Research Paper

The Just Transition in Energy

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About the Author

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About the Grand Challenge

Inequality and exclusion are among the most pressing political issues of our age. They are on the rise and the anger felt by citizens towards elites perceived to be out-of-touch constitutes a potent political force. Policy-makers and the public are clamoring for a set of policy options that can arrest and reverse this trend. The Grand Challenge on Inequality and Exclusion seeks to identify practical and politically viable solutions to meet the targets on equitable and inclusive societies in the Sustainable Development Goals. Our goal is for national governments, intergovernmental bodies, multilateral organizations, and civil society groups to increase commitments and adopt solutions for equality and inclusion.

The Grand Challenge is an initiative of the Pathfinders, a multi-stakeholder partnership that brings together 36 member states, international organizations, civil society, and the private sector to accelerate delivery of the SDG targets for peace, justice and inclusion. Pathfinders is hosted at New York University's Center for International Cooperation.

Cover photo: Employees run diagnoses on heliostats at the Crescent Dunes Solar Thermal Facility in Tonopah, Nevada. CC BY-NC-ND 2.0 Dennis Schroeder/National Renewable Energy Lab, 2017.

Table of contents

Figures and tables

The urgent transition, the uneven responsibilities

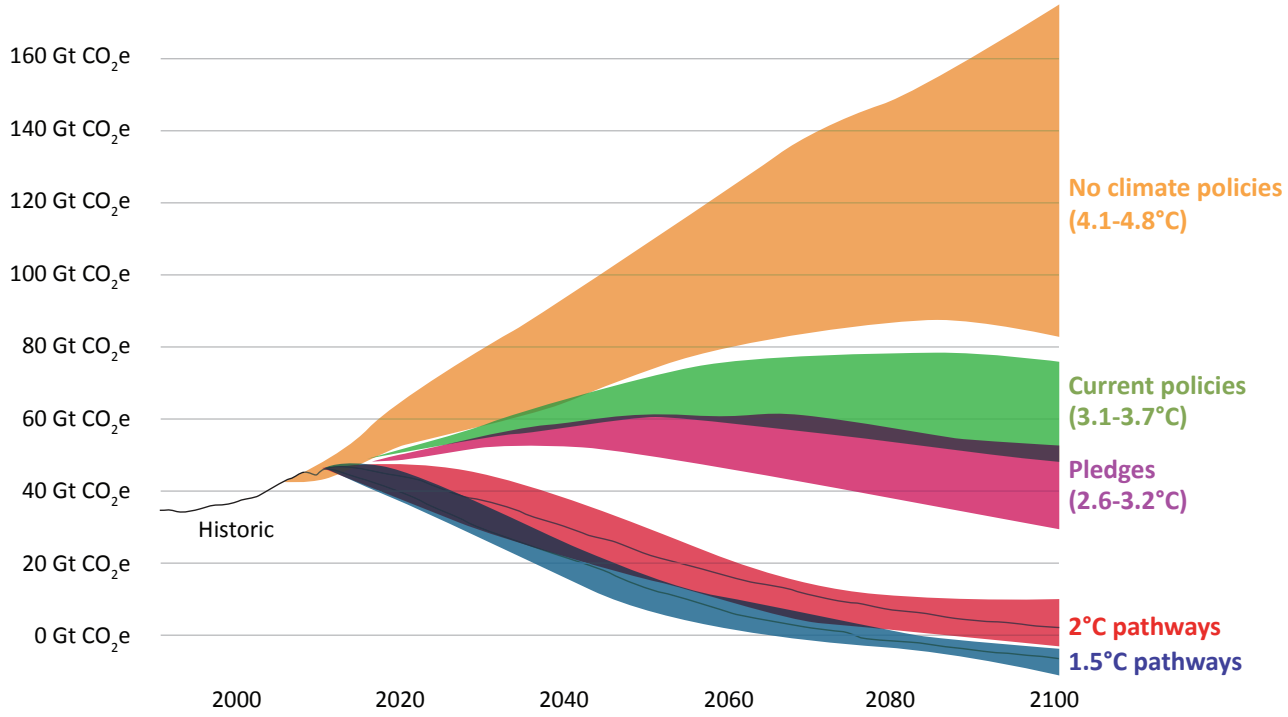
With each new year of data, and each new intergovernmental report, it becomes harder to deny the scale and urgency of the energy transition required to prevent catastrophic anthropogenic climate change. The Intergovernmental Panel on Climate Change[1] urges countries to take action to prevent a rise in temperature by more than 1.5°C, and warns of catastrophic consequences of a rise above 2°C. Yet current policies and pledges fall far short of hitting these targets (see Figure 1). Worse, since harmful climate change is caused by the stock of carbon in the atmosphere, the longer we delay measures to limit the flow of new carbon into the atmosphere, the more drastic those measures will have to be (Figure 2).

The predicted damage from climate change is not evenly distributed, nor is the responsibility for causing it. The IPCC[2] notes that many of the most severe effects of climate change will fall on developing countries, which are, for instance, more exposed to agricultural shocks and less able to protect their populations from rising sea levels or severe weather events. Figure 3 plots countries' current annual carbon dioxide (CO2) emissions against their cumulative historic emissions; developed countries have been responsible for a large share of total historic emissions, even though their current emissions levels are comparable with those of many developing countries. For instance, Belgium currently emits roughly the same amount of CO2 per year as Nigeria, yet it has been responsible for almost four times the volume of historic emissions.

This uneven distribution of threat and responsibility raises difficult questions. Developed countries are generally more advanced in their transition to renewables, which means that some of the cheapest opportunities to reduce emissions are in developing countries. For instance, Figure 4 shows estimated marginal abatement cost curves for the USA, EU, China and India; abatement is cheaper in China and India at almost all scales. Yet the fact remains that developed countries are responsible for a larger share of historic emissions—and developing countries may have a right to pursue development unhindered, as developed countries did in earlier decades. This suggests a first-order argument for most abatement to happen in developing countries, but with developed countries bearing the cost—i.e., developed countries paying developing countries to transform their energy systems. However, while such a solution may satisfy efficiency and equity considerations, implementation is difficult: excess supply of emissions reduction credits sank the Kyoto Protocol's Clean Development Mechanism, and attempts to agree on a new mechanism at the 2019 COP25 meeting in Madrid failed. Properly validating such credits is fraught with difficulty, as it requires judging the benefit versus a "business as usual" counterfactual that is impossible to observe. Such systems can also be politically unpopular: they may require a large shift in resources from countries that have been growing slowly to those that have been growing fast, and they can reduce the money available to support a just transition within countries. For instance, if the United States (US) sends money to China to decarbonize its manufacturing sector, there is less remaining to support its own communities facing similar costs, e.g. former coal towns that have lost their main source of employment. Ultimately, if all countries need to reach net zero emissions anyway, then lengthy debate over where to cut first may be redundant.

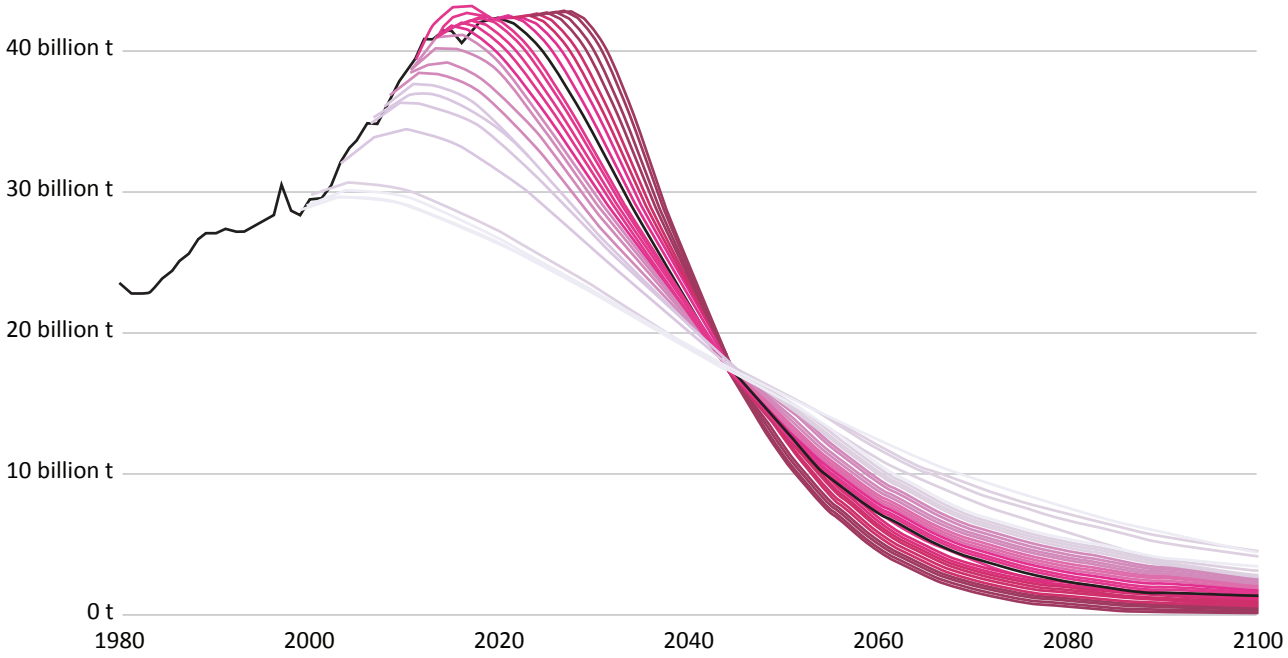
There are therefore several elements of the "just transition" in energy. The world needs to transition to cleaner energy, and the developing world needs to keep developing, all while supporting the countries and communities that bear the highest costs of mitigation measures—and supporting those areas already beginning to feel the negative effects of climate change. This report will outline the key challenges and opportunities and conclude with a series of practical steps available to policymakers.

