



Guidance Note

Make transitions work: climate change and employment

October 2020



A powerful
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voice for business



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This guidance paper sets out to describe the key employment and social policy opportunities and challenges arising from action on climate change. Its main objectives are to: inform members of current developments on climate change policy discussions and impacts on employment and offer background material and analysis on the employment-climate change nexus. With the onset of the Covid-19 global pandemic and its economic effects, uncertainty around employment, climate change and policy responses is higher, and the global employment outlook has changed. This paper includes updates to reflect this new situation stakeholders find themselves in. It complements IOE's Policy Paper on Employment and Climate Change and supports the policy positions presented there.

Context

The Covid-19 virus quickly became an unexpected global problem of unprecedented proportions and urgency. One of the main weapons countries have in fighting pandemics is quarantine and physical distancing which prevent infections spreading too quickly for the health system to manage. Lockdown measures have various effects since they directly impact the normal functioning of our economic system but in general the economic and employment impacts are strongly negative and worrying. To minimize economic damage, support vulnerable populations and businesses and ensure jobs and livelihoods remain intact governments are implementing ambitious recovery mechanisms and costly relief measures. Beyond the direct economic and social effects, how does the current situation affect climate policy and how can climate policy be adapted in light of the lessons learned? Although the Covid-19 pandemic provides useful insights into emergency responses, rapid economic shifts and provides lessons for managing climate adaptation and mitigation the two issues also present many different characteristics and should not be treated in the same way. The global climate response should not be directly modelled after the pandemic response but rather the useful elements should be taken up and adapted. According to McKinsey analysis, “understanding the similarities, the differences, and the broader relationships between pandemics and climate risk is a critical first step if we are to derive practical implications that inform our actions”¹.

By the end of April, 212 countries, territories or areas had reported confirmed cases of Covid-19. According to the UN there has been a 9% year-on-year fall in global production and manufacturing output, and projections show that the value of global merchandise trade will fall by almost 27% in Q2 2020, the largest fall in global commodity prices on record (-20.4% between February and March 2020²). According to ILO modelling global working hours declined in the first quarter of 2020 by an estimated 4.5 percent, equivalent to approximately 130 million full-time jobs, compared to the pre-crisis situation (fourth quarter of 2019) while in the second quarter of 2020 total working hours globally are expected to be 10.5 per cent lower than in the last pre-crisis quarter. This is equivalent to 305 million full-time jobs³. It is evident then that the impacts on business of this situation are considerable⁴. Further analysis and data can be found on [IOE](#) and [ILO](#) websites.

There is debate whether it is a good idea to tackle both climate change and Covid-19 through integrated policies⁵ but it makes sense to seek synergies and design, where possible and cost-effective, integrated climate and pandemic recovery measures. Although different in nature and adding significant additional pressures there are parallels we can observe between the pandemic and climate change and to solve both we should invest in a cleaner and more resilient economy; finding a low-carbon, high-growth recovery formula is not easy but by carefully designing policies environmental goals can go hand in hand with economic recovery and growth.^{6,7} Through smart regulations and adopting a practical approach of integrating climate and environmental objectives into thinking on Covid-19 recovery measures where useful, not rolling back existing environmental measures and combining financial recovery measures with environmental improvements, government stimulus packages could make a real difference⁸. Governments play a key role in enabling society – ensuring

¹ McKinsey, 2020, “[Addressing climate change in a post-pandemic world](#)”

² Committee for the Coordination of Statistical Activities, 2020, “[How COVID-19 is changing the world: a statistical perspective](#)”

³ ILO, 2020, “[ILO Monitor: COVID-19 and the world of work. Third edition](#)”

⁴ McKinsey, 2020, “[COVID-19: Implications for business](#)”

⁵ Financial Times, 2020, “[Can we tackle both climate change and Covid-19 recovery?](#)”

⁶ MIT Sloan Management Review, 2020, “[COVID-19, Climate Change, and the Forces Shaping Our Future](#)”

⁷ McKinsey, 2020, “[How a post-pandemic stimulus can both create jobs and help the climate](#)”

⁸ OECD, 2020, “[From containment to recovery: Environmental responses to the COVID-19 pandemic](#)”

vulnerable populations and businesses are protected and thrive – while further dynamic and innovative solutions can come from entrepreneurship and business⁹, and specifically small business, if they have the enabling environment required¹⁰. It is a defining moment and one which will have long-lasting effects on business¹¹ and society at large.

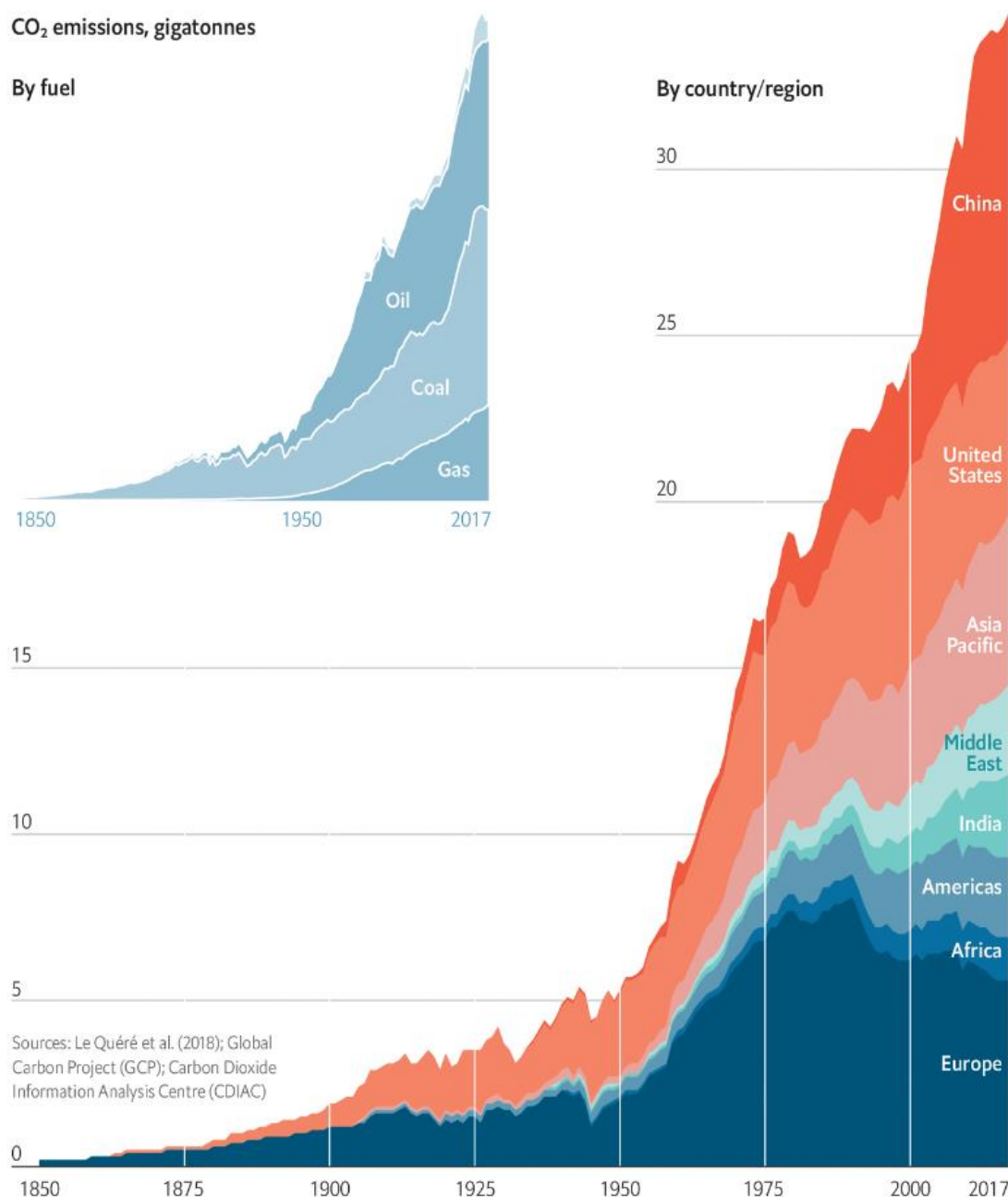


Figure 1 The rise of global CO₂ emissions, gigatons. Source: [Economist 2019](#)

International Governance

Despite the current Covid-19 crisis, the climate agenda has never been more present in international discussions and governance of it has been steadily developing and becoming more complex. The [United Nations Framework Convention on Climate Change \(UNFCCC\)](#) is the international framework for climate action and its objective is to stabilise greenhouse gas concentrations at a level that would prevent dangerous effects on the climate and in a time frame that enables sustainable development.

