What does America's energy revolution mean for China?

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Recent development in the USA of technologies for extracting oil and natural gas from shale formations are changing the global energy landscape. Thanks to hydraulic fracturing or fracking, US oil production has grown from 5.1 million barrels a day in 2006 to 8 million in 2013 and US oil imports have dropped to their lowest level in 20 years. According to the International Energy Agency the USA will become the world's number one oil producing country by 2015. In natural gas, US performance has been no less impressive. Natural gas production rose 50 per cent between 2005 and 2013, and the USA is about to assume an important role in the global market for liquefied natural gas (LNG).

'THIS SO-CALLED ENERGY REVOLUTION HAS BEEN RECEIVED IN CHINA WITH PERPLEXITY AND TREPIDATION.'

This so-called energy revolution has been received in China with perplexity and trepidation. Many Chinese officials believe that US self-sufficiency in energy, should it come to pass, would weaken US interest in the Persian Gulf, leading to a military and diplomatic withdrawal from the region. They worry that this could, in turn, compromise China's energy security, exposing it to supply disruptions due to the region's chronic instability and forcing it to assume responsibility over the security of the Persian Gulf. Some even fear that if the USA doesn't import oil from the Persian Gulf it would have, in the words of one Chinese analyst:

> … greater flexibility to create problems in the Middle East, in order to prevent the rise of emerging countries.

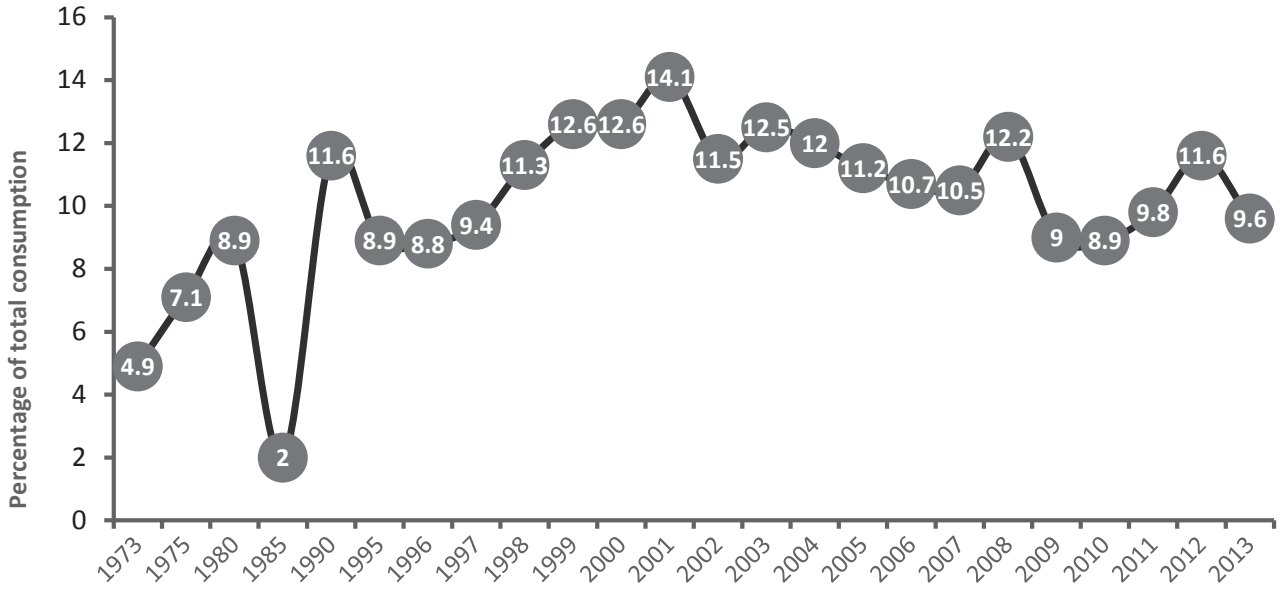
Others see the US energy transition as a development which threatens to de-industrialize China. According to this view, cheap energy supplies in the USA will lure industrial production from the Chinese mainland to US territory, giving American products a comparative advantage. While such concerns may be understandable, most of them are overstated. China does not need to fear the new energy architecture; reduced US imports of Persian Gulf oil are not likely to reduce its commitment to the region, and the energy revolution will benefit – rather than hurt – China in more than one way. In fact, China may be the country which could benefit from it the most.