Figure 1: Global greenhouse gas emissions scenarios



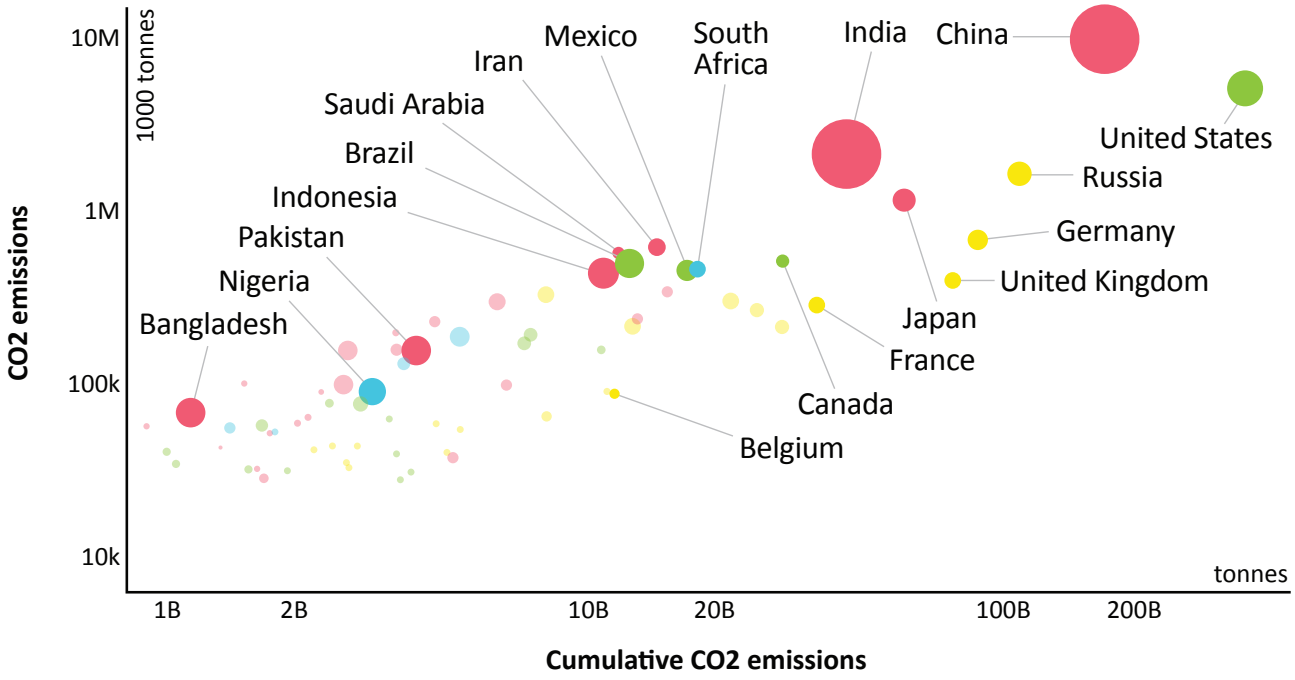
Source: Our World in Data[3]
Notes: Graph shows potential future pathways of greenhouse gas emissions (measured in gigatons of CO2 equivalents), and the corresponding impacts on estimated average global temperature by 2100 (measured as the increase from pre-industrial levels).

Figure 2: CO2 reductions needed to keep the global temperature rise below 2°C



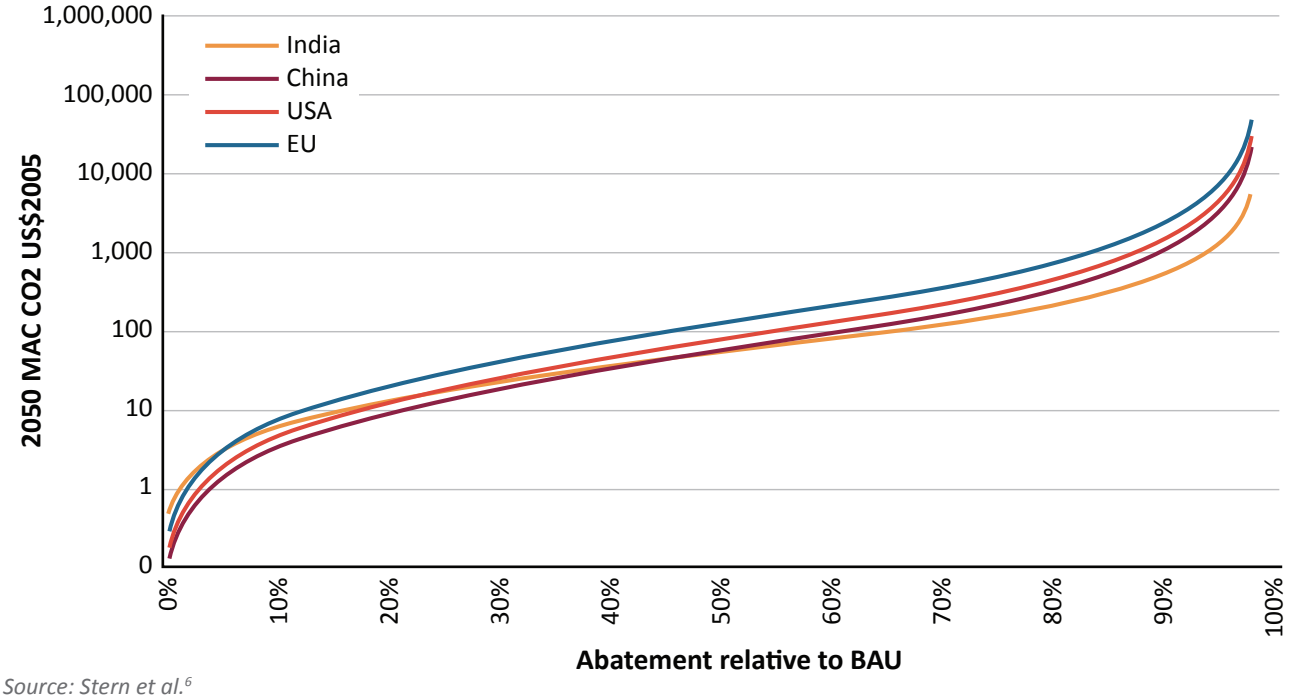
Source: Our World in Data[4]
Notes: Graph shows the annual emissions of CO2 consistent with keeping the global average temperature rise below 2°C under various mitigation scenarios. Scenarios are based on the CO2 reductions necessary if mitigation had started—with global emissions peaking and quickly reducing—in the given year.

Figure 3: Historic vs. present CO2 emissions by country



Source: US Department of Energy[5] via www.gapminder.org
Notes: Graph plots annual CO2 emissions against cumulative historic CO2 emissions, by country. Circles are sized according to population.