⁹ ILO, 2019, "[Growing Green - Fostering A Green Entrepreneurial Ecosystem For Youth](#)"

¹⁰ Jeffrey York, 2020, "[COVID-19 is a dress rehearsal for entrepreneurial approaches to climate change](#)"

¹¹ McKinsey, 2020, "[Demonstrating corporate purpose in the time of coronavirus](#)"

The [Conference of the Parties \(COP\)](#) is the supreme decision-making body of this Convention and meets annually since their first meeting in Berlin in 1995. All Parties to this Convention are represented at the COP and meet to review the implementation of the Convention, any other legal instruments that the COP adopts and also decide on institutional and administrative arrangements and effective means of implementation. The key task of the COP is to review the national communications and emission inventories submitted by Parties ([Nationally Determined Contributions or NDCs](#)). UNFCCC is informed by analysis and research from the [Intergovernmental Panel on Climate Change \(IPCC\)](#), a separate UN body, established in 1988 to provide objective, scientific information relevant to understanding the risks and impacts of climate change. IPCC prepares an annual comprehensive assessment report with baseline information which is used to formulate climate policy (see reports [here](#)).

Marking a historic commitment, the [Paris Agreement](#) was signed in 2015 at [COP21](#)¹² with the objective to limit global warming to 1.5 to 2 degrees Celsius above pre-industrial levels (for an interactive tool explaining the Agreement see [here](#)). A more recent special IPCC Report stresses the importance of maintaining warming well below 1.5°C¹³. According to the IPCC, limiting global warming to 1.5°C requires net human-caused carbon dioxide (CO₂) emissions to fall by 45% by 2030 and to reach net zero by 2050. Even limiting the temperature rise to 2°C will require CO₂ emissions to fall by 25% by 2030, requiring a turnaround of the present trend.

A key task for the COP is to review the national communications and emission inventories submitted by Parties. Based on this information, **the COP assesses the results of the measures taken by Parties and the progress made in achieving the ultimate objective of the Convention**. COP25, held in Madrid on 2-13 December 2019, after the Santiago, Chile, venue was cancelled due to domestic issues, was seen and promoted as a crucial opportunity for increased ambition and action. The Parties needed to finalise negotiation of the Paris Rulebook (the detailed rules and guidelines on measures of implementation and requirements for NDCs, explained [here](#)) so that next year the first NDCs could come into action. 2020 is the starting year of Paris Agreement implementation (see timeline [here](#) and for an interactive tool on the negotiating parties and process see [here](#)). COP25 outcomes have been criticized as very limited; it was expected to be a much more ambitious and powerful push towards concrete climate action¹⁴. The official decision documents can be found on the [UNFCCC website](#).

Facts and figures

Emissions of greenhouse gasses into the Earth's atmosphere by the combustion of fossil fuels have strongly influenced the development of the world. Since the industrial revolution our modern economy and its growth are based on affordable and easily available energy; this energy has been provided in abundance by fossil fuels. The explosion of technological progress and economic activity that followed created unprecedented prosperity, improvement of living standards and a wealth of new products and services. These developments, coupled with advances in medicine and agriculture, have led to the world's population reaching its highest level in history. In fact, in the 20th century, the world's population almost doubled twice while global Gross Domestic Product (GDP) doubled over four

¹² As of May 2020, [195 states and the European Union have signed the Agreement](#). 189 states and the EU, representing almost 97% of global greenhouse gas emissions, have ratified or acceded to the Agreement, including China, the United States (which has notified the UN of its decision to withdraw from the agreement) and India, the countries with three of the four largest greenhouse gas emissions of the UNFCCC members total (about 42% together)

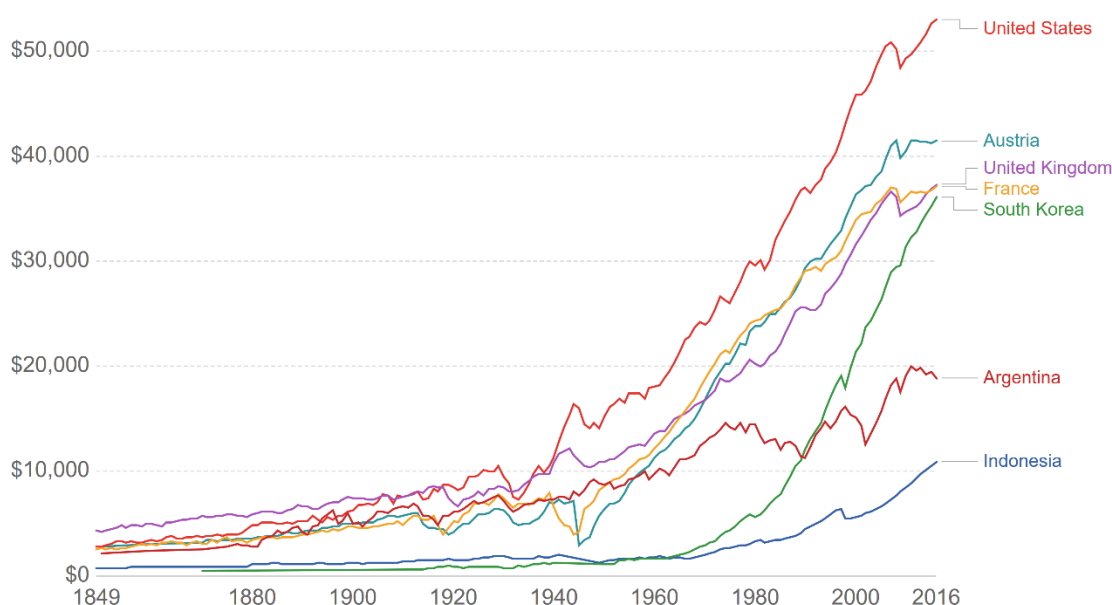
¹³ International Panel on Climate Change (IPCC), 2019, "[Global Warming of 1.5°C](#)" and World Resources Institute, 2018, "[8 Things You Need to Know About the IPCC 1.5°C Report](#)"

¹⁴ For a full and detailed summary of outcomes see [here](#) and [here](#).

times. On the other hand, the emissions produced by that combustion are and have been making their effect very clear in the form of climate change¹⁵; in 1900 total global emissions amounted to about 2 billion tonnes of carbon dioxide, by 1950 emissions were three times that much and today they are close to 20 times that much¹⁶. In the past decade, however, emissions have continued to increase at a rate of 1.5% per annum. A reduction of approximately 3-6% per annum between now and 2030 is needed to limit global warming to 1.5-2°C¹⁷. The current Covid-19 pandemic has strongly impacted emissions in the short-term but will most likely not have a significant effect in the longer term¹⁸. Furthermore, while they will soon be updated and there have been calls for higher ambition, current NDCs are seen as insufficient to achieve the overall goal of the Paris Agreement.

GDP per capita

GDP per capita adjusted for price changes over time (inflation) and price differences between countries – it is measured in international-\$ in 2011 prices.



Source: Maddison Project Database (2018)

OurWorldInData.org/economic-growth • CC BY

Note: These series are adjusted for price differences between countries based on only a single benchmark year, in 2011. This makes them suitable for studying the growth of incomes over time but not for comparing income levels between countries.

Figure 2 Illustrates GDP growth per capita and the associated prosperity boom, [source and more data](#)

Our economic history illustrates that businesses and the private sector have been in a state of constant transition and adaptation since the industrial revolution. Change is in many ways essential to business and entrepreneurship thrives on it while attempting to anticipate adequate action. Today, new realities of work have already created powerful and rapid trends to which the private sector is responding. The capacity to adapt and overcome shocks is not always there for all market participants and these shifts can often be tumultuous and damaging to large parts of economies. It is important to build capacities, strengthen resilience and establish robust frameworks for support and innovation otherwise markets perform much worse in terms of employment during crisis periods. The simultaneity of the COVID-19 crisis and the climate challenge means that the post-pandemic recovery will be a decisive period for fending off climate change. According to McKinsey governments don't have to compromise economic priorities for the sake of environmental ones in the wake of the Covid-

¹⁵ The Economist, 2019, "[The past, present and future of climate change](#)" and "[Humanity's immense impact on Earth's climate and carbon cycle](#)"

¹⁶ The Economist, 2019, "[The past, present and future of climate change](#)".