The myth of US dependence on Middle East oil imports

To the degree that the USA is to reduce its military and diplomatic involvement in the Middle East, the changes in its energy mix will not be the trigger for such a development. It is time to put to rest the myth that US presence in the Persian Gulf is tied to its dependence on imports of the region's oil. It isn't. In fact, it never has been. Today only nine per cent of US oil demand is met by imports from the Middle East. Indeed, imports from the Middle East have never exceeded 14 per cent of US demand. Most US oil imports originate from the western hemisphere: Canada, Mexico, and Venezuela. Mexico's recent historic energy reform is likely to increase the flow of Mexican oil to the USA and hence decrease even further US dependence on Persian Gulf crude imports.

While the USA is not dependent on the Persian Gulf for the physical supply of oil, it is dependent on the region for price stability. Oil is a global commodity with a more or less global price so when oil prices spike, the USA is impacted regardless of how much of its crude comes from the Persian Gulf. For example, in 2011 the war in Libya caused oil prices to US consumers to spike by $25 per barrel despite the fact that the USA imported no oil from Libya. Therefore, even if the USA miraculously became self-sufficient in oil, it would not be shielded from the world market – other countries that used to be self-sufficient at one point or another (Canada, the United Kingdom, and Norway) have seen no shielding effect.

On the other side of the equation the US economy is highly susceptible to spikes in oil prices. Over the past 40 years every major hike in oil prices was followed by a recession. What the USA cares about is not the origin of its oil but its price. And the global price of oil is largely affected by the political events in the Middle East. Therefore, as long as oil enjoys a virtual monopoly over the global transportation sector – the very sector that underlies the US economy – it is difficult to see how the USA could afford to withdraw from the Middle East and leave the world's largest pool of oil in the hands of unstable regimes, even if its imports from the region dropped to zero.
A more likely scenario is that the North American energy boomlet will be a shot in the arm to the US economy and the harbinger of an industrial renaissance and increased prosperity relative to other parts of the industrialized world. Such an economic upturn is likely to negate the need for cuts in military budgets and make it easier for US leaders to marshal the financial resources and public support needed to address global problems, including the security of the Middle East.



Oil imports from the Persian Gulf 1973–2013 as percentage of overall US consumption

Source: US Department of Energy/IAGS

Benefits to China

To be sure, cheap natural gas will revive the USA's industrial sector, particularly natural gas-intensive industries, creating new jobs and investment opportunities. Some global manufacturers have already announced their plans to set up plants in the USA, to take advantage of its cheap energy. But this is actually good news for China. Because the US and Chinese economies are deeply intertwined and because so much of China's GDP depends on US imports, a more prosperous USA means more buying power and a bigger market for Chinese goods, hence continuous growth for China.

Furthermore, since the USA is unable to utilize all of its domestic energy, it will now be able to increase energy exports to Asia. As the US electricity sector shifts from coal to natural gas, more coal will be available for export. In the past ten years US coal exports have more than tripled, and much more of this surplus of high-grade coal could be used in China, where coal demand will continue to increase at least until 2025.

The USA will also export natural gas. Last November the US Department of Energy approved the fifth LNG export terminal, enabling exports of US natural gas to Asia. Initially this gas will be directed to South Korea, India, Singapore, and Japan but one cannot rule out the possibility that some of the gas will eventually land in China (where natural gas demand could double by the end of the decade), either through direct sale or as part of a re-export arrangement. Even if no US gas reaches China, the inflow of North American gas to Asia could have a tempering effect on LNG prices, especially if Japan restarts its fleet of nuclear power plants.

US LNG exports will also improve China's price negotiation position vis-à-vis Russia, the world's number one gas exporter. The shale gas revolution will ultimately reduce Russia's share in the European natural gas market and force Russia to divert a growing portion of its gas to Asia at a competitive price. Similarly, while increased US oil production is unlikely to lower the real global price of oil – due to the budgetary imperative of OPEC to ensure oil prices stay high – it does mean fewer barrels will have to migrate to the USA, increasing the availability of African and Middle Eastern oil to the Chinese market and reducing the risk of tension between Washington and Beijing over access to energy. In short, China will be able to enjoy more coal, gas, and oil, all necessary to its economic growth, as a result of America's energy boom.