Figure 4: Marginal abatement cost curves for US, EU, China, and India

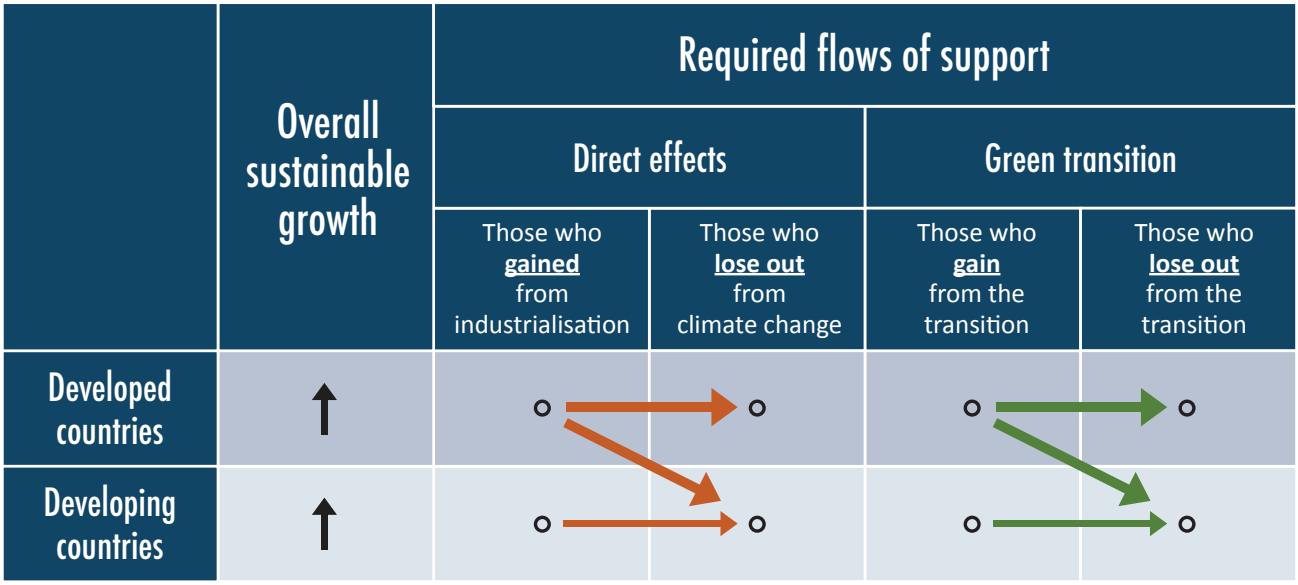


Source: Stern et al.[6]

Elements of the just transition

Figure 5 shows a stylized version of the various aspects of the just transition in energy. The transition requires a transformation of the economy to achieve sustainable growth and allow rapid development in developing countries, while simultaneously supporting (1) those who suffer from the direct effects of climate change, and (2) those who suffer in the transition to a new greener economy. First, those who benefitted most from the industrialization that caused climate change (particularly developed countries and large industrial firms or fossil fuel exporters in developing countries) should support those who are most harmed by climate change, such as low-lying areas, vulnerable agricultural producers, and small island states. Secondly, those who gain from the transition should support those who lose out—for example, tax revenues from new green industries can be used to support workers in former coal communities, sharing the benefits of the new economy with those who might otherwise oppose the transition. In the diagram, the horizontal arrows reflect intra-country aspects of the just transition, while diagonal arrows reflect between-country support. Developing countries are likely to have fewer resources available for intra-country support, so support for developing countries from developed countries (often through multilateral institutions, as discussed below) is likely to be particularly important. Each arrow may represent literal flows of economic resources (i.e., "redistribution"), or less tangible political support in fora ranging from global summits to small-scale consultations on local government projects (i.e., "recognition.") Similarly, the labels "developed countries" and "developing countries" do not refer only to state actors, but also include other stakeholders—e.g. Western charities or popular protest movements lobbying for regulation that will support low-lying communities elsewhere.

Figure 5: Elements of the just transition in energy



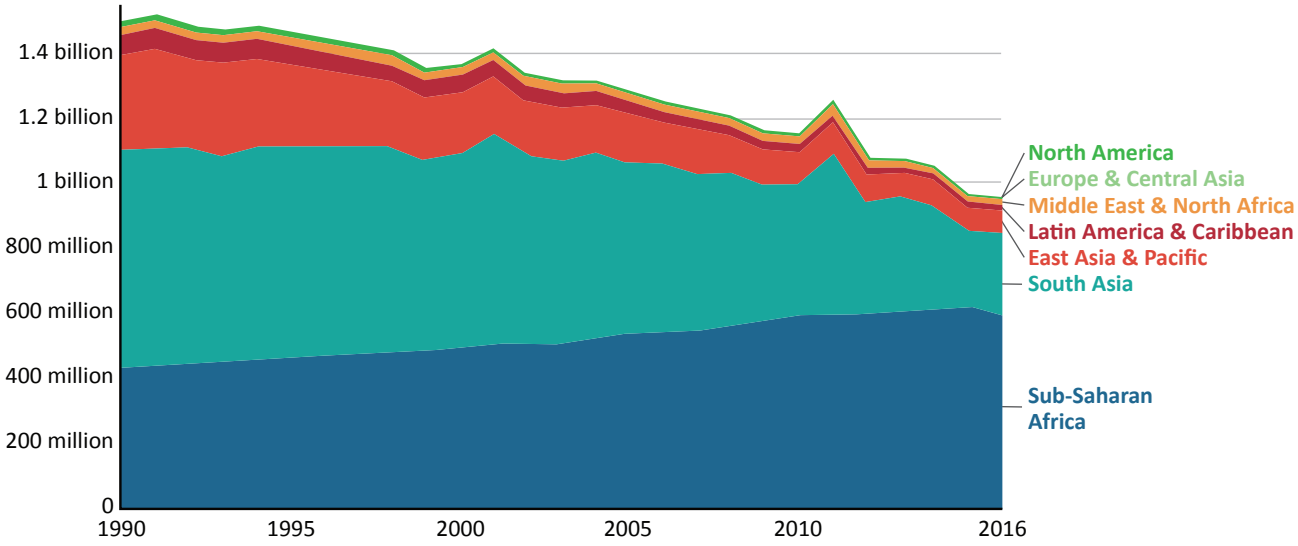
The development implications of electrification for the SDGs

The Sustainable Development Goals (SDGs) include both sides of the trade-offs involved in a just transition in energy. The United Nations (UN) aims to end poverty in all its forms everywhere (SDG1) and ensure access to affordable, reliable, sustainable, and modern energy for all (SDG7), while simultaneously ensuring sustainable consumption and production patterns (SDG12) and urgent action to combat climate change (SD13).

Today almost one billion people lack access to electricity, mostly in Sub-Saharan Africa (Figure 6). Achieving all of the SDGs together will require major changes in all areas of the economy, from altering the energy mix to redesigning industrial materials and production processes to increase energy efficiency; there is no single "silver bullet." In the International Energy Agency's modelled Sustainable Development Scenario (SDS), which hits the Paris goals, major reductions are required in all sectors—unlike current pledges (the Stated Policies Scenario, or STEPS), which focus primarily on reduced energy consumption in transport and energy-intensive industry (Figure 7). Planned coal production, much of which is in developing countries, will need to be reduced, whether by retrofitting plants with carbon capture, utilization and storage (CCUS), repurposing them to provide surge capacity only, or retiring them early (Figure 8).

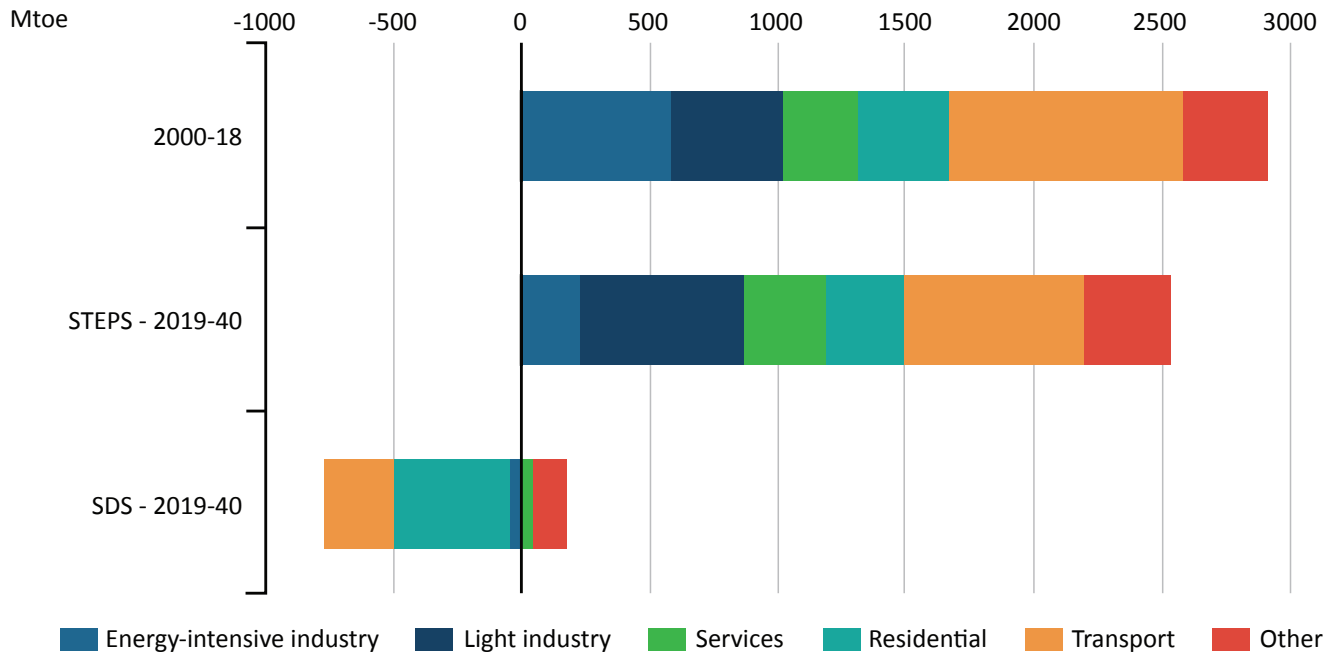
For pre-industrialized nations, "leapfrogging" fossil-fuel-based industrialization by investing directly in renewables will be required, and electrification will also have spillover benefits. Almost three billion people use polluting fuels like wood or biomass for cooking or heating;[7] this is particularly acute in Africa, where almost 80% of households rely on wood, crop residues, dung, charcoal, or coal as the main cooking fuel (Figure 9). These practices can cause very poor indoor air quality, increasing mortality from pneumonia, stroke, heart disease, chronic obstructive pulmonary disease, and lung cancer. The next section considers specific energy and financing options, while the potential for micro-grids to deliver this energy in developing countries is considered below.