¹⁷ World Economic Forum (WEF), 2020, "[The Net Zero Challenge - Fast-Forward to Decisive Climate Action](#)"

¹⁸ UN, 2020, "[Fall in COVID-linked carbon emissions won't halt climate change](#)"; Sheffield Political Economy Research Institute, 2019, "[What happens to the environment in times of economic trouble and why should we care?](#)"

19 recession¹⁹. The COVID-19 crisis is likely to have dramatic consequences for progress on climate change. Imminent fiscal recovery packages could entrench or partly displace the current fossil-fuel-intensive economic system²⁰.

One of the main goals behind sustainable development in general is to ensure continued and sustainable economic growth while bringing emissions of greenhouse gases to near zero in the long-term²¹. This represents a so-called decoupling of the growth of emissions and economic growth which have evolved together so far; these dual objectives have been translated into SDG8 (sustainable economic growth) and SDG13 (climate action). The concept of decoupling is at the core of the 2030 Agenda for Sustainable Development (2030 Agenda²²) and sustainable development in general²³. Through a reduction of energy intensity of GDP, energy efficiency measures, increased electrification, circular economy measures²⁴, and energy diversification towards cost-effective renewables, some countries have started making progress on this ambitious goal showing that it is indeed possible (Denmark, Germany, Sweden and UK are some of the examples²⁵). Business and the private sector are ideally placed to seize potential opportunities and accelerate this trend but only if they are adaptable, resilient and forward-looking²⁶.

The economic effects of climate change are already significant across the globe²⁷; it is a cycle which accelerates, and the impacts will only increase without strengthened and accelerated action to prevent and adapt to it (climate impacts are also compounded with other ongoing environmental impacts like [loss of biodiversity](#), pollution, [waste](#), etc.). Climate change also has significant social impacts which are often most felt by vulnerable populations and lower-income countries. According to the IPCC 1.5°C Special Report there is limited time to reduce emissions before they reach catastrophic levels. Their effects are already being felt across the world of work²⁸, so it is crucial at this stage to focus on emissions reductions and adaptation across sectors and geographies and prioritise areas for action and strongest impact.

Globally, by far the biggest basic source of emissions is energy use; 87 percent of all human-produced carbon dioxide emissions come from the burning of fossil fuels like coal, natural gas and oil. The remainder results from the clearing of forests and other land use changes (9%), as well as some industrial processes such as cement manufacturing (4%). The energy sector includes transportation, electricity and heat, buildings, manufacturing and construction, fugitive emissions and other fuel combustion and produces most of the emissions from human activity. Around half of global emissions were the result of electricity and heat production in 2014, transport and manufacturing industries both contributed approximately 20 per cent and residential, commercial and public services around nine per cent while other sectors contributed 1 to 2 per cent. For a summary of the data see [here](#) and [here](#). For some findings on how different sectors are adapting and mitigating their emissions see [here](#).

¹⁹ McKinsey, 2020, "[How a post-pandemic stimulus can both create jobs and help the climate](#)"

²⁰ Hepburn, C. et al. (2020), "[Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change?](#)", Smith School Working Paper 20-02.

²¹ The Economist, 2019, "[The Climate Issue](#)"

²² The 2030 Agenda is a very broad framework containing many societal goals of which climate action is just one; the focus of this paper is on climate change and employment and not the wider 2030 Agenda

²³ United Nations Environment Program (UNEP), International Resource Panel, 2011, "[Decoupling Natural Resource use and Environmental Impacts from Economic Growth](#)" and Our World in Data, "[Shrink emissions, not the economy!](#)"

²⁴ WEF, 2019, "[The world's economy is only 9% circular. We must be bolder about saving resources](#)"

²⁵ WEF, 2016, "[The decoupling of emissions and growth is underway. These 5 charts show how](#)"

²⁶ McKinsey & Company, 2019, "[The decoupling of GDP and energy growth: A CEO guide](#)" and Ellen MacArthur Foundation, "[What is the circular economy?](#)"

²⁷ McKinsey & Company, 2020, "[Climate risk and response: Physical hazards and socioeconomic impacts](#)"

²⁸ International Labour Organization, 2018, "[World Employment Social Outlook 2018 – Greening with Jobs](#)"

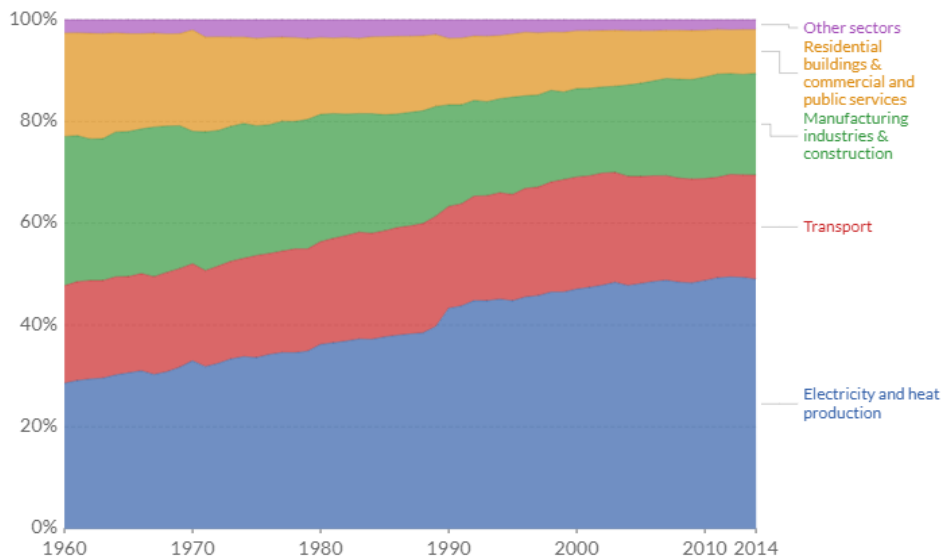


Figure 3 Global CO2 emissions by sector or source, 1960-2014 ([source](#))

According to a recent IOE survey²⁹, sustainability and climate change are one of the five main global trends impacting business globally; almost 70 per cent of employers asked in this survey see considerable impact in their operations from increasing environmental and disaster risks. This year's World Economic Forum Global Risks Report³⁰ has environmental risks taking all five top spots by likelihood and it was one of the main topics of discussion in Davos this year³¹. Companies reporting to the Carbon Disclosure Project (CDP)³² have reported extensive climate change risks to their activities and operations but also potential opportunities that can have a significant impact. The largest companies reported likely financial impacts on their assets but also opportunities for growth far beyond the size of risks; the takeaway is that managing identified risks ahead of time is significantly cheaper than tackling them when they hit³³. Timing is a key element and there are already many options for adaptation and increasing resilience of business³⁴.

²⁹ International Organisation of Employers (IOE), 2019, "[Changing Business and Opportunities for Employer and Business Organizations](#)"

³⁰ WEF, 2020, "[The Global Risks Report 2020](#)", "[Top risks are environmental, but ignore economics and they'll be harder to fix](#)"

³¹ WEF, 2020, "[What's everyone talking about at Davos 2020?](#)" and World Business Council for Sustainable Development, 2020, "[The triangle that will fix capitalism](#)"

³² The Carbon Disclosure Project is an international, not-for-profit organisation providing a global system for companies and cities to measure, disclose, manage and share vital environmental information. They request information on climate risks and low carbon opportunities from the world's largest companies on behalf of over 515 institutional investor signatories (for more information see [here](#) and [here](#)).

³³ Carbon Disclosure Project, 2019, "[Major risk or rosy opportunity - Are companies ready for climate change?](#)"

³⁴ WEF, 2020, "[The Net Zero Challenge - Fast-Forward to Decisive Climate Action](#)" and McKinsey & Company, 2019, "[Earth to CEO: Your company is already at risk from climate change](#)"

Costs and investment



Figure 4 The global benefits of a decisive shift to a low-carbon economy when compared with a baseline scenario ([New Climate Economy 2018](#))

In the context of the ambitious obligations of the Paris Agreement participating countries need to make emissions reductions in all industrial and economic sectors. However, this can only be realised by business if measures are implemented in a realistic and economically friendly way. As we have seen with the Covid-19 crisis, extreme measures that interfere with normal economic activity cannot be sustained. It is important that all companies and potential actors able to contribute to emissions reductions receive adequate support. This support and incentives need to be technology neutral for the most part so that all potential solutions can compete, and regulations do not pick winners (regulations should focus on objectives of emissions reduction not particular technologies). Large-scale investments will need to be made in the coming years in new technologies, fuels and efficiencies. The Stern Review on the Economics of Climate Change³⁵, already estimated that globally the cost of inaction could be the equivalent of at least five per cent of global GDP per year and indefinitely³⁶.

