

The development of policy instruments in supporting low-carbon governance in China



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ABSTRACT

This paper examines the development of policy instruments that support the low-carbon governance in China. The instruments are analysed in five aspects in relation to the key policies in low-carbon governance in China, including: energy conservation, developing new energy, reforestry, developing circular economy, and industry restructuring. Each aspect is discussed in three instrument groups which are (1) law and regulations, (2) industry standard and (3) finance and taxation. This research suggests that law enforcement for the new established laws should be further strengthened and stricter supervision systems should be in place to safeguard effective implementation of low carbon policies, measures and standards, especially for those energy condensed sectors. More rigorous industry standards regarding energy efficiency should be considered to help eliminate outdated equipments in industries and promote the introduction of more climate-friendly technologies. The industrial standards should be given strong legal support in accountability, in order to enforce their complete application once in operation. New policies and instruments need to be introduced in order to reduce carbon print by landfill. The backward law and industrial standards in China should be upgraded more regularly, therefore to support the low carbon development strategy.

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1. Introduction

As the world largest manufacturer, China's rapid economic development over the past two decades has caused serious environmental damage. The energy consumption in China in year 2010 was five times more than the consumption in 1980 [1], while the economic reform started in China. The composition of the main energy resources is shown in Fig. 1, where the renewable energy accounts for 8.8% of the total energy production in China in 2011, to which was only 3.8% in 1980 [1]. The energy production in China relies heavily on coal, which has consistently remained over 70% of total energy produced in China since the 1980s.

In response to the United Nations Framework Convention on Climate Change (UNFCCC), the Chinese Government formulated the China's National Climate Change Programme (2007), setting up an overall target of a 20% reduction on energy consumption per unit of GDP, where the principles and key actions were also suggested, as well as policies and measures to address climate change for the period until 2010. Furthermore, the Chinese government announced another target of cutting carbon emission per unit GDP by 40–45% in comparing to 2005 level. China's GDP per capita, however, is still below the world average. As economic development drives the improvement of social condition forward, it remains the prime goal of the Chinese Government. Even although China has become the biggest carbon emitter in the world, its carbon emission per capita are still below the world average [2]. There is a great potential for the overall carbon emission in China to grow in future development.

As many researchers estimated, the downturn of carbon emission is unlikely to happen in China in the short term [3–5]. For example, Wang and Watson [5] projected the carbon emission path of China to 2050 and concluded it is possible to slow down the emission growth and reduce it from 2020. The critical area requiring significant improvement is the energy efficiency of the key industries, such as construction and transportation. Wang et al. raised the concern on the nuclear power policy in China [6].

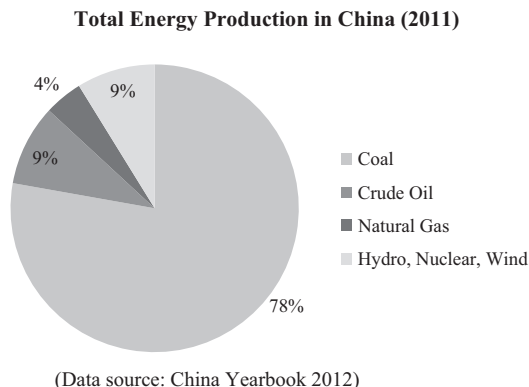


Fig. 1. The energy production in China as in 2011.
 Data source: China Yearbook 2012

Although China faces various challenges on the way towards low-carbon economy, the government established ambitious low-carbon targets showing determination in combating climate change. The Chinese Government paid greater attention to low-carbon development in recent years. In 2011, the State Council issued the Decision on Strengthening Energy Conservation and Carbon Reduction Work Programme in the 12th Five-Year Plan. This work programme specified the main policies regarding low-carbon development in the future, including: (1) strengthening accountability on low-carbon targets, (2) industrial restructuring, (3) implementing energy saving projects, (4) development of circular economy, (5) promoting energy efficient technology, (6) improving financial instruments for low-carbon development, (7) strengthening supervision system, (8) establishing market-oriented mechanism for energy saving and carbon reduction, (9) improving national standards, and (10) mobilising involvement of society. There were a large number of new laws and regulations introduced by the government targeting low-carbon development [7].

The accomplishment of targets, however, requires not only strong determination but also effective policy instruments that can support low-carbon development strategy. This research shed a light on the examination of the development of the policy instruments regarding low-carbon development targets that recently announced by the Chinese government.

2. Studies on low-carbon Policies in China

There are many researches contributing to low-carbon economy, policies and governance at different governmental levels. The issues include innovation towards low carbon economy [8], the transition to low-carbon economy [9], pathway to low-carbon economy [10]. McEvoy et al. evaluate the prospect for increased employment and low-carbon economy [11]. Price et al. provide indicator for low carbon economy on province and city level [12]. There is other research also focused on local level, for example the discussion of low-carbon energy policies at solely the provincial level in China [6]. Wang et al. [13] presented a framework for low-carbon governance in three levels: strategy, methodology and operation. They stated that the legal instrument was a powerful tool for the government to perform good low-carbon governance.

The low-carbon development policies of the Chinese Government also receive interests from researchers. Many research focus on certain aspect of low-carbon energy policies in China, such as energy efficiency policies [14,15], renewable energy policies [16–18], circular economy strategy [16]. Jiang et al. state that the law, statues, management institutions and public education should be enhanced in China for a low-carbon economy [19]. Similarly, Wang et al. suggest the government should strengthen law enforcement, industry standards and education [13].

Some research focused only one aspect of low-carbon policies in China, for example Yuan et al. discuss energy saving issue of energy policies in China [20]. Wang et al. analyse the effectiveness of the new energy conservation regulation in China [21]. Andrews-Speed

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