Figure 6: People without access to electricity by region, 1990 to 2016



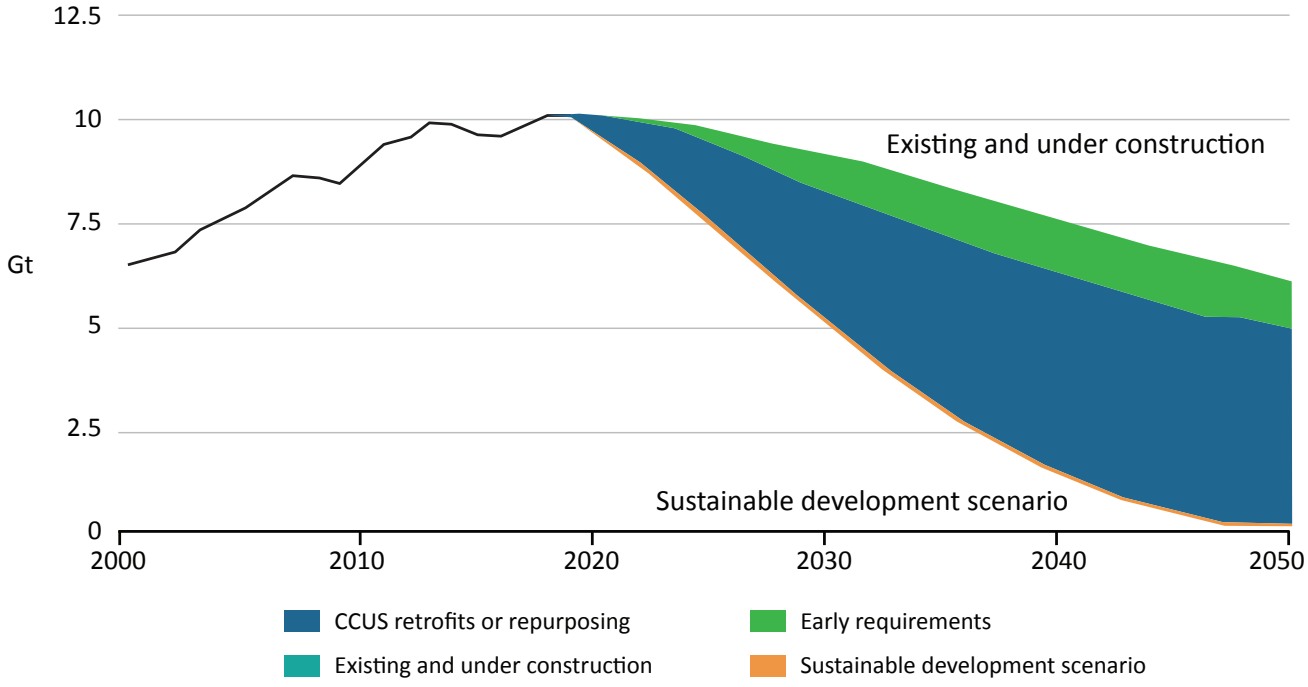
Source: Our World in Data.[8]

Figure 7: Change in final energy consumption by sector, 2000-2018, and by scenario to 2040



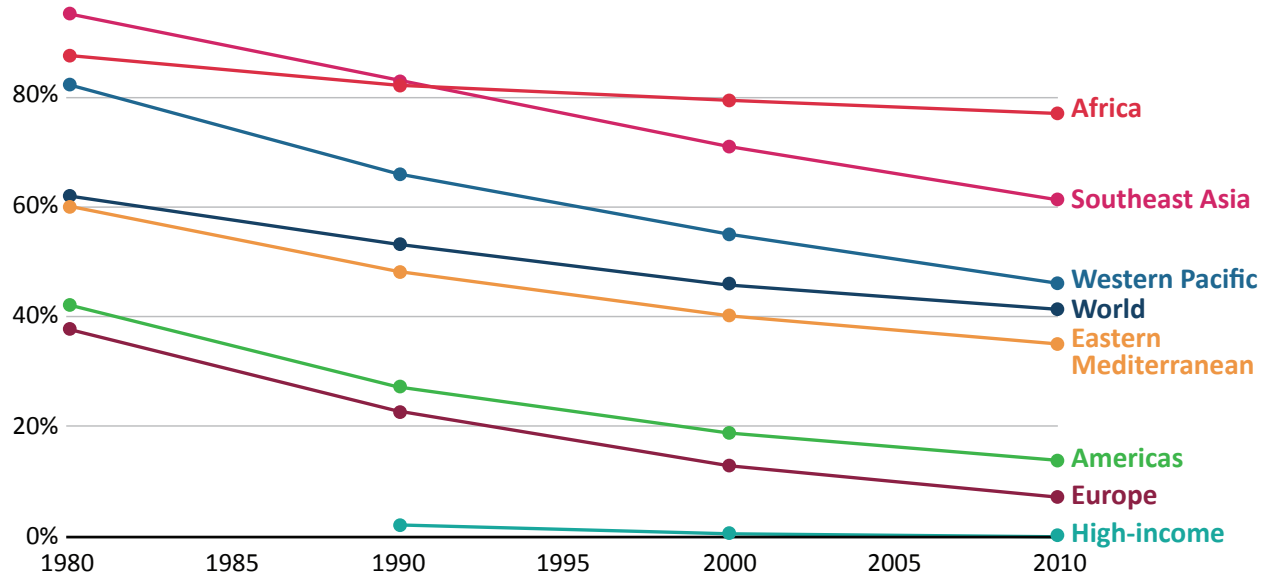
Source: International Energy Agency[9]
Notes: Under current stated policies (STEPS), energy consumption will keep growing in the 2019-40 period, though somewhat below the increase of 2000-18. To hit the Paris goals (the Sustainable Development Scenario, SDS), energy consumption must fall, with major changes in all sectors.

Figure 8: Planned coal production and reductions required to meet Paris goals



Source: International Energy Agency[10]

Figure 9: Percentage of population using solid fuels as main cooking fuel, 1980 to 2010



Source: Our World in Data[11]
Notes: Graph shows the share of households by region who rely on wood, crop residues, dung, charcoal, or coal as the main cooking fuel.

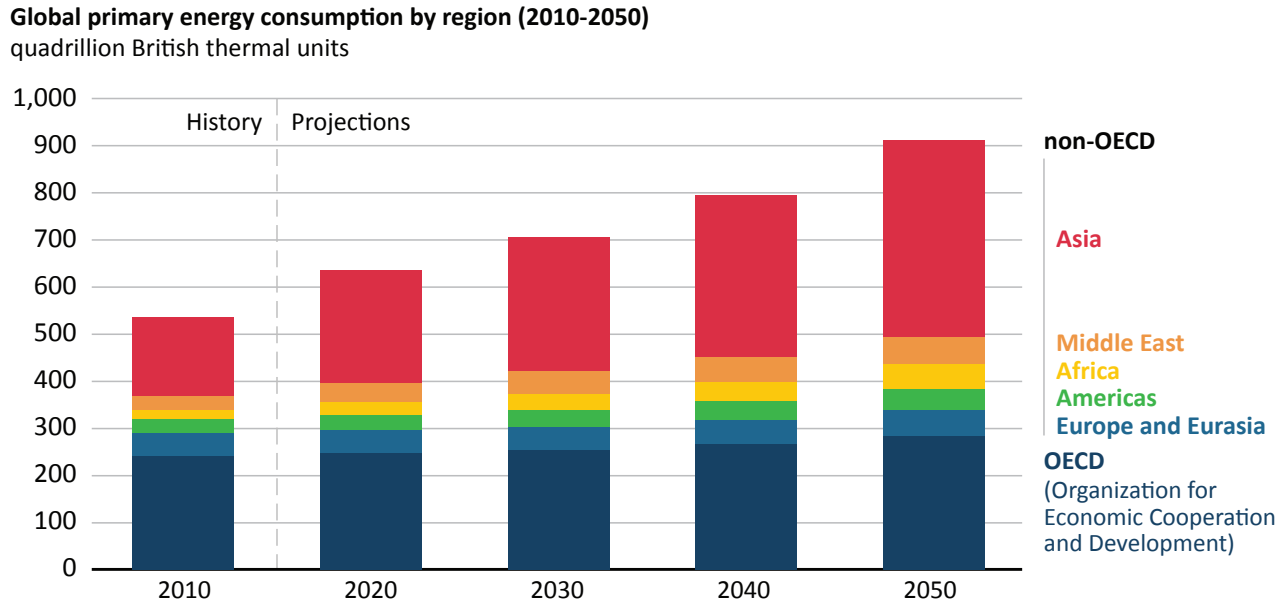
Future energy demand, future energy deficits

