

United Nations Policy Dialogue on Green Development

1. Introduction

China's September 2020 pledge to peak its emissions before 2030 and become carbon neutral before 2060 is a momentous objective. It has significant ramifications for future national and global economic and social policies. In this context, the United Nations supports this major shift towards a zero-carbon transition.

Green development is a particularly vital topic. At the current rate, global temperatures are set to rise by 3°C and higher without urgent and immediate actions. The United Nations is calling to build a global coalition for carbon neutrality by 2050¹, while targeting a reduction of global emissions by 45% by 2030. Equally important are **biodiversity protection and nature-based solutions**. The United Nations (UN) is hopeful that the **UN Biodiversity Conference in Kunming** in October 2021 will be a turning point in biodiversity global governance.

This policy brief presents the main conclusions and policy recommendations issued by experts and panelists² during the January 2021 United Nations Policy Dialogue co-organized by UNDP and UNEP titled **"Acting on COVID-posed challenges: Accelerating the Transition to a Low-carbon Economy"**.³

China is still in a stage of rapid economic and social development and faces rising energy demand. Mitigating CO₂ emissions while meeting growing energy demand will be one of the main **challenges for China in achieving a zero-carbon transition**. Beyond efforts to raise energy supply, measures focusing on demand such as carbon pricing, energy efficiency and demand-side management (DSM) will be crucial to ensure a zero-carbon shift.

1. UN Secretary General Antonio Guterres (11 December 2020). Carbon neutrality by 2050: the World's Most Urgent Mission. <https://www.un.org/sg/en/content/sg/articles/2020-12-11/carbon-neutrality-2050-theworld%E2%80%99s-most-urgent-mission>

2. The views expressed in this publication are those of the authors and do not necessarily reflect the views or policies of the United Nations (UN), the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP).

3. For more information, see the Summary Note of the event online:
<http://sys.un.org.cn/uploads/20210420/3138f1dfa3fb784b3a3c2b3694287dd5.pdf>

2. Peaking carbon emissions before 2030 and achieving carbon neutrality before 2060

At the strategic level, ensuring effective alignment with the 2030 Agenda and the Paris Agreement, China's aims to reach emission peak before 2030 and carbon neutrality before 2060 call for several policy recommendations.

Optimizing the industrial structure and energy mix would be the first step to achieve the CO₂ emission peak before 2030 (see Table 1). To be in line with a 1.5°C increase scenario, the share of coal in primary energy consumption will have to be smaller than 5%, and non-fossil energy should account for more than 85% by 2060 (see Table 2).⁴

Table 1. Objectives for China to peak CO₂ emissions by 2030

	2020 ⁵	2030 (stated target) ⁶
Carbon intensity of GDP decrease compared to 2005 level	48.1% ⁷	Over 65%
Installed capacity of wind and solar power (terawatt)	0.5 ⁸	1.2
Non-fossil energy share (renewable and nuclear) in primary energy consumption	16%	25%
Non-fossil energy share (renewable and nuclear) in power generation	32%	50%

Table 2. Long-term pathway for China to mitigate climate change to 1.5°C

1.5°C scenario ⁹	2020	2050 (estimated target)
CO ₂ emissions in energy consumption (billion tCO ₂ e)	10.03	1.47
Share of coal in primary energy consumption	57%	Smaller than 5%
Non-fossil energy (renewables and nuclear) in primary energy consumption	16%	85%
Share of electricity in primary energy consumption	45%	85%

4. Keynote speech by Professor He Jiankun, Chairman of Academic Committee, Institute for Climate Change and Sustainable Development, Tsinghua University.

5. Figures for non-fossil energy share in primary energy consumption and power generation are from Prof. He Jiankun's keynote speech.

6. Carbon intensity of Gross Domestic Product (GDP), installed capacity for wind and solar power as well as non-fossil energy share in primary energy consumption are targets indicated by President Xi Jinping during the 12 December 2020 Climate Ambition Summit. The target of non-fossil energy share in power generation has been stated in the "Energy Production and Consumption Revolution Strategy (2016-2030)" released on 25 April 2017 by the National Development Reform Commission (NDRC) and National Energy Administration (NEA).

7. Figure for 2019. Source: http://www.gov.cn/xinwen/2020-09/27/content_5547713.htm

8. National Energy Administration data.

9. Keynote speech by Professor He Jiankun.

Other necessary measures to help achieve the CO₂ peak before 2030 include:

- i) improving the carbon market and covering a wider range of industries, particularly energy-intensive ones;
- ii) establishing a Measurement Reporting and Verification (MRV) system and limiting the emission of non-CO₂ greenhouse gases (GHGs);
- iii) promoting energy savings, upgrading technology, limiting the expansion of energy-intensive industries' capacity (i.e., heavy chemical), and transitioning and eliminating outdated industrial capacity in sectors such as steel, cement or aluminum.