It is estimated that converting only the energy sector to climate neutrality would require “US\$3.5 trillion of investments on average each year between 2016 and 2050”³⁷. **Investing in systemic change can be costly:** the United Nations Development Programme (UNDP) estimates that the annual costs of building climate resilience could range from US\$140 billion to US\$300 billion by 2030, and between US\$280 billion and US\$500 billion by 2050³⁸. Infrastructure development is necessary for climate change adaptation while constituting significant initial capital costs. The New Climate Economy³⁹ estimates that “the world is expected to invest about US\$90 trillion on infrastructure in the period up

³⁵ Stern, Nicholas, 2006, “[The Economics of Climate Change: The Stern Review](#)”

³⁶ Das Progressive Zentrum and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), 2019, “[Foreign Policy and the Just Transition](#)”

³⁷ London School of Economics and Political Science, Grantham Institute on Climate Change and the Environment, 2018, “[Climate change and the just transition - A guide for investor action](#)”

³⁸ Business for Social Responsibility (BSR), 2018, “[Climate and the Just Transition: The Business Case for Action.](#)”

³⁹ The New Climate Economy, 2018, “[Unlocking the Inclusive Growth Story of the 21st Century: Accelerating Climate Action in Urgent Times](#)”

to 2030, more than the entire current stock today”⁴⁰. The costs of inaction and the costs of investment are not fixed in time, the longer we wait the higher these costs will be and acting quicker will reduce damages and increase benefits⁴¹.

Governments and international as well as national policies play an important role in driving an effective and rewarding transition. The OECD estimates that a climate-friendly “policy package can increase long-run GDP by up to 2.8 per cent on average across the G20 in 2050 relative to a continuation of current policies. If the positive impacts of avoiding climate damage are also taken into account, the net effect on GDP in 2050 rises to nearly 5 per cent across developed and emerging economies of the G20”⁴². In terms of sustainable development more broadly, the Business and Sustainable Development Commission⁴³ uses [PriceWaterhouseCoopers](#) research to estimate up to US\$12 trillion of market opportunities in the four economic systems (food, cities, energy and materials, and health and well-being) examined by the Commission if the world achieves and works towards the SDGs. According to the International Energy Agency (IEA) governments drive directly or indirectly more than 70% of global energy investments so it is clear that they can steer those investments on a more sustainable path⁴⁴.

The economic harm from climate change may be slower than that caused by the pandemic, but it could also be more massive and long-lasting. It is possible to adapt in a smart way and create a resilient Covid-19 recovery while helping prepare systems for climate change⁴⁵. Using at least part of the 9 trillion dollars already earmarked by over 170 countries for stimulus and recovery measures for sustainability measures could create strong progress in the mid-term. For instance, according to International Energy Agency (IEA) analysis, a sustainable recovery plan for just the energy sector could add 1.1 percentage points to global economic growth each year, lead to global GDP being 3.5% higher in 2023 than it would have been otherwise, while saving or creating roughly 9 million jobs a year over the next three years and lowering emissions by 4.5 billion tonnes^{46,47}. This year’s Production Gap Report, which looks at the gap between countries’ planned production of fossil fuels and the levels required for limiting warming below 2°C, will examine how government bailouts, stimulus measures and strategies are delaying or accelerating the transition away from dependence on fossil fuel production⁴⁸. For further exploring the links between climate change policy and Covid-19 the Geneva Environment Network has created a [repository of relevant resources by theme](#).

Employment impacts

According to UNFCCC, climate change adaptation and mitigation will have quantitative and qualitative effects on employment and business. The difference between climate change mitigation and adaptation is that mitigation is aimed at tackling the causes and minimising the possible impacts of climate change, whereas adaptation looks at how to reduce the negative effects it has and how to take advantage of any opportunities that arise. Where mitigation strategies fail to reach emissions

⁴⁰ Estimates say that in the industrial sectors, total incremental capital investment from 2015 to 2050 could amount to US\$5.5 to US\$8.4 trillion, representing about 0.1% of aggregate GDP over that period and less than 0.5% of probable global savings and investments which shows that although costly the necessary investments are manageable ([McKinsey 2018](#), [Energy Transitions Commission 2018](#))

⁴¹ Global Commission on Adaptation, 2019, “[Adapt now: a global call for leadership on climate resilience](#)”

⁴² Organisation for Economic Co-Operation and Development, 2017, “[Investing in Climate, Investing in Growth](#)”

⁴³ Business and Sustainable Development Commission, 2017, “[Better Business Better World](#)”

⁴⁴ International Energy Agency (IEA), 2018, “[World Energy Outlook 2018 examines future patterns of global energy system at a time of increasing uncertainties](#)”

⁴⁵ World Economic Forum, 2020, “[How to build back better after COVID-19](#)”

⁴⁶ IEA, 2020, “[Sustainable Recovery: World Energy Outlook Special Report](#)”

⁴⁷ The Economist, 2020, “[Countries should seize the moment to flatten the climate curve](#)”

⁴⁸ Climate Home News, 2020, “[After the oil crash, we need a managed wind-down of fossil fuel production](#)”

containment targets, climate resilience will be key to lessen the impacts of climate change⁴⁹. According to UNFCCC, there are overall 1.47 billion jobs critical to climate stability (see Figure 5 below). The real impact on jobs and employment will depend on regulations and policies adopted; they can be very different depending on the type of response put in place by the relevant stakeholders. Globally and irrespective of climate change, 600 million new jobs need to be created by 2030 just to keep pace with the growth of the global working age population⁵⁰. That is about 40 million jobs per year⁵¹. However, fulfilling the Paris agreement commitments means that those new jobs should not create additional emissions nor put additional pressure on ecosystems.

Table 2. Global employment in sectors critical to climate stability	
Sector	No. of jobs
Energy	30 million
Forestry	44 million
Transport	88 million
Buildings	110 million
Resource-intensive manufacturing	200 million
Agriculture	1,000 million
Total	1,472 million

Source: UNFCCC (2016)

Figure 5 Jobs critical to climate stability by sector (Source: [LSE 2018](#))

The world economy and labour markets are already being impacted by changes in the environment.

Natural disasters like hurricanes, flooding, fires and others are already causing significant damages and can quickly destroy a local economy⁵²; they are also becoming more frequent and more intense. Increased heat exposure and heat stress can cause significant economic losses and employment effects like reduced working and increased health risks⁵³. Changing weather patterns in the long-term can affect employment particularly in sectors⁵⁴ like tourism (tourism activities dependent on weather), agriculture – one of the biggest global employers (massive flooding or repeated droughts for example), and even the insurance sector is becoming increasingly disrupted by the rising uncertainty. Weather patterns are interlinked with many other dynamic systems and changes can be far-reaching, complex to predict, and create unexpected problems⁵⁵.



Figure 6 Source [UNFCCC 2016](#)

⁴⁹ Iberdrola, "[Adapting to climate change: what will the Earth look like in 2030?](#)"

⁵⁰ According to analysis by the UNFCCC and ILO and in order to achieve Goal 8 of the Agenda 2030.

⁵¹ United Nations Framework Convention on Climate Change, 2016, "[Just Transition of the Workforce, and the Creation of Decent Work and Quality Jobs](#)"

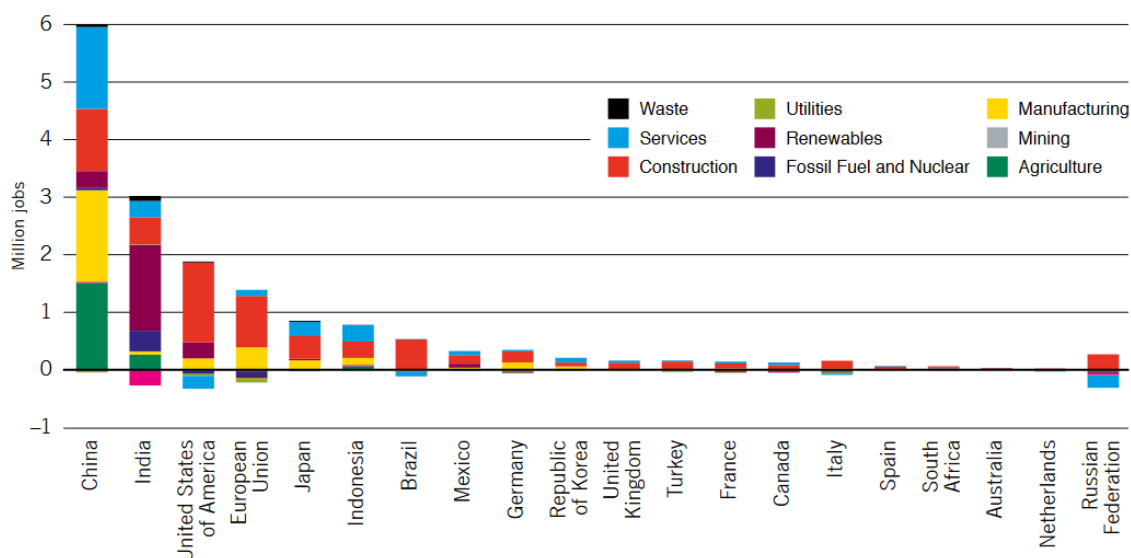
⁵² Columbia University – Earth Institute, 2019, "[How Climate Change Impacts the Economy](#)" and Iberdrola, "[How is climate change affecting the economy and society?](#)"