Global energy demand is expected to grow rapidly over the next few decades. Different predictions emphasize different drivers of growth—whether non-OECD Asia (as in the US Energy Information Administration's model, Figure 10) or Africa (particularly fossil fuels, as in the International Energy Agency's projections, Figure 11). Predictions based on short term population projections are likely to be relatively accurate, as a large fraction of those projected have already been born; Africa's population is expected to almost double by 2050 (United Nations, 2019), adding more than half a billion people to the urban population over the next two decades. This shift is even larger than that which occurred in China in 1990-2010, and will rapidly increase demand for construction materials, urban transport and air conditioners and other cooling services.

How to meet these rapid increases in energy demand? As discussed above, changes will be required in all sectors to increase energy efficiency, but solar photovoltaic (PV) production is likely to be critical. The African continent has the richest solar resources in the world, yet currently accounts for only 1% of total solar energy production.[12] There are good reasons to be optimistic: the cost of solar PV production has fallen fast (Figure 12), and is now below that of most fossil fuels (Figure 13). Solar is also one of the safest sources of energy, with far fewer deaths from accidents or resulting air pollution than biomass, natural gas, oil, or coal,[13] suggesting it is well-suited to be rapidly scaled-up in and around urban areas.

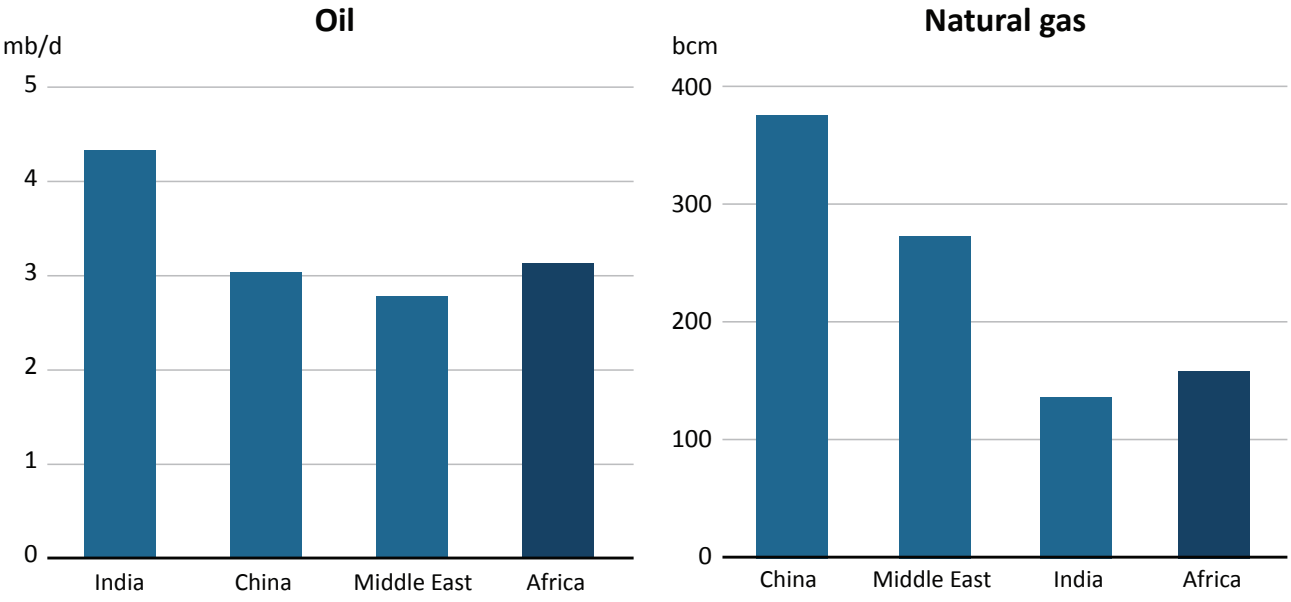
Significant challenges and complications for increasing renewables capacity must also be noted. Climate change itself can threaten renewables, e.g. by increasing the frequency of typhoons, which slow wind farm construction and maintenance in the South China Sea. Some Brazilian hydroelectric dams may actually contribute more to climate change than fossil fuel plants, by flooding forest areas which decompose and release methane.[14] The potential to create "stranded assets" and related lobbying efforts raise complex political challenges for implementing substantial regulation. All of these issues must be overcome if any sort of transition, let alone a just transition, is to be achieved.

Figure 10: Projected global primary energy consumption by region



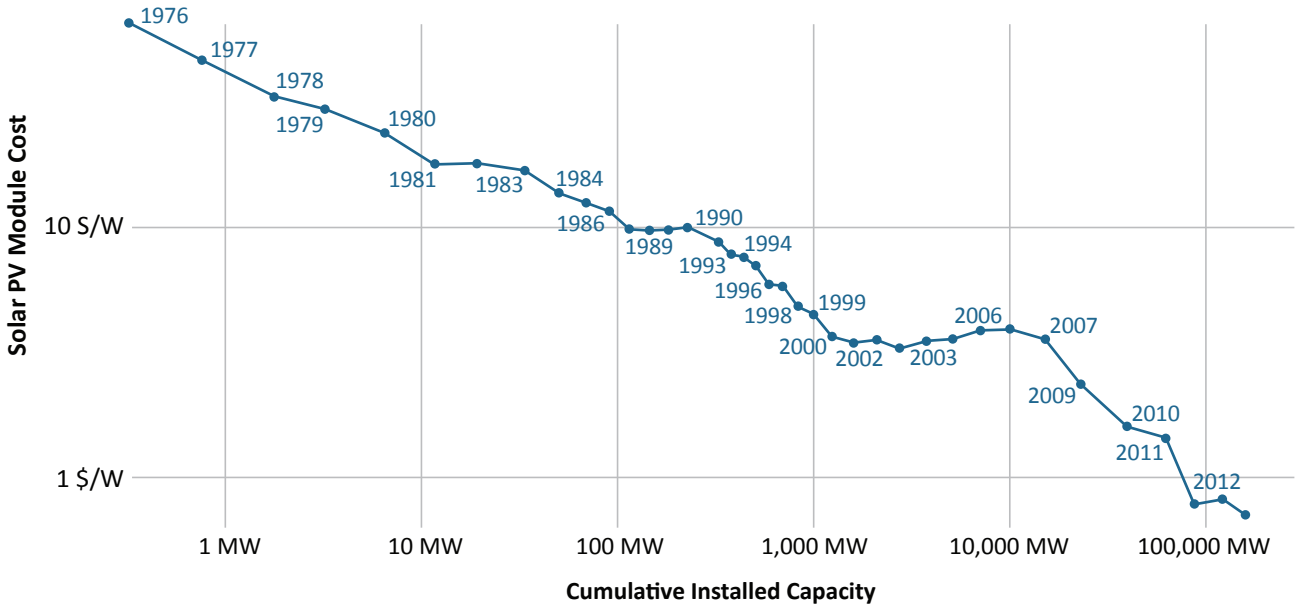
Source: U.S. Energy Information Administration[15]

Figure 11: Projected oil and natural gas demand in selected countries and regions, 2018-2040



Source: World Energy Outlook, International Energy Agency[16]

