Financing an inclusive green economy transition

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Structure

- Urgency and scale of climate change
- The drivers of the inclusive growth model
- Financing and managing an inclusive transition
Currently a large gap between current COP21 NDCs and what is required to reach the Paris temperature targets.

The challenge is now to accelerate action to 2030 to close the gap. Requires immediate action across whole economy. Must peak emissions in next few years and go to “net zero” in next 50-60 years.

Source: Stylised trajectories based on UNEP (2018)
Global emissions are slowing down, but not fast enough

<table>
<thead>
<tr>
<th>Country</th>
<th>GHG emissions (GtCO(_2)) (2017)</th>
<th>Trend (past 5 years) (GtCO(_2) in 2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>1.2</td>
<td>(1.3)</td>
</tr>
<tr>
<td>Russia</td>
<td>1.5</td>
<td>(1.5)</td>
</tr>
<tr>
<td>India</td>
<td>2.3</td>
<td>(1.9)</td>
</tr>
<tr>
<td>EU (28)</td>
<td>3.5</td>
<td>(3.6)</td>
</tr>
<tr>
<td>USA</td>
<td>5</td>
<td>(5.3)</td>
</tr>
<tr>
<td>China</td>
<td>9.2</td>
<td>(9.2)</td>
</tr>
<tr>
<td>Rest of World</td>
<td>10.7</td>
<td>(10)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>33.5</strong></td>
<td><strong>(33)</strong></td>
</tr>
</tbody>
</table>

Source: BP Statistical Review of World Energy June 2018 (energy sector only)

Urgency of the next decades, decisions made now are critical in establishing low-carbon development, growth and poverty reduction.

<table>
<thead>
<tr>
<th>Change in the next decades</th>
<th>At the same time (to meet Paris targets)</th>
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</table>
| 15 years Infrastructure     | Investment of approximately US$ 90 trillion. 1.5°C ~50% Decrease GHG emissions from ~50 to ~25 Gt CO$_2$e by 2030 or  
| 20 years GDP               | Growth of approximately 3% per annum. Led by emerging and developing countries. 2°C ~20% Decrease GHG emissions from ~50 to ~25 Gt CO$_2$e by 2030  
| 40 years Urban Population  | Urban population will double in 40 years. Towns and cities shaped in the next 20. |

The next decade is critical. Choices made on infrastructure and capital now will either lock us in to high emissions, or set us on a low-carbon growth path which can be sustainable and inclusive. Cities are central.
Climate change differs from problems of the past and creates four major difficulties for public understanding and collective action.

<table>
<thead>
<tr>
<th>Immense scale of impacts</th>
<th>Large risk/uncertainty</th>
<th>Long lags in consequences</th>
<th>‘Publicness’ of the causes and effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Water inundation (sea level rise);</td>
<td>• 3°C not seen for around 3 million years.</td>
<td>• Accumulation of emissions to GHG concentrations and effects on climate take time to appear;</td>
<td>• It is the sum of all emissions that matter, some are more responsible and some less.</td>
</tr>
<tr>
<td>• Desertification.</td>
<td>• 4 or 5°C not seen for tens of millions of years.</td>
<td>• Gradual changes until tipping points reached (large-scale forest die-back, ocean currents shut down, melting permafrost...).</td>
<td>• They all contribute irrespective of when or where they occur.</td>
</tr>
<tr>
<td>• More frequent and intense extreme weather events (hurricanes, floods, heatwaves).</td>
<td>• Climate history tells us that major transformations are likely: where and how we can live.</td>
<td>• Accumulation of emissions to GHG concentrations and effects on climate take time to appear;</td>
<td>“greatest market failure the world has ever seen” (Stern Review, 2006).</td>
</tr>
<tr>
<td>• Mass migration and conflict.</td>
<td></td>
<td>• Gradual changes until tipping points reached (large-scale forest die-back, ocean currents shut down, melting permafrost...).</td>
<td></td>
</tr>
</tbody>
</table>

Redefines where people can live.  
Difficult to predict when and where impacts will occur.  
Tipping points are potentially irreversible.  

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Grantham Research Institute on Climate Change and the Environment  
Centre for Climate Change Economics and Policy
Structure

• Urgency and scale of climate change

• The drivers of the inclusive growth model

• Financing and managing an inclusive transition
Three forces present us with a special opportunity to deliver on the global agenda and seize the growth opportunities.

Historically, low interest rates and no shortage of global savings. Search for growth.

Rapid technological change and falls in cost (digital, materials, biotech...)