⁵³ ILO, 2019, "[Working on a warmer planet: The effect of heat stress on productivity and decent work](#)"

⁵⁴ European Commission, "[Sectors Affected](#)"

⁵⁵ The Economist, 2020, "[Damage from climate change will be widespread and sometimes surprising](#)"

Concerning the qualitative impacts, it is important to understand that **the environmental impact of jobs in some sectors depends on structural factors, the technology and workflows used in that sector, and not the job itself**⁵⁶. The same work activity could become environmentally friendly due to changes in company policy, the technology used or the implementation of new regulations. The construction sector for example is carbon intensive (largely due to cement production) but if sustainable materials and renewable energy are used more extensively those same activities would be much more environmentally friendly, without a significant change in the skills required. Nevertheless, it is important to change mindsets and individual behaviours at the same time since they can also have a strong impact on the success of mitigation policies and adaptation actions. Individuals who take initiative and consumers demanding different goods and services can spark a change in company processes and accelerate the process.



Notes: This figure illustrates the employment outcomes that could be achieved by 2030 in a scenario of energy sustainability as opposed to the business-as-usual scenario. The energy sustainability scenario combines the IEA's 2°C scenario (IEA, 2015) with projected electric vehicle sales (UBS Research and UBS Evidence Lab, 2017). It further assumes that all energy efficiency savings are invested in construction to retrofit existing buildings. The scenarios are implemented in a multi-regional input-output model. See Appendix 2 in ILO (2018a) for methodological details.

Figure 7 Potential employment by sector and country (G20) in an energy sustainability scenario (ILO 2018)

Industry is already undertaking important steps to adapt to and mitigate climate change impacts and has shown that effective solutions can be implemented. For instance, the air conditioning (AC) and cooling [industries](#) successfully implemented the [Montreal Protocol](#), designed to phase out the production of numerous substances harmful to the ozone layer. It was ratified by all members of the UN, showing how effective regulation, involving all stakeholders and clear objectives can produce impressive results. In 2019, the Montreal Protocol was updated with the [Kigali Amendment](#) in order to further reduce the emissions produced by refrigerants currently used. This change also provides an opportunity to increase efficiency by implementing better technology, further compounding the positive effects, and shows how industries can adapt and implement regulations while still growing and expanding employment. In the same way, substituting current energy sources for more renewable energy would further reduce climate impacts in the refrigeration sector without significantly modifying the employment landscape.

Concepts like green jobs have been introduced in an attempt to standardise measurement of progress and to conceptualize skills and types of employment in a climate-friendly economy. The business community views them as impractical and resulting in skewed analysis since they do not appropriately

⁵⁶ IPCC, 2014, "[Key economic sectors and services](#)"

capture the nuances of climate change employment impacts and enforce frameworks which do not fit all contexts. See in-depth discussion on methodological and implementation issues [here](#), [here](#) and [here](#).

An enabling environment

Changing production processes and modifying established practices across a sector entails significant challenges and associated costs like research and design, and the implementation itself; **accelerated business action requires clear, substantial incentives and realistic regulations but also capacity building to gradually implement these changes.** Smart and balanced regulatory frameworks and institutions – to unlock enterprise potential rather than creating regulatory burdens that may inhibit private investment – should come together with economic policies and incentives to support and encourage enterprises’ adoption of clean technology, low-carbon production processes and invest in up-skilling and re-skilling of the workforce. The details will vary by sector, but fast and efficient technological transformation requires a coherent industrial policy put in place by the government which directly supports efforts by sectors. “The need for such government intervention is hard to overstate. Producing steel without emissions, for example, could initially be twice as expensive as producing it in the traditional way—a penalty that no company operating in a global, competitive commodity market will accept unless it has direct support in developing the necessary technology, reliable markets through government procurement, and trade protections against dirtier competitors.”⁵⁷

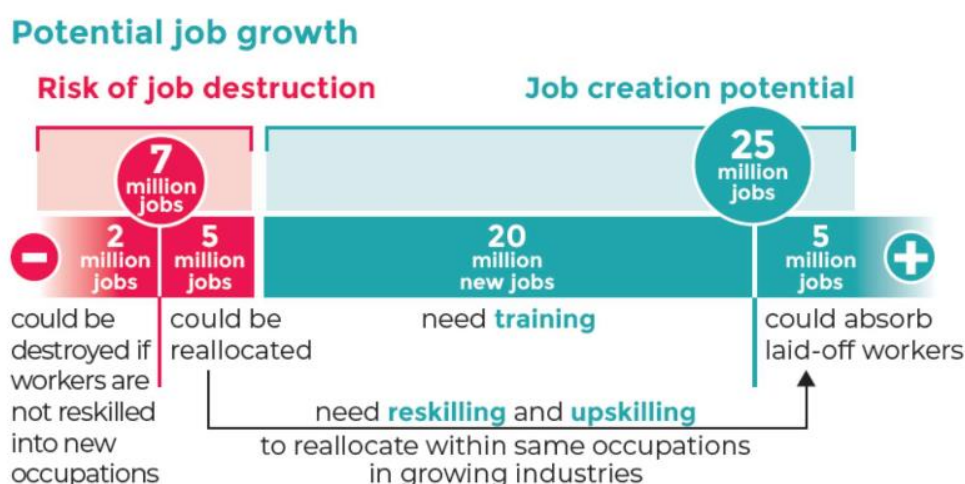


Figure 8 Potential of job creation in an energy sustainability scenario (ILO 2019)

In a scenario where governments and organisations adopt strong energy sustainability measures and implement a host of actions leading up to 2030 (so-called energy sustainability scenario), **ILO research “shows that almost 25 million jobs will be created and nearly 7 million lost globally. Of the latter, 5 million can be reclaimed through labour reallocation** – that is, 5 million workers who lose their jobs because of contraction in specific industries will be able to find jobs in the same occupation in another industry within the same country”⁵⁸. However, Figure 8 above highlights the **critical element of skills** and stresses the fact that **the job creation potential will only be achieved through intense and comprehensive training, reskilling and upskilling of the workforce**; labour markets need to be prepared and be flexible enough to efficiently absorb big shifts.

⁵⁷ Foreign Affairs, 2020, “[The Paths to Net Zero - How Technology Can Save the Planet](#)”

⁵⁸ ILO, 2018, “[World Employment and Social Outlook 2018 – Greening with Jobs](#)”

The employment implications of sustainability policies are varied but in general policies for climate action and sustainability can create additional employment and quality jobs if implemented well and the associated risks and challenges are properly managed⁵⁹. On the one hand expanding existing markets such as recycling and renewable energy can create additional demand for jobs while on the other hand labour intensity of jobs in organic agriculture, circular economy, renewable energies and other new activities is higher therefore creating more jobs than currently available for those activities.