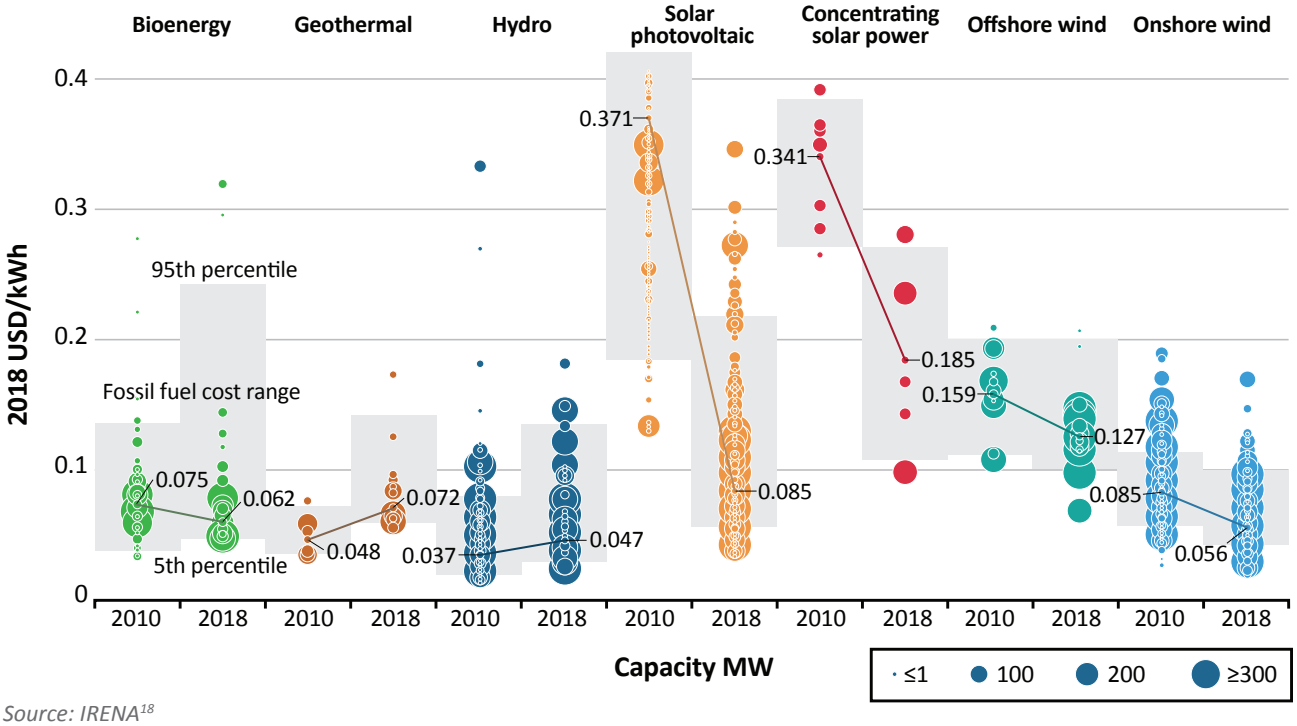
Figure 12: Solar PV module prices vs. cumulative capacity, 1976 to 2016



Source: Our World in Data[17]

Notes: Graph plots solar photovoltaic module prices against cumulative installed capacity, mapping out the 'learning curve' for solar PV. For every doubling of cumulative capacity, price falls by approximately 22%.

Figure 13 - Global levelized cost of electricity (LCOE) of utility-scale renewable power generation technologies, 2010-2018



Source: IRENA[18]

Note: Data is for the year of commissioning. The diameter of the circle represents the size of the project, with its center the value for the cost of each project on the y-axis. The thick lines are the global weighted-average LCOE value for plants commissioned in each year. Real weighted average cost of capital (WACC) is 7.5% for OECD countries and China and 10% for the rest of the world. The single brown band represents the fossil fuel-fired power generation cost range, while the bands for each technology and year represent the 5th and 95th percentile bands for renewable projects.

Financing and the need for alternative investment models

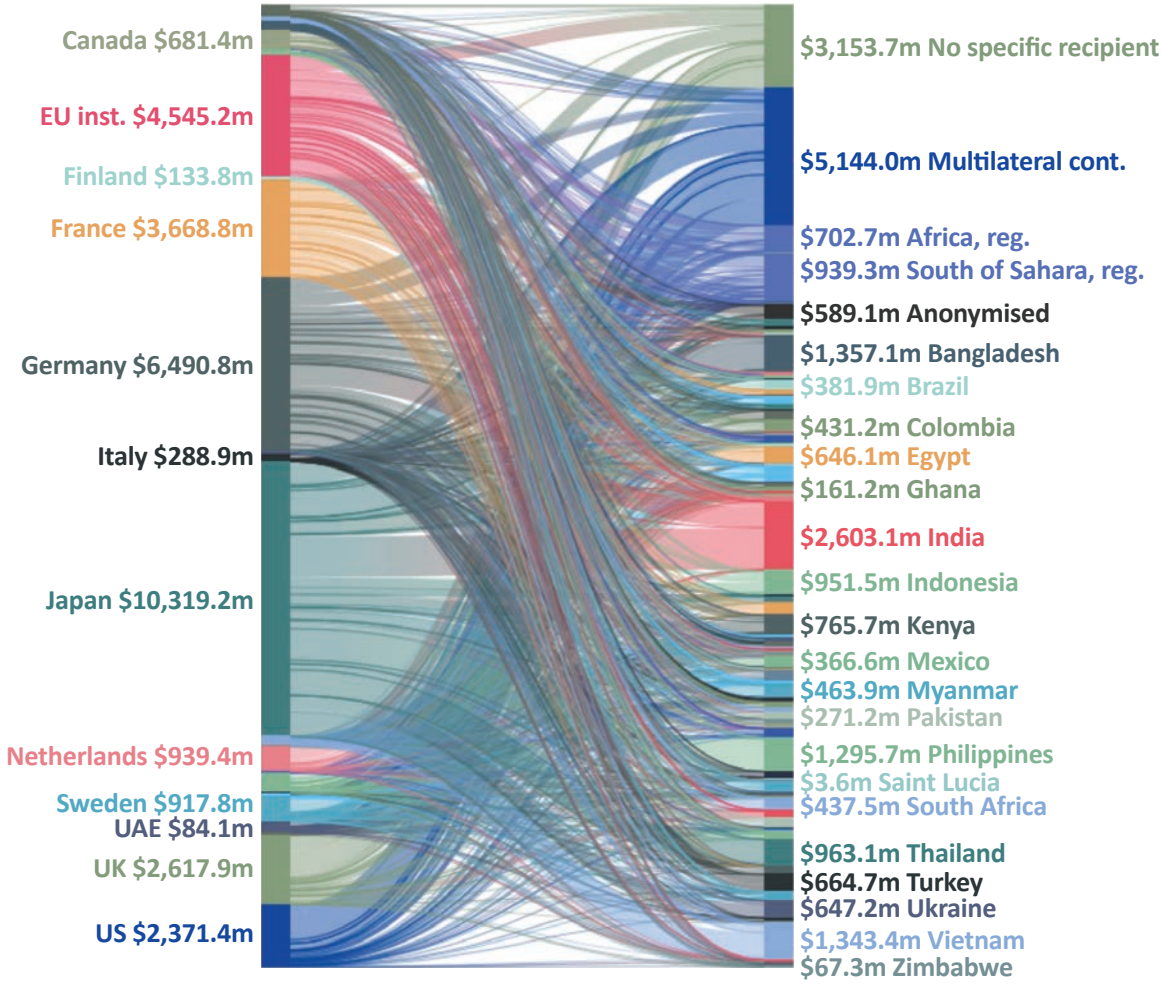
The types of change discussed above, and the specific policies outlined below, all require major investment. At the 2009 Copenhagen climate summit, rich countries pledged to provide $100 billion per year in climate financing by 2020. Estimates of the amounts actually received vary from a low of $16 billion[19] to a high of $75 billion[20] in 2016, depending in part on whether one takes the stated size of government loans at face value. Much of this financing is direct to developing countries, while a substantial portion consists of contributions to multilateral agencies (Figure 14). Revenues from new carbon taxes could provide additional funding, while there has also been substantial recent growth in companies and private individuals committing money to reduce climate change. For instance, in September 2019, Amazon made a "Climate Pledge" that included ordering 100,000 electric delivery trucks and committing to be carbon neutral by 2040. Then six months later, the company's founder, Jeff Bezos, committed to spend $10 billion of his personal wealth funding scientists, activists, and non-governmental organizations (NGOs) working on climate issues.

None of these sources of funding are completely secure. Political changes, particularly in the USA and Australia, have already placed the $100 billion per year by 2020 figure in doubt. The COVID-19 pandemic will only increase this uncertainty: it has placed huge strain on national and corporate balance sheets and may divert the attention of philanthropists. Future climate change financing is likely to be deeply intertwined with the length and depth of the pandemic. Government climate financing depends on the state's fiscal position, which is critically dependent upon the economic effects of the pandemic. Similarly, corporate action is likely to depend on the salience of climate issues in the general population—both the extent to which consumers are seeking climate-conscious brands, and the extent to which workers are sufficiently secure in their employment to lobby their employer.Such issues are likely to slip down the agenda if individuals and firms are preoccupied with mere solvency and survival.