Additionally, US energy exports are likely to boost the US dollar and hence put downward pressure on dollar-denominated oil prices while making China's exports of manufactured goods more competitive. China is the biggest foreign owner of US debt, owning $1.3 trillion in US treasury bills, notes, and bonds. A stronger dollar means increased value of China's US debt holding.

Exporting America's shale gas revolution to China

Being the owner of the world's largest reserves of shale gas, China should

also recognize that it could benefit from US exports of fracking technology more than any other country. The US Energy Information Administration estimates that China has total reserves of 1,275 trillion cubic feet of shale gas, almost 50 per cent more than the 862 trillion cubic feet in the USA. And while there are many question marks about the economics and environmental attributes of China's shale gas this resource, if unlocked, has the potential to transform China's energy landscape.

'SWITCHING THE ELECTRICITY SECTOR FROM COAL TO CLEANER FUELS LIKE NATURAL GAS IS BECOMING A HIGH PRIORITY FOR THE REGIME …'

The twenty-first century is dubbed by many as the natural gas century. But China's natural gas sector has a lot of catching up to do. The industrialized world's average for the share of natural gas in a country's total energy portfolio is 24 per cent. In China it is less than five per cent. Along with nuclear power and renewables, natural gas is critical to strengthening China's energy security and reducing its hazardous air pollution. China is facing an all-engulfing environmental crisis today. Bouts of toxic smog lead to frequent city-wide shutdowns in China's main population centres. In 2013, life in Shanghai, Harbin, Beijing, Nanjing, and other mega-cities came to a halt due to haze, and the frequency of such disruptions is on the rise. The public pressure on the ruling Communist regime to address the problem is mounting, and if the situation is not addressed this could turn into an existential threat to the regime. Switching the electricity sector from coal to cleaner fuels like natural gas is becoming a high priority for the regime, and the development of shale gas is a key in its effort to address the pollution challenge.

Natural gas can also alleviate China's growing dependence on oil, another major source of urban pollution. It can be used directly as an automotive fuel in the form of compressed natural gas (CNG) or LNG; it can be used to generate electricity, which can power electric vehicles; and it can be converted to the alcohol methanol – a high octane liquid fuel that can be blended with gasoline and is already widely used in several provinces in China. China's methanol is currently made from coal, but natural gas is a cheaper and cleaner feedstock for methanol production. Should China succeed in developing its shale gas resource, methanol, as well as all of the aforementioned natural gas-derived fuels, will be able to compete against petroleum over a growing portion of the transportation fuel market.

'THE AMERICAN SHALE REVOLUTION IS ANOTHER TESTIMONY TO THE ABILITY OF ENERGY INNOVATION TO ENLARGE THE WORLD'S ENERGY PIE.'

The USA would welcome China's shift to gas, both in the transportation sector and in power generation. In 2009 China and the USA launched the USA–China Shale Gas Resource Initiative, a joint effort to enhance investment and technical cooperation aimed at accelerating shale gas development in China. Major US energy companies, such as Chevron and Conoco Phillips, have signed joint ventures with Chinese energy companies, which have been investing substantially into American shale gas leaders such as Devon Energy and Chesapeake Energy to gain technical knowhow. In October 2013 the United States Energy Security Council, America's highest level extra governmental energy security advisory committee, recommended that the USA–China collaboration on shale gas be further expanded to include the development of new fracking techniques, safety standards, and environmental best practices. (See: www.iags.org/fuelchoices.pdf.)

The Council also proposed the formation of a USA–China–Brazil Alcohol Fuel Alliance aimed at advancing cooperation among all alcohol fuel producing and consuming countries in all matters related to alcohol fuel blending. Such an alliance could focus on opening transportation fuel markets around the world to natural gas-derived alcohol fuels and on opening vehicles to their use. The success of such an effort could have a positive impact not only on USA–China relations but also globally. Roughly 40 per cent of the world's vehicles are manufactured in the USA and China. Thus, if the ability to blend alcohol becomes a standard feature in vehicles sold in these two markets, there is likely to be a spillover effect to the rest of the world.

The American shale revolution is another testimony to the ability of energy innovation to enlarge the world's energy pie. Energy is not a zero-sum game, as many tend to believe, but an area in which technology sharing and multinational cooperation can strengthen energy security for all. As China continues to grow and is facing difficult tradeoffs between economic development and environmental quality, US innovation in shale technology offers it a pathway to a bright energy future. It is now up to China to embrace this development, build on it, and view shale gas for what it really is: an opportunity, not a threat.