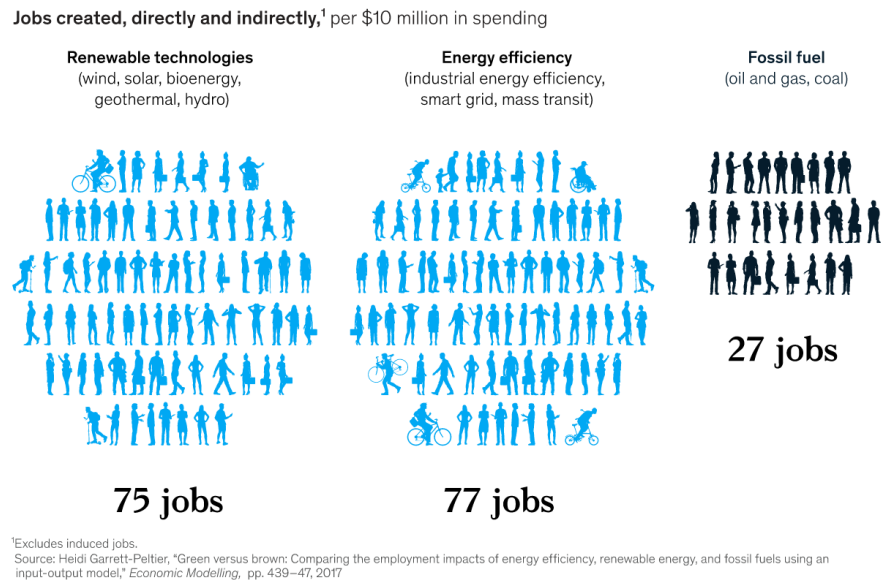


Figure 9 Illustration of job creation potential, [McKinsey 2020](#)

However, looking at the NDCs submitted within the framework of the Paris Agreement, according to the ILO [\(2019\)](#) “Two-thirds of countries recognize in their NDCs the importance of capacity development and climate change literacy, but less than 40 per cent of NDCs globally include any plans for skills training to support their implementation, and over 20 per cent do not plan any human capital related activities at all” (see figure below).

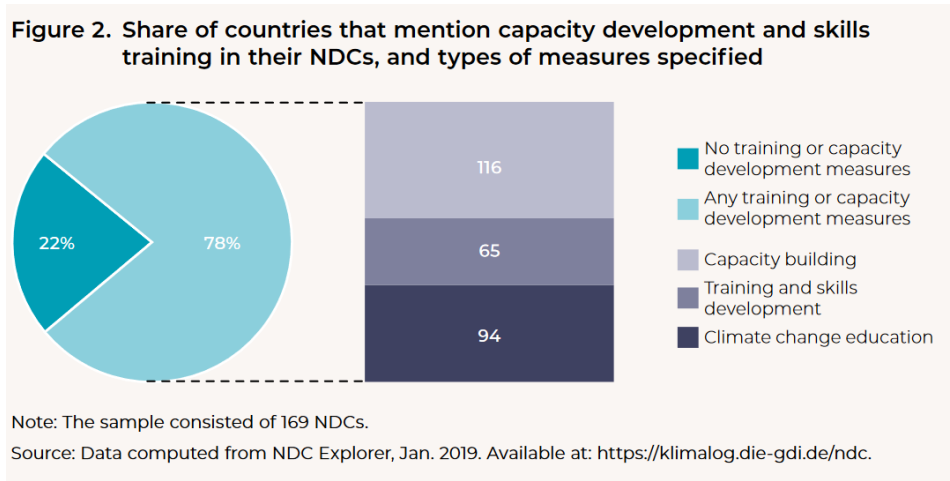


Figure 10 Source: [ILO 2019](#)

A critical challenge, also related to the skills agenda, is the temporal and geographic component of any economic transformation. Just as urbanisation and industrial revolution dynamics have shown us, job creation and transformation happen in different places at different times with different velocities. This poses the question of where new jobs will be created, how quickly new skills will be needed and what the rate of job creation and destruction will be. In order to ensure the biggest chances of success

⁵⁹ OECD, 2017, “[Employment Implications of Green Growth](#)”

business will sometimes have to relocate, redesign tasks, upskill and reskill the workforce quickly while maintaining operations. Special attention also needs to be given to different levels of development between countries and the socio-economic profile of each national context.

Skills and adaptation measures are especially important in the context of small and medium enterprises (SMEs). They employ over 80 per cent of people worldwide but often have lower capacity to adapt and transform their business model; they have lower productivity and usually employ people with skills that are harder to adapt. In emerging markets, most formal jobs are generated by SMEs, which create 7 out of 10 jobs globally⁶⁰. Furthermore, beyond the challenge of climate action, the financing gap is the most urgent constraint on SME growth and development. The International Finance Corporation⁶¹ estimates that 65 million firms, or 40 per cent of formal micro, small and medium enterprises (MSMEs) in developing countries, have a total unmet financing need of \$5.2 trillion every year, which is equivalent to 1.4 times the current level of the global MSME lending. This reality reveals the need to enhance productivity growth because it enables enterprises, through efficiency gains, to save and invest in sustainable production processes. Analysis conducted by International Trade Center indicates that \$1 trillion of additional investments in SMEs annually would unleash the potential of SMEs to deliver on the Sustainable Development Goals⁶².

Focus on the economic implications for enterprises to embark on an energy transition is necessary. For an efficient and sustainable transition, which minimizes labour market disruptions, it is key to address productivity. Labour productivity overall has been declining over the last two decades and total factor productivity has stagnated. Stagnant business productivity translates into low profitability, jeopardizing firm survival, employee retention and quality employment creation. Enforcing enterprises to embark on a rigid transition of their systems could have unintended consequences in the world of work. Productivity growth enables capital formation through increased earnings which can then be invested in resource-efficient production processes, clean technology, and workforce up-skilling and re-skilling. Furthermore, resolving the cross-cutting and closely linked issues of high informality and low productivity, mostly manifesting in SMEs and developing countries is crucial for any transition.

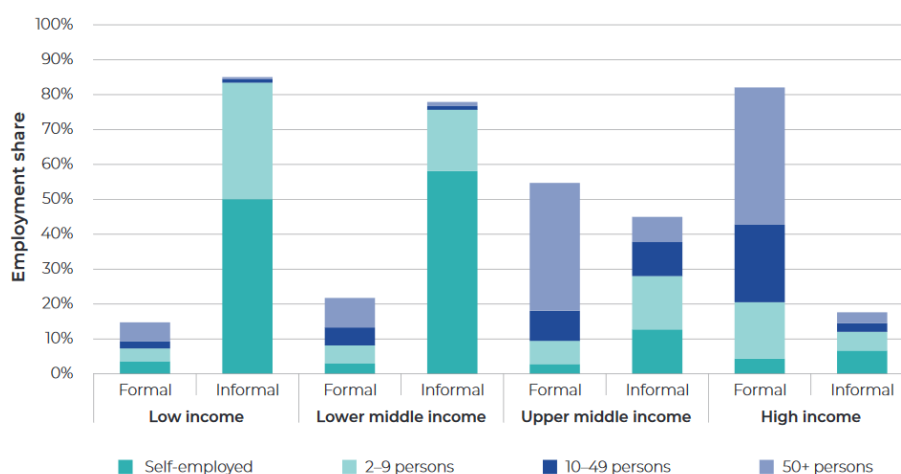


Figure 9 Distribution of Employment by sector (formal versus informal) and economic unit size, across country income groups (%) Source: [ILO calculations, August 2019](#)

⁶⁰ ILO, 2019, "[Small Matters: Global evidence on the contribution to employment by the self-employed, micro-enterprises and SMEs](#)"

⁶¹ International Finance Corporation (IFC), 2017, "[MSME FINANCE GAP - Assessment of the Shortfalls and Opportunities in Financing Micro, Small and Medium Enterprises in Emerging Markets](#)"

⁶² International Trade Center (ITC), 2019, "[SME Competitiveness Outlook 2019](#)"

Over 2 billion people are working in the informal sector, representing 61.2 per cent of the world's employed population, often they are in SMEs and in developing countries.⁶³ Normal government regulations and support systems do not capture this economic value and do not reach the people creating it; on the one hand they cannot contribute to the transition and on the other they cannot benefit from any formal measures⁶⁴. Those working in informality need to be incentivised and brought into the formal sector to achieve a system-wide transformation so they can participate in support schemes and their processes can be adapted to policies; ignoring this challenge will slow progress and undermine the legitimacy of transition as well as the successful implementation of key policies⁶⁵. The ILO has extensively studied and analysed this issue and provides avenues for action in a [specialised report](#).

