



Challenges and countermeasures of China's energy security

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HIGHLIGHTS

- ▶ Conception of energy security and energy policy in China's grand strategy are expatiated.
- ▶ Challenges China is facing are analyzed from 4 aspects.
- ▶ New strategic thoughts of China including 6 capability enhancements are raised.
- ▶ Major tasks of safeguarding energy security contain 3 measures of improvement.

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ABSTRACT

China is now a major consumer and importer of energy, and its choices and policies will increasingly affect the rest of the world. This paper analyses the key features of China's energy policy as it faces the prospect of possible challenges to its energy security given the increasing reliance on fuel imports and the need to transform its energy to meet the requirements of a modern, fast-growing economy. The paper examines whether the current energy mix is appropriate and sustainable, and considers the China's policymakers new emphasis on energy efficiency, conservation, renewable energy and the shift to natural gas the primary energy source. It examines the internal and external constraints on China's energy policy and considers the strategic dilemmas arising from China's increasing involvement in international energy markets. It concludes that both the domestic and international implications of China's search for energy security will confront policymakers with hard choices that will affect not only energy policy, but also China's geopolitical grand strategy.

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1. Introduction

Energy is an important physical base of economic development, social progress and the construction of modern civilization. And it is also a strategic material and major element of a country's security, which links national and foreign security policies. Energy is becoming more and more important along with competition of world energy market and rising concerns about energy security.

Energy security is a systemic issue involving engineering, politics, economics, energy, environment, diplomacy and military affairs (Wu and Li, 1995; Price et al., 2011; Zhang et al., 2010; Philip, 2009; Fan et al., 2011; Zhao and Ortolano, 2010; Li, 2011; Bambawale and Sovacool, 2011; Wu et al., 2011). The concept of energy security has become commonplace in political and academic discourse as one of the principal issues on any country's national agenda. It is commonly defined in terms of three key

factors: reliability, affordability and environmental sustainability. Reliability means that energy supply in the quantity and form is secure. Affordability means that energy is available at a price that can sustain and promote economic growth (Shaffer, 2009). The International Energy Agency also distinguishes between short-term and long-term energy security. In the short-term, states may be vulnerable to sudden changes in supply and demands. In the longer term, security of supply will depend on economic developments and environmental needs, given the fact that ultimately non-renewable energy resources are finite.

The existence of a global market in oil and any country with sufficient financial resources is able to provide for all its energy needs at a globally determined price. Since China is the world's largest producer of coal and can almost meet its entire demand from national resources, access to coal is not an issue in the medium term. With the increased emphasis on gas as a source of energy for domestic and industrial needs, there are supply issues given the persistence of major price differences between world regions and transport infrastructure (pipelines and LNG terminals) are an important factor.

Thus the question arises to what extent this definition of the term "energy security" is meaningful. The case of China is interesting in

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this regard, as China was able to rely on domestic energy sources and has only recently become dependent on the large-scale import of oil and other forms of energy. Energy is a key factor in the rapid economic development of the country. Given the extensive control the state exercises over the economy, the management of energy resources is crucial and requires China's government to play a much more intrusive and pro-active role in this process than is the case in other major economies. According to the literature, the United States does not appear to have a consistent energy policy—this is something the Chinese government could not afford as it needs to ensure not only the supply of energy, but also control the precise mix of different forms of energy for different sectors of the economy. The Chinese government is planning to diversify internal energy production and as well as imports, with a particular emphasis to increase the output of natural gas and the facilities that enable the importation of LNG and nuclear energy (Asif and Muneer, 2007). China has made remarkable progresses in key technologies of coal gasification, direct and indirect coal liquefaction, and the development of the coal polygeneration energy system (Nolan et al., 2004; Rong and Victor, 2011). In the early 21st century, the coal chemical industry in China will be oriented to the development of high efficiency, safety, cleanliness, and optimum utilization, which will alleviate environmental pollution caused by coal combustion as well as reduce the dependence on oil imports (Xie et al., 2010). At the same time, the prospects for China to increase domestic oil and gas production is limited, and even the extraction of coal is becoming more expensive. As China's GDP per head is still very low by global standards, it is clear that economic activity and therefore energy consumption is set to increase very substantially in the medium term. Consequently, as we have discussed, the volume of oil and gas that China will need to import is going rise. In order to meet future needs, China will need to increase China's dependence on the energy trade.

