

# Overall review of renewable energy tariff policy in China: Evolution, implementation, problems and countermeasures<sup>☆</sup>



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## ABSTRACT

The rapid growth of China's economy has accelerated its energy demand, which is becoming more urgent. It is essential to exploit renewable energy because of the limited conventional energy, high energy consumption and serious pollution. China will strengthen the development and utilization of wind, solar, biomass and other renewable energies in the future, which will reduce the level of carbon emissions. However, China's rapid growth in renewable energy, particularly wind, has been accompanied with some growing pains, and there is room for improving the legal framework to address these challenges. A reasonable renewable energy tariff policy has a pivotal role for changing China's current situation. This paper introduced the current development situation of renewable energy, analyzed the evolution and implementation effect of the renewable energy tariff policy and discussed the problems of the renewable energy tariff policy in China. On this basis, this article proposed feasibility tariff policy recommendations to solve the problems, which important theory significance and the practical application value.

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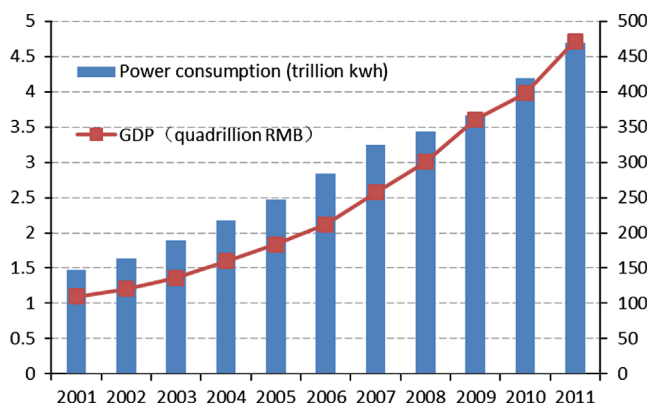
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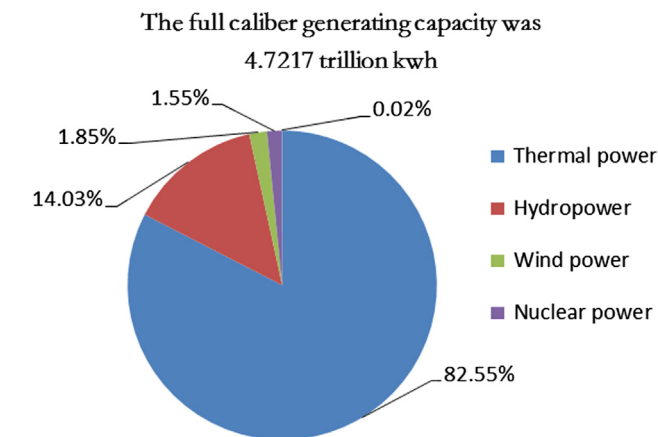
**1. Introduction**

As one of the largest energy consumption countries in the world, China faces the challenge of accommodating the ever-growing energy demands, increased pollution, and rising greenhouse gas emissions [1]. Renewable energy development represents a fundamental part of the strategy for tackling this challenge. The Chinese government has ramped up efforts to achieve commercialization of the renewable energy sector, especially in the wind, solar and biomass industries. It is widely known that coal, oil, natural gas and other fossil energies have played a dominant role in primary energy consumption structure for a long time in China [2] (China's coal consumption was 3.425 billion t, accounting for 68.8% of the total primary energy consumption in 2011). The energy and environment problem becomes serious gradually with the development of the Chinese economy, which means that speeding up

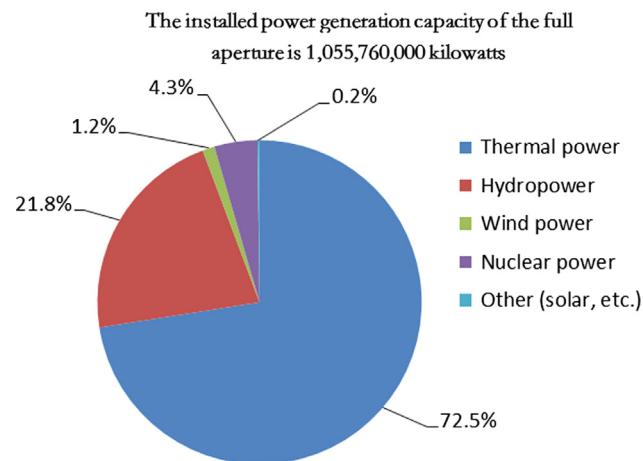
the development and utilization of renewable energy has become the most significant way to deal with these problems. China's renewable energy reserves are abundant, but the utilization rate is still low compared to the total reserves [3]. Against this background, the concept and objectives of developing renewable energy and achieving green growth have been incorporated in the "12th Five-Year Plan", which focus on the development of wind power, hydropower, solar, biomass and other renewable energy sources [4]. Currently, due to the restriction of technical, cost and other factors, renewable energy generation development is still relatively slow in China. Therefore, various supporting policies are needed with the purpose of achieving the goal of developing renewable energy, such as tariff policy, fiscal policy and the quota policy, etc. [5]. The tariff policy, which plays an important role in promoting the development and utilization of renewable energy,



**Fig. 1.** China GDP and electricity consumption from 2001 to 2011 .  
 Statistics Source: China Statistical Yearbook, China Electric Power Yearbook.



**Fig. 3.** Proportion of the energy structure of the generating capacity of China's full caliber in 2011 .  
 Source: Data from CEC (China Electricity Council).



**Fig. 2.** Proportion of the energy structure of power generation capacity of full caliber in 2011 .  
 Source: Data from CEC (China Electricity Council).

**Table 1**  
 Key indicators for the development and use of renewable energy during the "12th Five-Year Plan".  
 Source: "Renewable Energy in 12th Five-Year Plan".

Content	Exploit scale quantity (million kW)	Annual output of energy (billion kW)	Standard coal (million t/yr)
Generation	394	1203	390
Hydropower (excluding pumped storage)	260	910	295.8
Wind power into the grid	100	190	61.8
Solar power	21	25	8.1
Biomass power	13	78	24.3
Agriculture and forestry biomass power generation	8	48	15.0
Biogas power generation	2	12	37.0
Garbage power generation	3	18	5.6

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