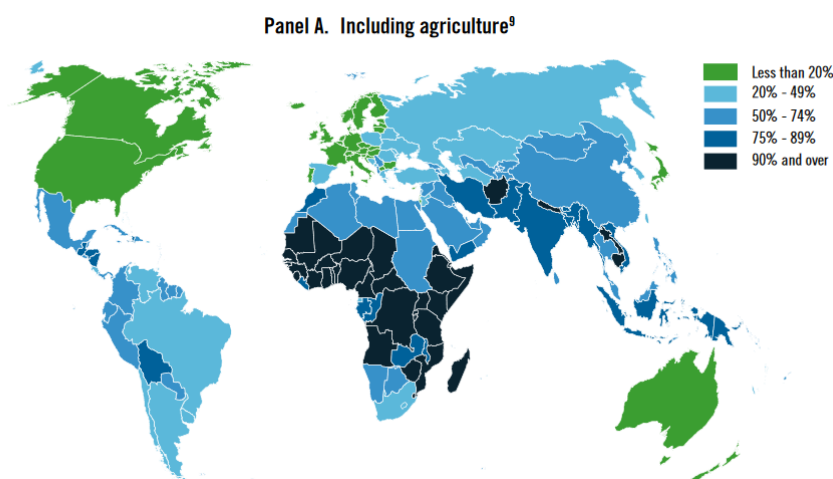


Figure 11 Share of informal employment in total employment, including and excluding agriculture (percentages, 2016, [ILO](#))

Just transition frameworks

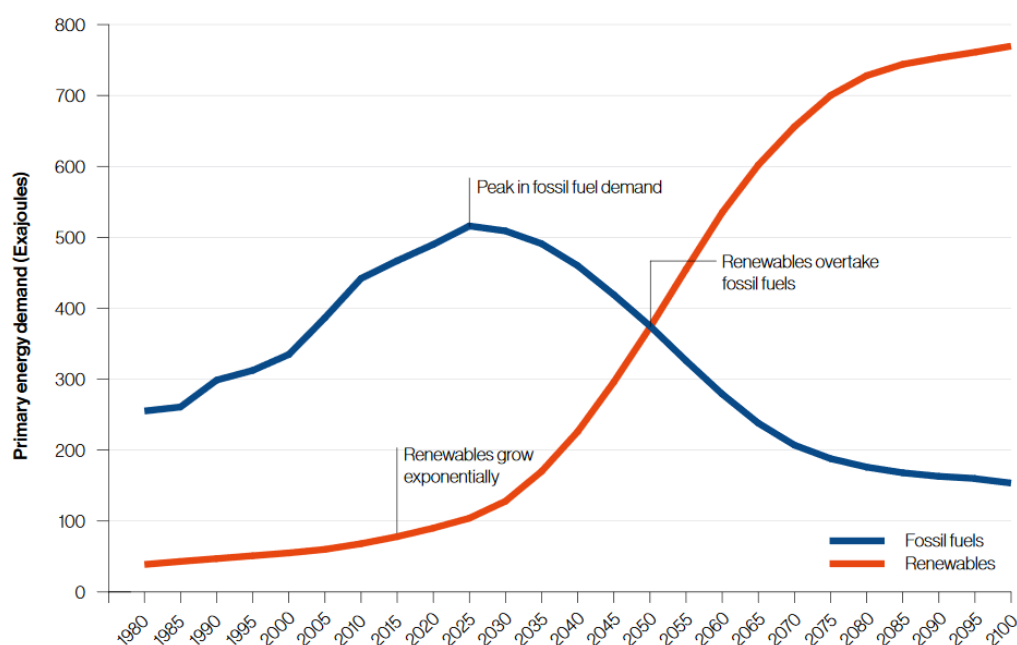


Figure 10 Shell Sky Scenario (2018) showing potential evolution of renewable energy production and fossil fuel demand, illustrating the dynamics of an energy transition ([IRENA 2019](#))

⁶³ Konrad Adenauer Foundation, 2015, "[Joining the dots of Informality and Climate Change](#)"

⁶⁴ [ILO, 2020](#)

⁶⁵ Ibid.

In climate change labour policy, “just transition” is a relatively recent concept dealing with how to ensure the transformation of industries and economic sectors into more sustainable models while focusing on workers’ livelihoods and rights; an often studied case is the coal phase-out some countries have been going through as well as the shift to renewable energies. Today, just transition measures refer to policy interventions that aim to shift the economic structure to a low-carbon, socially and environmentally friendly one. Reducing CO2 emissions in line with the Paris Agreement requires ambitious policies with significant effects on labour markets in terms of employment. Just transition should deal with the outcomes and the management of this process for the communities affected and strive for optimal results in terms of social welfare and market performance; it should not impede the transformation of economic activity, put people’s livelihoods at risk and hinder the sustainability of enterprises. In this sense, the transition will only deliver for people if companies and entrepreneurs have the conditions to create good jobs and the modalities of any mechanism must be carefully designed through consultation to optimise its impact.

There is still a general misunderstanding of the business needs for a transition and the prevailing approach skirts issues critical to business and strives to impose overly burdensome regulations and obligations for the private sector which are neither practical, realistic nor coherent with existing frameworks and commitments. There has been extensive analysis of existing efforts to phase out coal in different countries⁶⁶. However, there is a multitude of divergent views and perspectives which illustrates the complexity of the process and the recent uptake of just transition⁶⁷. There has been little application of the concept in developing countries and analysis of its utility in different political and economic systems which is important given that there is no one-size-fits-all solution so lessons learned from one experience might not apply to another. Some countries are putting regulations in place already, or establishing dedicated task forces, commissions, with various levels of authority, resources, and goals which are often not in accordance with business priorities. Support frameworks can be valuable tools to protect employers and employees most impacted by a transition or crisis (as we have seen in the past months) but in the case of climate action a broader group of framework conditions needs to be put in place to ensure national economies can adapt while preserving and creating jobs and become more resilient in the process⁶⁸.

Negative impacts of an unmanaged transition	Potential positive impacts of a managed transition
Job losses in fossil fuel industries and businesses around them	New jobs in new industries, skills development Possibility to replace dangerous and unhealthy jobs (e.g., in mines) with new and safer employment
Economic decline of regions	Economic development and diversification, in affected or other regions
Loss of community culture and identity	Potential to “reinvent” regions or communities with new identities
Loss of stable, and strongly unionized jobs	Potential to build up labour representation in new industries

Figure 11 Impacts of an unmanaged vs. a managed transition [\(IISD 2018\)](#)

A system-wide change has important implications for domestic politics but also very much so for global energy governance and countries’ security and foreign policy. Some argue diplomacy and foreign policy will also be a key ingredient for international success⁶⁹ Diplomacy plays an important

⁶⁶ [Just Transition Research Collaborative 2018](#), [Coal Transitions Project 2018](#)

⁶⁷ [Stern and Oreskes 2019](#), [E3G 2018](#), [Müller 2018](#), [V4 2019](#), [FEPS 2019](#)

⁶⁸ [UNRISD 2016](#)

⁶⁹ [DPZ-GiZ 2019](#), [Global Commission on the Geopolitics of Energy Transformation 2019](#), [Newell and Mulvaney 2012](#)

role in addressing the potential upheavals brought about by global decarbonisation efforts to economies dependent on exporting fossil fuels. Notably, energy policy can also constitute a risk to domestic social stability so any changes to subsidies, prices and incomes need to be carefully considered. Most importantly though, the global energy transition will have significant geopolitical implications which will challenge the foreign policy community to shape the process of transition and adaptation globally.⁷⁰ The timeline of such a transition is one of the most important elements when considering national policy and implementation⁷¹.

Furthermore, with the shifting energy mix, the business models⁷² of many companies need to be adapted or they risk suffering significant costs; “[t]he process has already started. Since 2010, Europe’s electricity sector has already suffered impairments valued at more than 150 billion US dollars from write-downs of its thermal generating capacity. In the last five years, Engie has written off 35 billion Euros in fossil fuel assets.”⁷³ The example of European electricity utilities is very illustrative here as it shows what happens when realities start changing and businesses do not adapt their models: “Leading power utilities in the EU lost over half their value—more than €500 billion—in just five years. Why? In part, because of regulatory and political pressures squeezing coal and nuclear. And in part, because of an exponential growth in the availability of renewable energy—coupled with plummeting production prices.”⁷⁴ Since then however utilities and energy companies have been adapting and examples like Orsted or Enel also show that the transformation is feasible and can be successful in the long-term.

The transition out of coal production and consumption some countries have been experiencing and undergoing has been taken as the closest thing to case studies for a just transition by the international community. “There could be significant political consequences of a coal decline, especially one that is unmanaged. **In an already tense socio-economic context, some fear that failing to provide opportunities for affected employees and communities — by failing to adopt a transition policy or by adopting one that disproportionately favours incumbent interests — could lead to further exclusion and even violence.**”⁷⁵ So the successful adaptation of economic sectors goes beyond purely energy policy since employment as well as social and political dimensions need to be considered. As historic examples have shown if government doesn’t work with business to ensure a smooth process and provide support to enterprises going through a transformation the social outcomes are often not ideal. In order to achieve an efficient outcome the private sector needs to be an active stakeholder and economic considerations and solutions need to be integrated.