International agreements have provided political direction and evidence that collaboration is possible and will continue.

Seizing the opportunity requires a radical change. Most of what we currently do will have to be done differently (technologies, institutions, business models, city planning processes, natural resource management...)

Dangers of lock-in of high emissions of we lose the moment.
Strong investment in sustainable infrastructure is at the core of meeting the global agenda and supporting social inclusion.

Well-designed infrastructure can be pro-growth, pro-poor, and pro-climate.
The notion “costs of action” is being transformed by rapid technological advances and cost reductions.

Renewables with storage now competitive in power in many parts of the world. Capital costs for renewables continue to fall much faster than those for conventional technologies.

Source: EIA, 2017

Source: Bloomberg New Energy Finance, 2017
It is now technically possible to decarbonise all sectors (including hard-to-abate), at a reasonable cost, to reach net-zero emissions in time for Paris commitments; combine three routes

<table>
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<tr>
<th>Route</th>
<th>Decarbonisation option</th>
<th>Example</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Reducing demand for carbon-intensive products and services (circular economy and model shifts/logistics)</td>
<td>A more circular economy can reduce CO2 emissions from four major sectors (plastics, steel, aluminium and cement) by 40% globally</td>
</tr>
<tr>
<td>2</td>
<td>Improving energy efficiency across the economy</td>
<td>A combination of greater logistics efficiency and modal shift (trucking to rail, short haul aviation to high speed rail) could lead to 20% reduction in CO2 emissions</td>
</tr>
</tbody>
</table>
| 3     | Deploying a range of decarbonisation technologies across sectors:  
• Increase electrification using renewable energy sources  
• Deployment of CCS for industrial sectors  
• Use of alternative fuel sources where cost effective and sustainable (biomass and hydrogen) | Increase electrification to account for ~65% of final energy demand, supplied by:  
• 85 – 90% from renewable energy  
• 10 – 15% biomass or fossil fuels (with CCS) |

Source: Energy Transition Commission (2018)
Cities are a prime source of emissions and key to enabling a just transition

- By 2050, an extra 3 billion people could live in cities. Well placed to implement and benefit from strong action:
  - Dynamic source of the spread of ideas and innovation (accumulation of knowledge, ideas and skills, collaboration)
  - Physical shape of city determines behaviours, and efficiency of resource use (transport, waste, energy)

- If badly planned they can lead to congestion, waste and pollution, or increased exposure to climate change risks (floods, droughts, heat stress).

The direction and nature of economic development matters, and it makes sense to tackle climate risks in tandem with development planning and investment decisions.
Structure

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Quality and quantity of investment and shape of the transition will be determined by sound policy and government direction.

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<th>Market Failure</th>
<th>Description</th>
<th>Policy Options</th>
</tr>
</thead>
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<tr>
<td>Greenhouse gasses (GHGs)</td>
<td>Negative externality because of the damage that emissions inflict on others.</td>
<td>Carbon tax/ cap-and-trade/ regulation of GHG emissions (standards)</td>
</tr>
<tr>
<td>Research, development and deployment (R,D&amp;D)</td>
<td>Supporting innovation and dissemination.</td>
<td>Tax breaks, support for demonstration/deployment, publicly funded research.</td>
</tr>
<tr>
<td>Imperfection in risk/capital markets</td>
<td>Imperfect information assessment of risks; understanding of new projects/technologies.</td>
<td>Risk sharing/reduction through guarantees, long-term contracts; convening power for co-financing.</td>
</tr>
<tr>
<td>Networks</td>
<td>Coordination of multiple supporting networks and systems.</td>
<td>Investment in infrastructure to support integration of new technologies in electricity grids, public transport, broadband, recycling. Planning of cities.</td>
</tr>
<tr>
<td>Information</td>
<td>Lack of awareness of technologies, actions or support.</td>
<td>Labelling and information requirements on cars, domestic appliances, products more generally; awareness of options</td>
</tr>
<tr>
<td>Co-benefits</td>
<td>Consideration of benefits beyond market rewards.</td>
<td>Valuing ecosystems and biodiversity, recognising impacts on health</td>
</tr>
</tbody>
</table>

Different market failures point to the use of different instruments, but the collection should be mutually reinforcing.