After 2030, China would need to strengthen its capacity in Carbon Capture and Storage (CCS), Bioenergy Carbon Capture and Storage (BECCS), as well as its agricultural and forestry carbon sinks. In parallel, it is recommended to i) promote industrial decarbonization through digitalization and re-electrification; ii) establish a clean, low-carbon, efficient and safe energy production and consumption system; iii) promote research and development (R&D) and industrialization of deep decarbonization technologies (i.e., hydrogen, energy storage, smart grid, zero carbon steelmaking, zero carbon chemical industry, Carbon Dioxide Removal (CDR)); and iv) promote carbon pricing mechanisms and carbon markets.

3. The transformative potential of green technologies for low-carbon transition

It is important to look at green technologies' transformative potential and to define the social, economic, and environmental viability of such technologies. The effectiveness and promotability of green technologies should be determined by their full life-cycle environmental carbon emissions and cost-benefit analysis. However, there is no single affordable technological solution that can currently solve the challenges of climate change. Therefore, **a comprehensive whole-of-society approach is necessary.**

Four systematic actions could boost green technologies and help scale them up in the market.

1. A specific law on climate change in China could help push forward a more comprehensive agenda. A clear strategic plan backed by legislation is needed to guide and ensure the direction of green and low-carbon development.

2. Institutional mechanisms at the government and local levels should provide continuous policy support such as the identification of a national strategy declined in each sector and province; budgetary support; legal and regulatory incentives; enforcement, coordination and control capacity.¹⁰

3. Market mechanisms can be improved to allow more companies to participate and increase their willingness to develop and produce green technology.

4. It is important to establish mechanisms to encourage the **public and society** to actively engage in the low-carbon transition, to promote capacity-building and raise awareness.

10.OECD. Institutional Mechanisms. <https://www.oecd.org/gov/pcsd/pcsd-framework-generic-module-institutional-framework.htm>

4. Action points for accelerating the transformation towards a green economy and sustainable recovery

The United Nations supports **decarbonization of all sectors that is compatible with a 1.5°C scenario pathway to successfully mitigate climate change**. In the energy sector, phasing out fossil fuels and promoting renewable energies will be key to successfully reaching this goal. **Fossil fuel-powered electricity and heat production are the most significant contributors to carbon emissions** and represent decisive areas in the fight against climate change. In this transition, UNDP and UNEP support the fast development of **wind and solar energy**¹¹ to help attain carbon neutrality as they are competitive, clean and readily available forms of energy. However, these energies have limits as they suffer from geographical constraints and volatility.

To resolve certain issues associated with variable renewable energies such as wind and power, it is important to **promote regional interconnection, upgrade grid technologies as well as boost energy storage capabilities**. Promoting and implementing interconnected grids thanks to regional projects can address the unbalanced geographical distribution of resources. To overcome the issue of renewable energy's volatility, grid safety and risk identification, prevention and control capabilities should be further strengthened. **New energy storage solutions are crucial for the renewable energy transition as they can help solve the volatility issue of wind and solar energy**. In the future, green hydrogen storage, produced with zero or low carbon footprints can serve as an alternative to raw material or fuel for transportation, industry and construction, while effectively reducing the use of fossil energy.

Green and low-carbon development would be facilitated by:

1. Re-setting the relative price of renewables and fossil fuels by eliminating fossil fuel subsidies and using taxes to disincentivize emissions. This will be critical to guide producers, consumers and investors to avoid high-carbon choices.
2. Moving away from investing in high-carbon technologies, due to become stranded assets, as energy from renewables continues to become cheaper thanks to rapidly improving and increasingly competitive generation, storage and transmission options.
3. Further increasing investments in renewable energy (RE) to create more and better paying jobs.

A cross-sector approach is also highly relevant to China's zero-carbon transition. In its transportation sector, China could improve the coupling of electric vehicles with its grid. In the future, technological breakthroughs supported by green investment and regulations can turn electric vehicles into mobile energy storage devices. In **cities and the construction sector**, there is a crucial need for constructing infrastructures and buildings that are lasting, energy efficient and respect green and low-carbon standards as they play an important role in reducing carbon emissions. Faced with strong demand, **food production** is also a major contributor to GHGs. Improvements in agriculture and food production can reduce energy and water consumption, but also improve spatial efficiency.

11. Biomass energy stands as an energy with potential for rural areas.

5. Green finance: enabling green development and zero-carbon transition

Green finance innovation and development are essential to effectively support economic recovery and growth in the post-epidemic era. The shocks caused by COVID-19 have led to a global socioeconomic restructuring, highlighting the urgent need to tackle climate change and environmental degradation, creating **unprecedented opportunities for green finance**.

For green finance to effectively support the carbon neutrality pledge, five aspects are important:

- To establish nationally harmonized, clear and enforceable green finance standards that are aligned with international standards.
- To construct financial products' databases to help solve information asymmetry in green finance markets.
- To innovate and promote green finance products. Traditional financial products would need a green upgrade in line with the newly stated zero-carbon objectives and improvements.
- To improve incentive mechanisms. Both central and local governments can strengthen incentive policies to fix market malfunctions.
- To deepen international cooperation on all the above four aspects.