Making transitions work requires following some key guiding principles: relying on job creation and robust labour markets; implementing a holistic, coherent and smart policy mix; innovative multilateralism and global coordination; fostering cost-efficiency, innovation and competitiveness; an enabling environment for business; and robust skills framework that ensure workers and markets have appropriate enabling conditions. Although just transition literature is varied and contains many different elements and angles, in general there are four procedural principles in any transition: taking stock, providing a seat at the table, providing social protections, creating funds for just transitions⁷⁶. Some important policy considerations have also been proposed by researchers looking at existing transitions out of coal⁷⁷. Policymakers and researchers look at coal transitions as a model for wider

⁷⁰ [DPZ-GiZ 2019](#)

⁷¹ [McKinsey 2020](#)

⁷² ILO Lab, 2019, “[Business Models for Decent Work](#)”; Business and Sustainable Development Commission, 2016, “[Breakthrough business models: exponentially more social, lean, integrated and circular](#)”

⁷³ [Global Commission on the Geopolitics of Energy Transformation 2019](#)

⁷⁴ [Business and Sustainable Development Commission 2016](#)

⁷⁵ [SEI 2019](#)

⁷⁶ [Stanley Center 2017](#)

⁷⁷ [Oei et al 2019](#)

societal transformations and the potential dynamics arising out of such processes. Several countries have ongoing transitions out of coal production and consumption with specific regions deeply affected by the transformation. [The Ruhr in Germany](#), [the north of the UK](#), Appalachia in the US (the cities of Pittsburgh and Detroit are also interesting case studies), Asturias, Aragón, Castilla-y-León in Spain [Victoria and South Australia in Australia](#), [Mpumalanga province in South Africa](#), Upper Silesia in Poland, [Alberta in Canada](#), [Taranaki in New Zealand](#) are some of the examples being discussed.

In countries with adequate and robust social protection systems, many of these measures will be delivered from existing or reinforced safety nets. Additional funding could be mobilised through Covid-19 recovery and stimulus measures, carefully considered fiscal measures, tapping existing funding mechanisms, working with the private sector or through setting up a dedicated just transition fund. It is in this regard that formalising the informal sector could be an important element as significant portions of the active labour force are in the informal sector and would not be captured by any modalities of such mechanisms. The informal economy is where over six out of ten working people make their living from day to day. Of these two billion workers, 1.6 billion face an imminent threat to their livelihoods as average income in the informal economy shrunk by 60 per cent in the first month of the pandemic; the ILO has proposed a holistic policy response ([ILO](#)). Collaboration between business, trade unions and government, particularly at the local level, provides the best hope for an accelerated transition to a low-carbon economy, and to a sustainable future through a renewed and stronger multilateralism, PPPs, and collaboration on all levels. Furthermore, the current Covid-19 induced crisis has further exposed fragile elements and exacerbated pre-existing issues and conditions: Worldwide, more than 436 million enterprises face high risks of serious disruption. These enterprises are operating in the hardest-hit economic sectors, including some 232 million in wholesale and retail, 111 million in manufacturing, 51 million in accommodation and food services, and 42 million in real estate and other business activities⁷⁸.

Current action

Many countries are implementing official frameworks for just transition processes. The recent EU Green Deal⁷⁹ proposed a [Just Transition Mechanism](#), including a Just Transition Fund, to leave no one behind and has already sparked a lot of analysis and discussion, especially in the context of the current crisis. The current Covid-19 pandemic and the economic and social crisis it has sparked create additional difficulties for combining economic recovery and climate action⁸⁰ but some countries have started working on combined measures⁸¹. Canada has a Just Transition Task Force as an official body overseeing the Government's efforts in this space. Spain has a Ministry for Ecological Transition and is putting in place an ambitious national plan for its own coal producing regions. South Africa has already incorporated just transition in their [National Development Plan](#) and as part of the Talanoa dialogue. BSR have released a flagship [Just Transition report](#), the LSE Grantham Institute has a [collaborative project](#) focused on financing the transition, and many other efforts are being developed and worked on.

Employers and business organisations, as well as global business leaders, have started ramping up their ambitions and commitment to action for sustainable development; some of them say we are at

⁷⁸ [ILO, 2020](#)

⁷⁹ [European Commission, 2020](#)

⁸⁰ EurActiv, 2020, [Covid-19 is testing the EU's Just Transition Plan](#) /

⁸¹ [United Nations Research Institute for Social Development, 2020](#)

a turning point⁸². Others have started launching a considerable amount of initiatives and projects⁸³. Established mainstream voices are also recognizing this trend and are announcing a new world of business, a bolstered focus on values beyond financials⁸⁴ and the need for sustainable enterprise.

The United States Council for International Business (USCIB) has a [learning platform](#) for sharing best practices and showcasing examples of company efforts. Confederación Española de Organizaciones Empresariales (CEOE), has launched [several initiatives](#) on sustainability. Mouvement des Entreprises de France (MEDEF) recently announced [a pact for investments](#) in sustainability. ANDI, Asociación Nacional de Empresarios de Colombia, has a [dedicated department](#) for sustainability and various partnerships and initiatives on circular economy and sustainable development. Keidanren, IOE member from Japan, has recently launched [the Challenge Zero project](#) and gathered commitments for decarbonisation from member companies which are showcased and promoted on a dedicated website. Confindustria, IOE member from Italy, has published their [first sustainability report](#) in which they highlight and summarize actions for the SDGs. The Russian Union of Industrialists and Entrepreneurs (RSPP), IOE Russian member, has also published a collection of company practices for sustainability in an [exhaustive report](#) and maintains an online database of business sustainability measures. Nordic businesses have also committed to target net-zero emissions by 2050. Many other IOE members are taking action in this agenda but also IOE Corporate Partners such as the Coca Cola Company, Shell, Repsol, Deloitte, Adecco Group are actively involved in climate action and have initiatives in progress. BusinessEurope is also actively engaged in this agenda and has launched a [dedicated platform](#) for showcasing European private sector action. In the wider space, the [Coal Transitions: Research and Dialogue on the Future of Coal project](#), by Climate Strategies and IDDRI, has done extensive analysis of the coal transitions in those regions and others and produced extensive recommendations and insights aimed at a generalized just transition⁸⁵. The EU also has a [dedicated platform](#) for European coal regions. UNRISD has also launched a project which has analysed several countries and produced detailed results and insights for those regions. The International Institute for Sustainable Development, an organisation active in this space and a source of a rich and wide variety of information has also produced a [just transition report](#), looking at coal transition regions and potential ways forward. The World Bank has also joined this recent spurt of research and [analysed coal mine closures](#) to produce lessons learned and advice for just transitions in general. In 2017, at the Bonn climate conference, the [Powering Past Coal Alliance](#) was founded and pledged to end coal consumption in OECD countries by 2030; it currently has 33 national governments, 27 sub-national governments and 37 businesses or organisations as members.

⁸² BSR, 2019, "[The New Climate for Business](#)" and Stiglitz et al., Roosevelt Institute, 2015, "[Rewriting the Rules of the American Economy](#)"

⁸³ See [Science Based Targets Initiative](#), [RE100](#), [We Mean Business](#), [B Corporation](#), [Net Zero Asset Alliance](#), [Getting to Zero Coalition](#), [One Planet Business for Biodiversity Coalition](#), [UN Global Compact business pledge](#), [BSR](#), [CERES](#), [Amazon's Climate Pledge](#), [IISD SSI](#), [the Investor Agenda](#), [Terraton Initiative](#), [Microsoft's Climate Pledge](#)

⁸⁴ See Financial Times, 2019, "[The limits of the pursuit of profit](#)"; The Economist, 2019, "[What companies are for](#)"; Harvard Business Review, 2011, "[Capitalism for the Long Term](#)"; G20, 2017, "[Making the Global Financial System work for all](#)"; New York Times, Marc Benioff, 2019, "[Marc Benioff: We need a new capitalism](#)"; OECD Forum, 2019, "[A New Societal Contract](#)"; BlackRock, Larry Fink, 2013, "[Purpose & Profit](#)"; Business Roundtable, 2019, "[Business Roundtable Redefines the Purpose of a Corporation to Promote 'An Economy That Serves All Americans'](#)"; McKinsey & Company, 2014, "[Redefining Capitalism](#)"

⁸⁵ [Caldecott, Sartor and Spencer 2017](#)



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