Future state funding for climate change problems, if forthcoming, is likely to be tied into broader recovery packages—e.g. as part of an adapted "Green New Deal"[21] in the US, or a "European Green Deal".[22] Joe Biden's campaign pledges include a $1.7 trillion investment package and a target of net zero US emissions by 2050.[23] The extent to which such green recovery plans materialize will depend on key elections, as in the US in 2020, and on voters' broader priorities coming out of the crisis.

The pandemic also makes it more likely that new climate change investment will be focused within developed countries, so that it can also act as a domestic stimulus. While this supports a just transition within countries, it offers less hope of a just transition between countries—i.e. it is less likely that the diagonal arrows in Figure 5 will be substantial. This suggests a major role for multinational institutions in filling the gap, ensuring that developing countries facing severe fiscal constraints can both stimulate their economies and facilitate the transition to a low-carbon future.

Figure 14: Climate finance flows, yearly average in 2015 and 2016



Source: Timperley[25]
Note: The diagram shows financial flows by country, using project-level climate finance totals collected by the Organisation for Economic Co-operation and Development.[26]

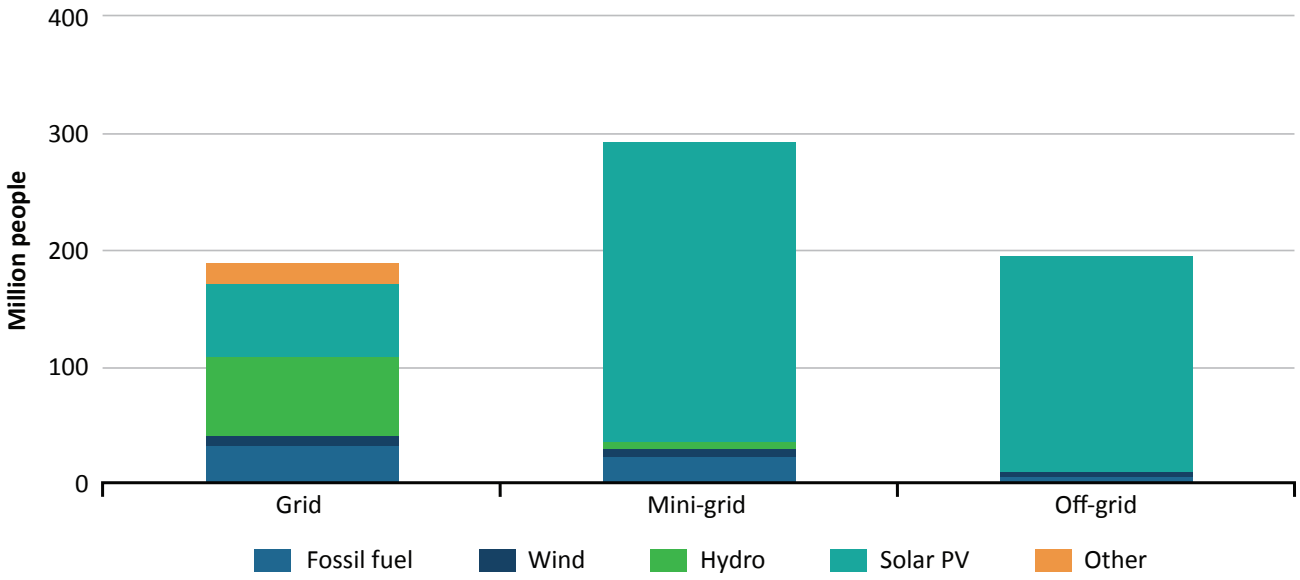
Microgrids and the potential to meet rural and off-grid requirements

A microgrid is a group of interconnected energy sources and loads, within clearly defined electrical boundaries, that normally operates connected to and synchronous with the traditional grid but can also disconnect to "island mode." A microgrid may also be entirely "off-grid"—separate from the main grid in particularly remote areas, or where the cost of connecting to the main grid is otherwise prohibitive.

As already discussed, more than one billion people lack access to electricity, and 600 million of those are in Sub-Saharan Africa. Microgrids are likely to be critical for providing them with electricity and achieving SDG7. The International Energy Agency predicts that, if all are to have access to electricity by 2030, nearly 300 million people will gain access through connected microgrids, and a further 200 million through off-grid microgrids (Figure 15). The flexibility of microgrids is a major advantage: new solar or other power sources can be added as communities' energy demand grows, and any surplus can be sold back onto the main grid when a connection is available. As noted above, by facilitating electric lighting and cooking, such grids can also improve

health by replacing a variety of sources of indoor and outdoor pollution. While the initial costs of set-up and training can be a barrier to adoption,[24] the declining costs of both microgrid infrastructure and compatible solar PV capacity make microgrids an extremely promising technology.

Figure 15: Cumulative population gaining access to electricity in the 'Energy for All' case, 2017-2030



Source: International Energy Agency[27]

Recognition and the just transition

The distributional aspects of the just transition are clear: material compensation for those facing the highest costs from the required economic transformation to a greener economy, both within countries and between countries. But the "recognition" aspects[28] are equally important. The Solidarity and Just Transition Silesia Declaration[29] noted "the importance of a participatory and representative process of social dialogue involving all social partners to promote high employment rates, adequate social protection, labor standards and wellbeing of workers and their communities." In other words, redistribution alone would not be enough: redistribution needs to be done in a way that grants agency and status to the recipients. Whole community identities have formed around fossil fuels; a just transition requires that this identity and pride is preserved throughout the transition.

In the most successful cases, communities work together with national or local governments, rather than being treated as passive recipients of handouts. For instance, community groups in the town of Tonawanda in upstate New York, faced with the closure of a coal-fired power station, united to run a large consultation and produce an economic action plan, "Tonawanda Tomorrow".[30] They lobbied state lawmakers for "gap funds" to support the transition, and were granted $45 million—which has, among other things, repaired the finances of a school system struggling with the loss of tax revenue from the former industry.

A just transition must support electrification in developing countries not only to allow continued economic growth, but also because a lack of access to electricity de facto isolates communities from much of the national culture and politics—e.g. through radio, television, and the internet. A just transition internationally ensures that all states are recognized and heard at international summits. For instance, in an ideal setting, the Alliance of Small Island States (AOSIS)—representing those who have most to lose from severe climate change—would have real weight in multilateral discussions, rather than being forced to adopt ever more drastic measures to

attract attention.[31] Given the stark imbalance between the threat to these nations and their political power, larger states—as well as NGOs and citizen-led protest movements—can support them by amplifying their perspective in international discussions.

Policies for a just transition—through the pandemic, and beyond

Policy can contribute to all of the elements of the just transition in energy discussed above. Table 1 below shows, for each element of Figure 5, a range of policies that are available to governments in low-/middle-income countries (LMICs) and high-income countries (HICs), as well as to intergovernmental organizations (IGOs) and international non-governmental organisations (INGOs).

In the short run, during which the focus is on recovery from the COVID-19 pandemic, the most promising policies are those with both a positive climate impact and a large fiscal multiplier. Figure 16 shows the results from a survey of 231 central bank officials, finance ministry officials, and other economic experts from G20 countries on the relative performance of 25 major fiscal recovery measures across three dimensions: speed of implementation, economic multiplier potential, and climate impact potential. Five groups of policies stand out from the surveys and the broader literature:[32]

1. clean physical infrastructure investment in the form of renewable energy assets, storage (including hydrogen), grid modernization, and CCUS technology;
2. building efficiency spending for renovations and retrofits including improved insulation, heating, and domestic energy storage systems;
3. investment in education and training to address immediate unemployment from COVID-19 and structural shifts from decarbonization;
4. natural capital investment for ecosystem resilience and regeneration, including restoration of carbon-rich habitats and climate-friendly agriculture; and
5. research and development (R&D) expenditure focused on clean technologies.

For many LICS, expenditure on R&D is less important, as they can focus simply on fast adoption of ideas developed elsewhere. For these countries, the authors therefore suggest substituting the last item for expenditure on rural support schemes, particularly those focused on sustainable agriculture, ecosystem regeneration, or accelerating clean energy installations.[33]

Even once the pandemic has passed, this sort of "dashboard approach"—picking policies that support both economic and other goals—will remain useful. Societies have always sought a range of values, from economic growth to natural conservation to religious, scientific, or cultural enlightenment. Combining all of these disparate values into a single wellbeing indicator of "Human Development" or even "Gross National Happiness" is fraught with difficulties, but there remains a consensus for monitoring a plurality of goals and addressing specific trade-offs between them.

