

# CHINA SUMMARY

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# ABSTRACT

This paper will help identifying policy measures in line with the New Urban Agenda and in the context of the respective Nationally Determined Contributions for China. This paper will briefly assess framework conditions in the country in addition to policy actions with mitigation potential.





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# SUMMARY OF NATIONAL DETERMINED CONTRIBUTIONS

China, with a population of more than 1.3 billion, in the process of rapid industrialization and urbanization, is confronted with multiple challenges on economic development, poverty alleviation, improving living standards, environmental protection and combating climate change (UNFCCC, 2015; Wei 2015).

The activities on climate change to mitigate greenhouse gas emissions and climate resilience enhancement is influenced not only by China's domestic needs for sustainable development in ensuring its security on economic, energy, ecology and food as well as the safety of people's life and property, but also driven by its sense of responsibility to engage in global governance and to promote common development for all human beings (Wei, 2015). At the current level, emissions from China contribute 25.36% to global emissions, industry emissions 1296.5 Mt CO<sub>2</sub>e, agriculture emissions 831.6 Mt CO<sub>2</sub>e and waste emissions 197.6 Mt CO<sub>2</sub>e (WRI, 2015).

China is determined to achieve its NDC targets and has ratified the Paris Agreement in September 2016. The target is to peak CO<sub>2</sub> emissions by 2030 and lo

wer the carbon intensity of GDP by 60-65% below 2005 levels by 2030.

China's NDC includes actions to achieve in 2020 and 2030 targets. In 2009, China made an international announcement that by 2020 it will lower carbon dioxide emissions per unit of GDP by 40% to 45% from the 2005 level, increase the share of non-fossil fuels in primary energy consumption to about 15% and increase the forested area by 40 million hectares and the forest stock volume by 1.3 billion cubic meters compared to the 2005 levels. To support this, China plans to transform the economic development pattern towards ecological civilization and green and low-carbon development pathways as its policy development. By 2030, China has nationally determined its actions as follows (Wei, 2015):

- To lower carbon dioxide emissions per unit of GDP by 60% to 65% from the 2005 level;
- To increase the share of non-fossil fuels in primary energy consumption to around 20%; and
- To increase the forest stock volume by around 4.5 billion cubic meters on the 2005 level.

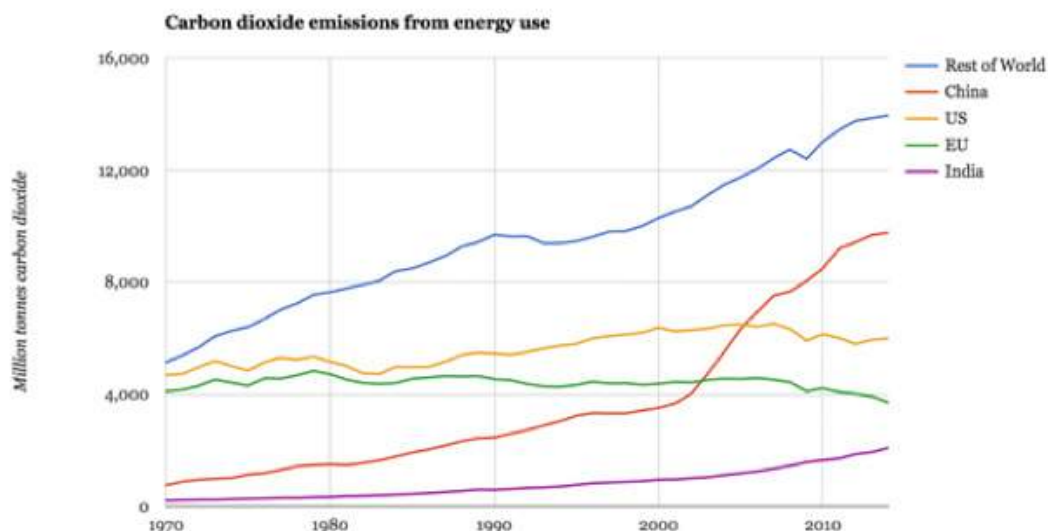


Figure 1 Energy-related CO<sub>2</sub> emissions in major economies and the rest of the world, 1970-2014 ( BP Statistical Review of World Energy 2015; Carbon Brief, 2017)

Economic growth is China's major factor of emission increase, which in the future needs to be decoupled. Energy mix, but particularly decreasing energy intensity will need to take place from now to 2030 (Fu Sha, 2016).

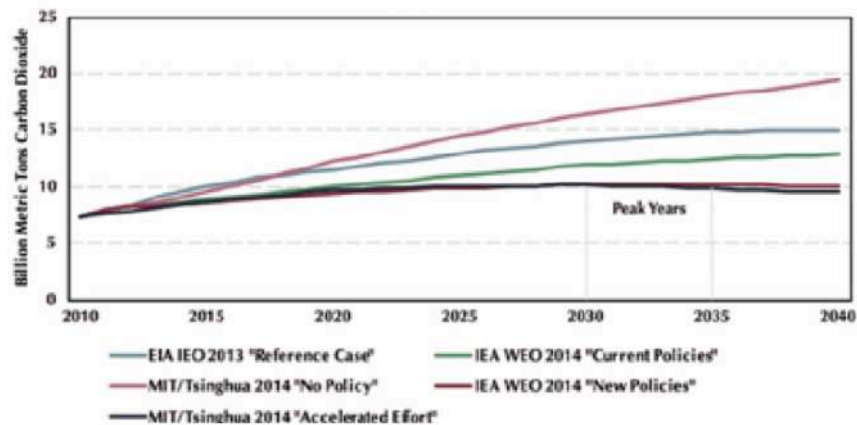


Figure 2 Forecasting China's Carbon Dioxide Emissions (IEA, 2005)

