

**ACCELERATING SUSTAINABILITY BY
HYDROPOWER DEVELOPMENT
IN CHINA**

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Executive Summary

1. In 2016, electrical energy made up 23% of China's total final consumption, surpassing world average. End-uses of energy consumption are expected to climb in the next few decades while primary energy consumption will decrease.
2. Since the 1990s, hydropower has provided about 20% of the world's total electricity supply. Its share dropped to 16.4% in 2015 due to the diversification of renewable sources, rapidly declining costs of clean energy technologies, shale gas revolution in the United States and mass production of natural gas.
3. With a total capacity of 341 GW, China is now the largest generator of hydropower in the world, albeit at only 19% of its total power generation.
4. The 12th Five-Year Plan projected an average annual growth rate of 5.7% in hydropower development between 2010 and 2015, but actual growth rate, reached 8.1%. Now, China envisions a steady hydropower growth of 3.5% until 2020, according to its 13th Five-Year Plan.
5. Providing affordable, reliable, clean and renewable hydroelectricity for a gigantic economy has also reduced coal-fired electricity and CO₂ emissions. Given the size of China's economy, this progress is essential to the world.
6. Overall energy consumption continues to decrease in China. Energy consumption grew by only 6.6% in 2017 because of a slowdown in the economy and the restructuring and improvement in energy efficiency and reliability.
7. Hydropower facilitates overall energy framework adjustment and regional coordination. The new energy framework prioritises hydropower to facilitate the generation of cleaner coal-fired power with improved efficiency and to substitute previous extensive power generation with greener alternatives.

8. Hydropower has also mitigated regional disparities in economic development and resource endowment in China's overall strategic development.
9. The power system reform in 2002 was considered a fundamental change of China's energy industrial framework by separating government administration from enterprise operation.
10. That power grids constitute a natural monopoly and power generation an oligopoly is commonly acknowledged. However, a natural monopoly in an economic sense is different from administrative control of the monopoly.
11. A distorted pricing system is an obvious problem. Both the feed-in tariff and the final sale tariff are set by the government which result in a high ratio between assets and liabilities for generation companies.
12. The incomplete power system reform left an uncoordinated development between grid and power generator. After intensive investment and the promotion of the construction of power generation infrastructure, the lagging power grid reform has become a bottleneck in power system development.