

Climate Mitigation Policy in China - A Special Supplement of *Climate Policy Journal*

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Editorial Overview

This paper presents the Editorial Overview of a forthcoming Special Supplement on China to be published in the *Climate Policy* journal. The Special Supplement contains six papers providing an in-depth appraisal of key developments in Chinese climate change policy.

Climate Policy journal is grateful to ZhongXiang Zhang, Distinguished University Professor at Fudan University, as Guest Editor, for selecting the key topics and leading authors from across China, and for writing this overview in advance of the final journal publication.

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The 13th five-year plan (FYP) period running from 2016 to 2020 is very crucial for China. Domestically, dense smog and haze that frequently hits China and steeply rising oil imports raise great concern about a range of environmental problems and health risks and energy security. Internationally, given that China is already the world's largest energy consumer and carbon emitter and that its energy use and carbon emissions continue to rise rapidly as it is rapidly approaching to be the largest economy in the next one to two decades, China is facing great pressure both inside and outside international climate negotiations to be more ambitious in combating global climate change. Thus, China, from its own perspective cannot afford to and, from an international perspective, is not meant to continue on the conventional path of encouraging economic growth at the expense of the environment. Clearly, balancing China's energy needs to fuel its economic growth with the resulting potential impacts of climate change presents an enormous climate policy dilemma, not simply for China but for the entire world.

The issue is then how China explores concrete, constructive and realistic solutions in the 13th FYP in order to be successful in making its transition to a low-carbon, green economy. To that end, China needs to cap nationwide coal consumption, cut coal consumption in absolute terms in severely polluted regions and to take unprecedented efforts to keep energy consumption and carbon emissions under

control in key energy-consuming industries and cities in the context of government decentralization and unprecedented urbanization. China will need to strengthen and expand flagship programs and initiatives and supportive economic policies and harness the market forces to promote industrial upgrading and energy conservation and further increase the widespread use of renewable energy; and to enhance the implementation of these policies and measures in order to genuinely transit into a low-carbon economy.

These are solutions to save energy, cut pollution and abate climate change in the 13th FYP and beyond and at the same time, represent key challenges and directions for China to meet its proposed carbon intensity target in 2020 and cap its carbon emissions by 2030.

Against this background, combined with the limited space, this special issue of *Climate Policy* focuses on China's low-carbon green growth strategy, coal consumption cap and carbon emission peak, and the roles of the key energy-consuming sectors, low-carbon city development program, advanced and clean energy technologies, and the pilot carbon trading schemes to play in that context.

China's low-carbon green growth strategy

China is convinced of the need to clean up her development act and shift to a new development paradigm different from the existing one characterized with overconsumption of material goods. In that context, the article by Professor Yongsheng Zhang from Development Research Center of the State Council discusses how to formulate low-carbon green growth strategy in China and sets the tone of this whole special issue.

Coal consumption cap and carbon emission peak

Given that China's energy mix is coal-dominated, abating CO₂ emissions in China is closely linked to rein in its energy consumption in general and its coal consumption in particular. Dense smog and haze that frequently hits in Beijing and other places in China has sparked China's determination to cut coal consumption in absolute terms in Beijing-Tianjin-Hebei region, Yangtze River Delta and Pearl River Delta by 2017. The article by Professor ZhongXiang Zhang from Fudan University and Dr. Fuqiang Yang from Natural Resources Defense Council China Program analyses the possibility for China undertake unprecedented measures to cap nationwide coal consumption to let it peak by 2020. This, combined with projected continuous growth afterwards in oil and natural gas to offset reductions in coal-related CO₂ emissions, would lead overall national CO₂ emissions to peak in 2030 or earlier. This suggests that China's recent commitment to cap its carbon emissions by 2030 is ambitious but achievable.

Key energy-consuming sectors

The power generation, industry, building and transport sectors account for about the three quarters of China's total energy use and the resulting carbon emissions. Thus these energy-consuming sectors are crucial for China to meet its own set energy-saving and carbon mitigation goals. The article by Professor Can Wang from Tsinghua University and his collaborators identifies the major gaps in energy and climate policies and suggests ways to close these gaps. The article suggests that a sectoral approach can serve as the first step under a prospective international climate treaty. In

that context, it is argued that the cement, steel, aluminum sectors can be among the first group to be covered under the sectoral approach.

Low-carbon city development program

In China, cities are responsible for more than 60% of total energy consumption, and their contribution continues to increase given projections that about two-thirds of the Chinese population will live in urban areas by 2030. Clearly, given unprecedented urbanization, cities will play an even greater role in shaping energy demand and CO₂ emissions in the 13th FYP and beyond. Therefore, cities are the key to meeting China's proposed carbon intensity target in 2020 and carbon emissions target in 2030. The low-carbon city development experiment in the 10 provinces and 32 cities in the context of government decentralization will serve as the test ground to see whether they can stand up to the challenges. By reviewing the low-carbon development in these provinces and cities and undertaking a case study, the article by Professor Ye Qi from Tsinghua University and his collaborators discusses some features of the program and a variety of problems and challenges that it is confronted with, and suggests areas where need further improvements to make the low-carbon pilot program effective.

Advanced and clean energy technologies

Technology is the key to meet China's the energy-saving and emissions-cutting targets. The article by Professor Xiliang Zhang from Tsinghua University and his collaborators examines the role of advanced energy technologies, renewable energy and nuclear power to play in that context until 2050 using a large global economy-energy-environment model. The results derived clearly call for appropriate carbon pricing and supportive low-carbon energy and economic policies to accelerate the expansion of these technologies.

Pilot carbon trading schemes

Putting a price on carbon is considered a crucial step for China's endeavor of harnessing the market forces to reduce its energy consumption and carbon emissions and genuinely transiting into a

low-carbon economy. The Chinese government has approved the seven pilot carbon trading schemes. The seven regions are given considerable leeway to design their own schemes. These pilot trading schemes have features in common, but vary considerably in their approach to issues such as the coverage of sectors, allocation of allowances, inclusion of price floors and ceilings in trading schemes, use of offsets, and compliance. The article by Professor ZhongXiang Zhang from Fudan University examines the five pilots that have to

comply with their emissions obligations by June 2014, and shows that, with the incentives and mechanisms built in these pilot trading schemes and a variety of measures and policies put in place to enhance their compliance, the first-year performance of the five pilots examined is better than expected. The article discusses the options to evolve regional pilot carbon trading schemes into a nationwide carbon trading scheme.

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