Government-induced policy risk is the biggest deterrent to investment worldwide. Policies must be credible over time; ‘predictably flexible’
Carbon pricing revenues can play a key role to support the transition

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<td>General government budget</td>
<td>Raises additional revenue for government policy priorities (e.g. education, health, security, social benefits…)</td>
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<tr>
<td>Revenue neutral–households</td>
<td>Reduce burdens for households/consumers through reducing income taxes, sales taxes or direct returns of revenue (including lump-sum transfers).</td>
</tr>
<tr>
<td>Revenue neutral – firms</td>
<td>Reduce costs for firms exposed to price effects, for example support for emission-intensive sectors or trade exposed firms (e.g. grandfathering, free tax allowances) or provide support for firm activities (e.g. energy efficiency, new technology, process improvements…)</td>
</tr>
<tr>
<td>Allocation for ‘green’ purposes</td>
<td>• Finance ‘green’ initiatives, e.g. recycling/re-using; land rehabilitation; housing retrofits etc.</td>
</tr>
<tr>
<td></td>
<td>• Support for research and development</td>
</tr>
<tr>
<td></td>
<td>• Investment in sustainable infrastructure (e.g. public transport, renewable energy), including programme design, project preparation and risk management.</td>
</tr>
<tr>
<td>Support for developing countries</td>
<td>Provide additional support for developing countries to finance sustainable development (SDGs) and climate action (Paris Agreement). Could be via either bi-lateral development institutions or multilateral development banks (MDBs). See High-level Panel on Climate Change Finance (2010).</td>
</tr>
</tbody>
</table>

Prices should reflect costs; not pricing something that is damaging is a subsidy. Potential for carbon border adjustments if pollution remains unpriced.

Potential to utilise a mix of revenue-use options to promote a mixture of policy goals and objectives.
Mobilizing the required capital for sustainable investment requires unlocking a number of pools to work together.

Given the scale of investment requirements for sustainable infrastructure, and development more generally, a significant scaling up of financing is needed from all sources—domestic public, international, private—and the links between them made stronger.
Development banks can play a key role to moving from “billions” to “trillions” to finance the new global agenda

The MDBs have a crucial role to play in helping reduce government-induced risk through the use of their instruments (global equity, long-term loans, and guarantees.) They also bring trust and convening power.
How the zero-carbon transition is managed will be central to building the consensus for strong, sustainable action

A ‘just transition’ is about more than just managing a zero-carbon transition, it will be necessary for other large changes in economic structures: shift to services, labour-saving technologies, globalisation... all have to be managed together. The global financial crisis and inequality have made the problem more severe.

### Enabling a ‘Just Transition’

“Leave no-one behind”

<table>
<thead>
<tr>
<th>Life-long learning</th>
<th>Support local skills and investment</th>
<th>Re-locate public sector services</th>
<th>Social protection measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offer education and training to support life-long learning</td>
<td>Support new skills and entrepreneurship through finance. Collaboration between local government, universities, business</td>
<td>Locate public services/activities in affected areas to boost local economies (shift government employment hubs)</td>
<td>Boost social protection measures for the most vulnerable members of society (lump sum transfers, welfare support, housing subsidies...)</td>
</tr>
</tbody>
</table>
Actions in five key sectors can unlock the investment, growth and sustainable development opportunities. The rewards are substantial.

| Energy | • Raising revenue by pricing carbon and eliminating fossil fuel subsidies  
• Saving energy through greater energy productivity  
• Supporting energy access through distributed renewable energy |
| Cities | • Well managed densification to revitalise cities  
• Sustainable and affordable housing for urban poor  
• Shared, electric, low carbon transport |
| Food and land use | • Avoiding deforestation and degradation of forests  
• Scaling up landscape restoration  
• Implementing climate-smart agricultural approaches  
• Supporting better food consumption patterns and reducing waste |
| Water | • Sustainable and equitable water allocation  
• Target investment in resilient water and sanitation infrastructure |
| Industry, Innovation and Transport | • Focus on energy efficiency, resource efficiency, and decarbonisation in heavy industry  
• Reduce emissions from the plastics value chain  
• Develop low-carbon solutions for heavy-duty transport  
• Increased support for innovation and deployment |

Source: New Climate Economy, 2018
Moving beyond ‘the costs of action’. The growth story of the 21st century is strong, sustainable, and inclusive.

5 - 10 years
Investment in sustainable infrastructure can boost shorter-run demand and growth, sharpen supply, reduce poverty and support sustainable development.

>10 years
Spur innovation, creativity and growth in the medium term, unleash new waves of innovation and discovery.

>20 years
Low-carbon is the only feasible longer-run growth on offer; high carbon growth self destructs.

The next 10-15 years are a unique “use it or lose it” moment. Seizing the benefits will only be possible if we act boldly over the next 2-3 years.
We have in our hands a new and very attractive way forward, the growth story of the 21st century.