in compensation with the German government, with RWE responsible for some of the additional costs.

For the Rhenish region, the most affected area, the company is developing new economic activities. For example, there are plans to build an innovation, technology and commercial park in Frimmersdorf and the surrounding area. RWE will perform test drillings at the Weisweiler site within the scope of an EU project to test whether the local geothermal activity is sufficient to generate district heat.

RWE faces lengthy and complex challenges to minimize and manage the impact of the coal phase-out on its stakeholders.



Iberdrola: Engaging suppliers

Iberdrola is the largest European utility, with millions of end-consumers in Spain, and millions more in the rest of the world, including in developing nations. The company decided to divest from coal 15 years ago, and has two remaining coal- and oil-fired power plants. Iberdrola managed to perform this transition in a respectful manner for employees, consumers and local communities. The company made a strong commitment to closing fossil-fuel-fired plants, and to retraining workers for renewable production technologies. For example, coal-fired power plants were closed in Scotland over the objection of the Scottish government, and Iberdrola managed to retrain all those workers.

Iberdrola continues its leadership by prioritising projects where they have more than 50% ownership. With a controlling position, they can implement their own management quality standards. One of Iberdrola's efforts which stands out is their requirement that more than 70% of each project has to be sourced from local suppliers.

Iberdrola works with local suppliers helping to indirectly contribute to job creation and retention within the regions in which it operates. This has helped it maintain a powerful 'industrial fabric' in its localities.

In Spain, Iberdrola purchased equipment, materials, work and services in 2018 worth more than €1.5 billion from over 5,000 Spanish suppliers. Local suppliers accounted for 85% of these purchases, a typical percentage for the Group's local purchase worldwide.

Iberdrola estimates that purchases from local suppliers at the end of 2019 amounted to 89% -- a successful demonstration of incorporating suppliers and communities as stakeholders.

Ørsted: Facing first mover challenges in fishing communities

Despite having completed the transition from oil and gas to renewable sources, the Danish utility Ørsted continues to face local community-related challenges.

Recently, Ørsted has encountered opposition from fishermen in the US when installing wind turbines. Wind power is less mature in the US than in northern Europe, and neither communities nor fishermen are accustomed to offshore wind farms. This meant that Ørsted had to spend more time engaging with local fishermen on their operational activities.

In response, in late 2018 and early 2019, Ørsted partnered with RODA, the US Responsible Offshore Development Alliance to improve communication between the commercial fishing industry and offshore wind energy developers. The RODA is a coalition of US fisheries and commerical fishing industry associations in the US, dedicated to interacting with the offshore wind industry to maintain sustainable fishing.

Ørsted also developed an internal roadmap based on two pillars to engage with the fishing community:

- Fishermen must have peaceful access to the area they need.
- Fishermen should be offered additional economic opportunities to provide related services; for example, transporting materials by boat.

These new initiatives, dedicated to very specific stakeholders, emphasize that all companies, regardless of their advancement in the energy transition, must develop strong and flexible management processes for impacts. For Ørsted, gaining experience on social acceptance issues in key markets such as the US, where tenders incorporate an increasing number of qualitative criteria, can be seen as a positive for resilient corporate growth.

Conclusion:

Transparency and dialogue will lead to a more Just Transition

Power generation has a key role in the European Just Transition, due to the impact on a range of stakeholders. As sustainable investors, we welcome and encourage transparency from corporates, including their views on which stakeholders should be involved in the process.

We find that the materiality depends on the stage of each company in its technological advancement towards clean energy. All companies are confronted by some level of challenges and are developing strategies to address them. The specifics of each company and divergence of their businesses and the communities in which they operate leads us to recommend a case-by-case approach to capture how they are managing these new risks and opportunities. As asset stewards, it is our responsibility to monitor and converse with investee companies, with other stakeholders, and related or independent industry or community participants to understand the full 'ecosystem'.

Whilst acknowledging the complexity of the topic, we seek additional disclosure and welcome proactivity from companies on the Just Transition, and on the impact it is having and will have on their operations and strategies. For example, more insights into their dedicated work with unions on reskilling appears key for the technological shift between thermal and renewables but also for the increased digitalization of their operations.

Such transparency would enable investors to better assess risks and opportunities arising from the Just Transition at a company level. In our role as capital allocators, it creates an incentive for companies to address the topic without necessarily waiting for governments to intervene.

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