The relation between energy and national security is subtle but significant. Christie et al. (2010, p.66) emphasized that “energy security is national security” and identified crude oil as a strategic commodity that is “indispensable for core functions of modern economic systems (and national defence)” and cannot be substituted in the short or medium term. In particular, oil remains indispensable to the transport sector (Korin and Woolsey, 2008). Any state therefore has to identify the main risks to its oil supplies and assess realistically the likelihood of the occurrence of events that can interfere with the uninterrupted supply of oil at acceptable prices. The extent to which such risks can be reduced depends on their nature and the means required to address them. The assessment of such risks depends on a range of variables such as the oil import dependence ratio, the oil intensity of the economy as well as the total level of imports, the security and diversity of transit routes, the diversity of sources of supply, the risks to supplier countries and the risks of natural disasters (Christie et al., 2010, p.67).

Although China does not face any direct challenge to its supply of energy, its increasing dependence on imports has strategic consequences since it requires increasingly deeper integration into global financial and energy markets while at the same time raising geopolitical issues in relation to China's role in the region as well as its relations to other major powers such as Russia, Europe and the United States. The United States control and protects international shipping lanes that are needed for oil transport, while Russia perceives itself to be the hegemon in Eurasia who controls its energy resources. Moreover, the strategic conflict between the United States and Iran and the problems affecting other regions where China is investing to diversify supply means that energy security becomes connected to broader issues in China's foreign policy and what is traditionally understood as national security. There are also domestic political issues as the legitimacy of the Chinese government is wholly dependent

on its ability to deliver uninterrupted economic growth, which in turn is contingent on energy security as defined above. Finally, there are the long-term issues raised by environmental sustainability and global energy reserves.

This paper is concerned with an analysis of China's energy policy, how China has prioritized security of supply and how it has managed the multiple challenges that it has faced. It considers the causes of the recent shift towards energy efficiency and conservation and looks both at the domestic and geopolitical dimensions of China's energy policy with a particular focus on the implications of China's requirements for oil imports in terms of their long-term material and political sustainability. The paper will argue that while China will continue to be able to access global oil markets, it will real choices in terms of constraints on its foreign and security policy.

2. Energy policy in China's grand strategy

The internationalisation of China's energy policy and in particular the inexorable rise in the volume of oil imports has far-reaching strategic consequences for China. On one level, the integration with the global economy that is a prerequisite for a policy by an autonomous government of economic development focussed on the creation of export industries is in line with this approach to energy security. As Andrews-Speed and Dannreuther (2011, p.103) have pointed out: “In terms of its economic structures an energy dependence, China's interests lie logically more with other large oil-importing states, such as the United States, Japan and EU, than with oil-producing states”. Moreover, there has been an understanding in the United States and China that energy policy is potentially a very significant vector of cooperation between the two major powers. Reliance on large-scale energy imports is a common factor in the foreign economic policies of the two largest economies in the world which have developed a remarkable degree of interdependence due to the large holdings by China of US external debt and the significance of the United States as an export market for China's industry. If diversity of supply is an indispensable element of energy security, the challenge for China lies in combining diversification of imports with the minimization of risk that arises from the geopolitics of oil resources and supply routes. The Chinese government itself has emphasized that, in the words of Premier Wen Jiabao at the 2006 Euro-Asian Summit, “geopolitical disputes should not stand in the way of global energy supply and energy issues should not be politicized”. (Speech at the Sixth ASEM Meeting, Helsinki, 10–11 September 2006) Nevertheless, strategic relations with the United States and the geopolitics of the region affect China's foreign policy choices that potentially impact on energy import policy and vice-versa. In the United States, there were two competing narratives at the beginning of the new century in relation to the rise of China as a major economic and political power. The one that dominated thinking in the early Bush administration saw China as a rising competitor whose interests would inevitably clash with those of the United States. This perspective was articulated by proponents of neo-realism like Mearsheimer (2001, p. 402) who believed that China would challenge the United States with regard to its position in the international system as it became a world economic and military power. The manifestation of China's challenges to US hegemony were the efforts to depict the world as multipolar rather than unipolar, the development of a Sino-Russian axis by way of the Shanghai Cooperation Organisation, a security organisation in Eurasia that explicitly excluded the United States, and the challenge to the US position in North East Asia with regard to Taiwan, North Korea accompanied by a substantial effort to

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