# NATIONAL POLICIES AND PLANS SUPPORTING THE NDC TARGETS

To support China's mitigation action, the country has enacted and implemented various national plans (Wei 2015):

- the National Program on Climate Change,
- the Work Plan for Controlling Greenhouse Gas Emissions during the 12th Five-Year Plan Period,
- the Comprehensive Work Plan for Energy Conservation and Emission Reduction for the 12th Five Year Plan Period,
- the 12th Five Year Plan for Energy Conservation and Emission Reduction,
- the 2014-2015 Action Plan for Energy Conservation, Emission Reduction and Low-Carbon Development, and
- the National Plan on Climate Change (2014-

2020).

With China's effort to low-carbon development, improved energy efficiency, lowered carbon emissions and enhanced ecosystem or resource protection, the country has achieved by 2014 (Wei 2015):

- Carbon dioxide emissions per unit of GDP is 33.8% lower than the 2005 level;
- The share of non-fossil fuels in primary energy consumption is 11.2%;
- The forested area and forest stock volume are increased respectively by 21.6 million hectares and 2.188 billion cubic meters compared to the 2005 levels;
- The installed capacity of hydro power is 300



gigawatts (2.57 times of that for 2005);

- The installed capacity of on-grid wind power is 95.81 gigawatts (90 times of that for 2005);
- The installed capacity of solar power is 28.05 gigawatts (400 times of that for 2005); and
- The installed capacity of nuclear power is 19.88 gigawatts (2.9 times of that for 2005).

China is progressively implementing ‘the National Strategy for Climate Adaptation’, and improving its capacity to respond to extreme climatic events and

making positive progress in key areas of climate change adaptation. It is enhancing mechanisms and capacities to effectively tackle climate change risks in key areas such as agriculture, forestry and water resources, as well as in cities, coastal and ecologically vulnerable areas and to progressively strengthen early warning and emergency response systems and disaster prevention and reduction mechanisms. The supports in terms of science and technology are further enhanced by implementing China’s Science and Technology Actions on Climate Change (Wei, 2015).

## CHINA’S NDC MEASURES

To achieve the nationally determined objectives that leads towards low-carbon development and climate resilient society by 2030, China is implementing enhanced policies and measures in areas such as regime building, production mode, economic policy, science and technology innovation and international cooperation – which are discussed below (Wei 2015).

As per the focus of the paper, a matrix is created showing China’s policy and measures categorised into energy, transport and resource sectors.

# RISKS OF ACHIEVING CHINA'S NDC TARGET

China has proven to be very ambitious and committed towards achieving its NDC targets, while some measures are in risk of failing from various reasons:

1. Accessibility to natural resources
2. Increased income will lead to increased energy consumption
3. Reliability and uncertainty of technology
4. Low Research and Development Capacities on low-carbon technology
5. Increased investment costs
6. Limited stakeholder capacities and competencies (Fu Sha, 2016)

## MOBILITY

Historically China has a culture of sustainable mobility relying heavily on NMT. Yet, rapid population growth and economic growth has led to increased private car ownership and the expansion of road infrastructure, replacing traditional modes of transportation in some urban areas entirely. Congestion and air quality problems are now the consequences. China's has realised the necessity for a future shift in transport but also many other sectors, which translate to their NDC targets.

China is moving towards clean vehicles, electric cars and two-wheelers, predominantly battery electric vehicles (BEV) and plug-in electric hybrid vehicles (PHEV) – along with the adoption of various other fuel options, such as CNG, LNG and biofuels. It shows China's strong interest in electric mobility and is already the world's largest producer of electric two-wheelers. There is also a rapidly growing interest in the development of infrastructure and systems for sustainable transport modes such as walking and cycling. Several cities in China such as Zhongshan, Hangzhou, and Foshan, have implemented bike-sharing schemes based on the Parisian model. In terms of public transport, BRT is well adapted to large, dense cities where high levels of usage can be achieved.

For Light Rail (LRT) technologies, as a logical next step from Bus Rapid Transit (BRT), some of the key infrastructure, such as a dedicated line and high-capacity stations, is already in place as part of the BRT system.

Though infrastructure cost itself is less problematic (due to readily available loans from domestic banks), the operational funding of these systems has been identified as a key problem for public transport services in Chinese cities. Besides that, to improve the attractiveness of modal alternatives as well as to reduce energy consumption, it is important that traffic management systems are complemented by measures such as congestion charging, parking policies, and additional travel demand management and energy efficiency improvement measures. Using IT systems, such as public transport traffic light priority, smart-card ticketing, parking management, car and bike sharing, the preferred transport modes can be made more attractive and efficient in China. For the Integrated planning and sustainable urban mobility plans, Chinese researchers and city officials acknowledged the need to adopt a more participatory planning approach and emphasized the opportunity for knowledge exchange between Europe and China in this area.

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