To boost green finance, the following tools have been successfully deployed in China:

- **Green finance reform pilots.** The pilots are not just about institutional construction, but also include capacity building, fostering the markets, and awareness raising. All these proactively boost national green development.
- **Fintech** has huge potential to boost green production and consumption. It will be increasingly needed to deal with green consumption, green architecture, waste disposal, infrastructure, supply, logistics and storage, as well as for risk management. Moreover, it will also be used to bridge the gaps between traditional and emerging financial institutions and facilitate data sharing.
- **Carbon markets** will be key to making the low-carbon transition successful as they **facilitate emission trading flow**, positively contributing to reducing climate mitigation costs. Smooth operation of these markets requires foreseeable policy, strengthened carbon price signals, efficient quality control as well as clear validity prospects for carbon offsets. Strong policy signals will be necessary to enhance the confidence of investors. **Beijing's pilot carbon market has helped the city to lower its energy consumption and carbon emission per unit of GDP by 22.5% and 28.2% respectively from 2013 to 2018.**

6. Biodiversity and Nature-based Solutions (NBS): linking climate and green development

In 2021, none of the 20 Aichi biodiversity targets listed by the Strategic Plan for Biodiversity 2011-2020 have been fully achieved, and only six targets have been partially achieved. **NBS protect and restore the functions of natural ecosystems by advocating a harmonious coexistence**

between human and nature. NBS have multiple benefits such as mitigating and adapting to climate change, protecting biodiversity and acting as carbon sinks. NBS also support the sustainable development of human society and economy. However, there are not many existing studies that quantify these benefits, which makes it difficult to attract investment.

To implement NBS further and more efficiently, possible actions could include:

- Interlinking NBS with all SDGs through a **nexus approach**. In particular, balancing food security with low-carbon agriculture has to be considered in a comprehensive NBS policy.
- It is important to bring **forest solutions** into the post-COVID green recovery agenda, since forests are shields against emerging new pathogens. Forest-based solutions are mature, job-creating and consolidated initiatives that could drive the whole NBS movement forward.
- **Women's empowerment** and building local capacity are keys for a successful NBS implementation.
- **Policy acceptance on the ground** needs to be improved. The potential impacts on gentrification and displacement of indigenous and poor communities should be considered upfront by policymakers, as well as designing livelihood options, such as eco-tourism.
- **Carbon credits generated by well-planned NBS** projects should only be considered appropriate offsets if they are aligned with a 1.5°C decarbonization trajectory as defined by the Science Based Targets initiative (SBTi)¹² or another credible reference.
- **NBS in non-forest ecosystems need to be further developed.** Specifically, actions and targets for nature-based mitigation generally refer to the management, restoration and protection of terrestrial forests, afforestation and agroforestry, while coastal and marine habitats are relatively less deployed.
- **No one-size-fits-all.** A successful NBS intervention in one place cannot necessarily be directly transplanted to other contexts and regions. NBS results are determined by the natural, cultural, socioeconomic and policy contexts in which they are applied.

7. International engagement: a must for low-carbon transition

In all sectors, **coordinated efforts amongst countries should be further enhanced.** Climate challenges and impacts respect no borders and no country, however large, is immune from others' actions.

China could leverage its current advantages and know-how along the entire renewable energy

12. <https://sciencebasedtargets.org/resources/legacy/2020/03/Business-Ambition-for-1.5C-FAQ.pdf>

industry chain and contribute to South-South cooperation initiatives to support partner countries in achieving their Nationally Determined Contributions (NDCs) goals. The application of **South-South cooperation funds could be more inclusive**. It could not only involve governments, but also encourage non-governmental organizations (NGOs) and qualified companies to join in.

Another promising area for international cooperation is sharing China's experience in combining energy and poverty alleviation targets, e.g., building home solar systems and small off-grid photovoltaic power plants. These are particularly relevant for areas not covered by the grid or remote areas in developing countries.

To achieve a global low-carbon development path, it will also be important to **avoid the relocation of emissions through financing coal power plants in other countries**. Domestic low carbon and green development policies and regulations, as well as green technologies and best practices should be extended to all Chinese overseas investments.

Furthermore, to boost sustainable finance, **cooperation with international organizations like the UN and international financial institutions is necessary and crucial**. Mutual learning and joint exploration are critical, since it is difficult to balance the right to development and environmental sustainability.

Last but not least, dubbed the "Nature Year" by UN Secretary General Antonio Guterres, **2021 will be of fundamental importance to join the climate, forest, biodiversity, and food agendas under the umbrella of the SDGs**. In this framework, the Conference of the Parties to the Convention on Biological Diversity (CBD COP15) taking place in Kunming (Yunnan) in 2021 will be a key global milestone. China and the UN expect to work hand in hand with all parties to promote an ambitious and pragmatic Global Biodiversity Framework (GBF) to enhance the synergy between biodiversity and climate governance.



Contact Information

United Nations Development Programme in China

arnaud.debauge@undp.org

violante.di.canossa@undp.org

United Nations Environment Programme, China Office

sijia.liu@un.org