Beyond government policy, a variety of different actors can also play an important role in supporting a just transition. Citizen and NGO activism, from early Greenpeace environmentalism to the more recent student-led "Skolstrejk för klimatet" movement, have been critical in pressuring governments to act. Individual and corporate decisions to improve home insulation or reduce flights, while contributing directly, are also critical in reaching the threshold saturation beyond which a norm "cascades" through society.[34] Reputational concerns,

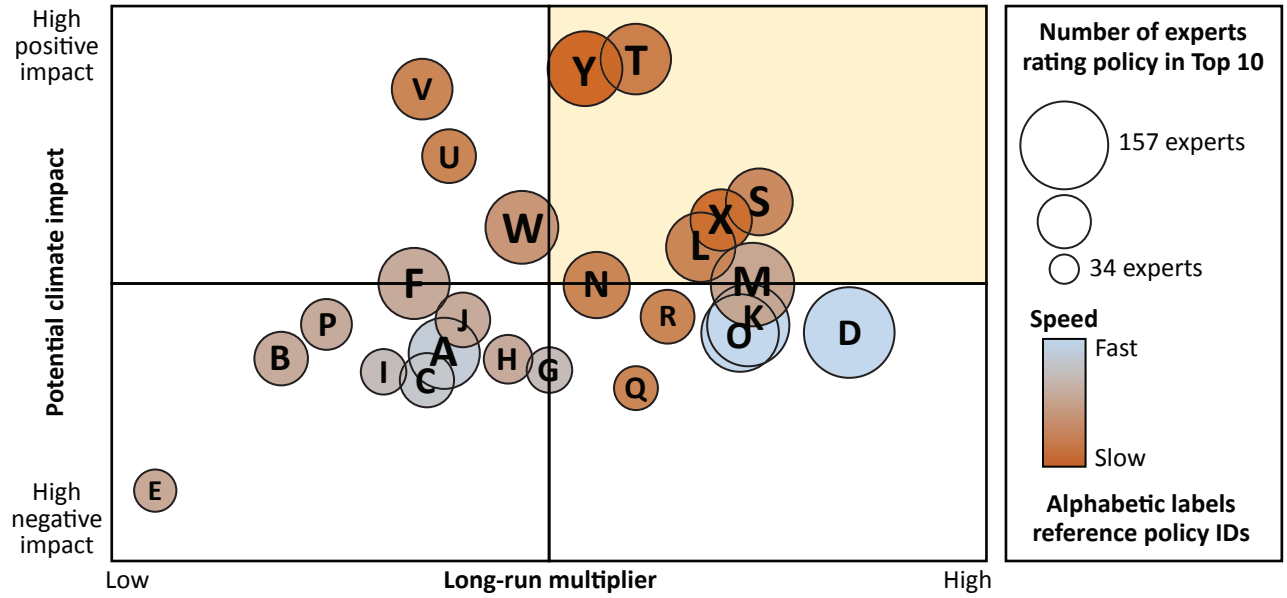
particularly for brands aimed at millennial consumers, can then accelerate this cascade until new practices are institutionalized and commonplace. Firms that recognize this and lead the way, such as Tesla, can play an outsize role in the transformation of their industries.

Table 1: Policies to support a just transition in energy

Policies:	HICs	LMICs	IGOs	INGOs
↑ Sustainable growth in developed countries				
Classic green investment packages: renewable energy, storage systems, grid modernisation. Potentially fund via carbon taxes, congestion charges or other green levies.	✓			
Research and development in new clean technologies	✓		✓	✓
↑↑ Sustainable growth in developing countries				
Classic green investment packages, particularly taking advantage of technological leap-frog opportunities (e.g. straight to electric vehicles in public transport, straight to renewables in municipal power generation, constructing micro-grids in rural areas). Potentially fund via carbon taxes, congestion charges or other green levies.		✓	✓*	
Rural support schemes focused on sustainable agriculture, ecosystem regeneration, or clean energy installation		✓		✓**
→ Direct effects: Intra-national support in developed countries				
National welfare schemes / Basic Income programmes to support those whose livelihoods are affected by climate change, e.g. agricultural workers with crops affected by rises in temperature or severe weather events.	✓			
↘ Direct effects: Cross-country support from developed countries				
Support for representation in international fora, e.g. the EU's financial support for the Alliance of Small Island States	✓		✓	✓
Support for those displaced by climate change, e.g. a global 'Climate Change Displacement Coordination Facility' (as discussed at COP20 in 2015) or 'humanitarian visas' for 'climate refugees' (as floated by the New Zealand government in 2017).	✓		✓	✓
→ Direct effects: Intra-national support in developing countries				
National welfare schemes / Basic Income programmes – e.g. supporting those living in low-lying areas with little protection, and agricultural workers whose crops are vulnerable to changes in climate.		✓	✓*	
Regional protection & development plans to support areas most affected.		✓	✓*	
→ Green transition: Intra-national support in developed countries				
National welfare schemes / Basic Income programmes to support those who lose jobs in fossil-fuel-intensive industries.	✓			
Geographically-targeted support, delivered in partnership with communities, for regions hit by closure of industries, e.g. Tonawanda NY.	✓			
Support to retrain for workers losing jobs in fossil-fuel-intensive industries, especially those with 'stranded skills' that are not easily transferrable to new occupations.	✓			✓**
↘ Green transition: Cross-country support from developed countries				
International carbon markets where developed countries can pay developing countries to undertake abatement programmes – e.g. the Clean Development Mechanism, or an upgraded 'Sustainable Development Mechanism'.	✓		✓	
→ Green transition: Intra-national support in developing countries				
National welfare schemes and retraining programmes to support those who lose jobs in fossil-fuel-intensive industries.		✓	✓*	

** Support from intergovernmental institutions will be particularly important for capital-intensive projects in states with low fiscal capacity.*
*** International NGOs can have an outsize impact by trialing small-scale interventions in the areas with most scope for policy innovation.*

Figure 16: Expert assessments of potential fiscal recovery measures



A	Temporary waiver of interest payments
B	Assisted bankruptcy (super chapter 11)
C	Liquidity support for large corporations
D	Liquidity support for households, start-ups and SME's
E	Airline bailouts
F	Not for profits, education, research, health inst. bailouts
G	Reduction in VAT and other goods and services taxes
H	Income tax cuts
I	Business tax deferrals
J	Business tax relief for strategic and structural adj.
K	Direct provision of basic needs
L	Education investment
M	Healthcare investment
N	Worker retraining
O	Targeted direct cash transfers or temporary wage increases
P	Rural support policies
Q	Traditional transport infrastructure investment
R	Project-based local infrastructure grants
S	Connectivity infrastructure investment
T	Clean energy infrastructure investment
U	Buildings upgrades (energy efficiency)
V	Green spaces and natural infrastructure investment
W	Disaster preparedness, capacity building
X	General R&D spending
Y	Clean R&D spending

Source: Hepburn, O'Callaghan, Stern, Stiglitz, Zenghelis[35]

Conclusion

Achieving a transition to a low-carbon economy, let alone a just transition, will be difficult. Yet those two elements can also be complementary. Guaranteeing support for those groups who would otherwise be harmed by the transition can transform them from opponents into allies. Ensuring that all share in the benefits of the transition reduces the chances that a post-transition backlash undermines any progress made. There is a great deal which can be done by all partner countries and international organizations; given the scale and transnational nature of the issue, any "coalition of the willing" can play an important role. The COVID-19 pandemic will place great financial strain on states and organizations, but the massive fiscal stimuli required also provide an opportunity for new green investments. The aim must be to alleviate two major crises with one coordinated policy package. Developing countries are particularly exposed to both the pandemic and the climate crisis, so international support even in these difficult times will be vital.

Endnotes

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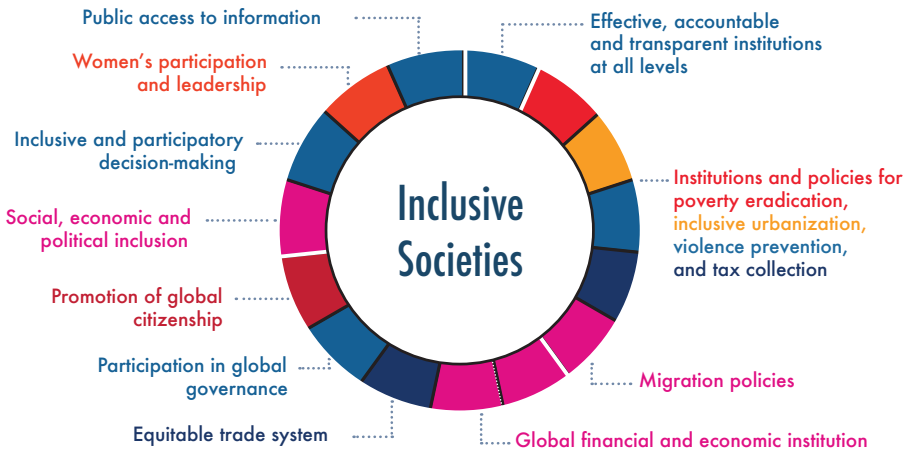

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