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# Energy for China

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presented at the "Behind the Gas Pump" Conference

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## Michael J. Economides and Xiuli Wang - Energy for China

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What it is abundantly clear is that China will be a hotbed of energy work over the next twenty years and the volume of new activities will far surpass that of any other nation, including the United States. The US energy industry stands to gain greatly in technology sales and services. Simultaneously, foreign policy ventures or adventures by the US government cannot ignore the Chinese interests. Nothing is more likely to cause future global friction than actions by the current lone superpower affecting the energy future of the superpower-in-the-making.

In an almost ironic reversal of recent history, Russia, with its newly found status as a major exporter of oil and a balancing act for OPEC, may actually benefit from Middle East strife and the certain increase in oil prices, public posture notwithstanding. China is truly worried.

China, on the other hand, is today the third oil consuming nation in the world, using about 5 million barrels per day, has already surpassed Russia and is poised to repeat this with Japan within three years. The country has experienced an explosive growth in oil consumption in the last decade at over 110%, almost all growth met by imports, much from the Middle East. This creates a significant geopolitical role and vulnerability for China.

Rarely has the world witnessed the breathtaking economic developments currently ongoing in China, emerging as a world-class economy. The decade-long stagnation of Japan is contrasted by positively booming China. Dampening China's prospects is the almost assured energy crunch the nation will experience, because of the intimate connection between any further growth and energy consumption increase. Aggravating the situation is that China lacks domestic resources of the magnitude and type that will be needed; hence the country's serious vulnerability, as the US Middle East posture is shaping.

The United States, with an adjusted per capita income of \$34,000 uses 355 million british thermal units (MMBTU) per capita. China by comparison, with a percapita income of about \$4,000 uses approximately 25 MMBTU per capita.

The total Chinese energy consumption is 40 quadrillion BTU per annum. This translates to about 6,500 BTU per dollar of GDP, significantly below the current level of developed nations. Even more significant is the fraction of energy provided by coal (about 75%), far less refined, dirtier and inefficient compared to oil and certainly natural gas. Such share by coal has not been experienced in developed countries for a century.

Almost all future oil consumption increase in China will have to be imported or will have to be produced from frontier areas such as deep-water offshore oil fields. The Bohai Sea prospects although quite attractive do not appear to be able to provide the volumes of petroleum (oil and gas) the country will need.

Frantic activity there has spawned a new breed of entrepreneurs, not expected to be found in China only a few years ago. A prime example is Xu Xuezhong, a George Mitchell type who is transforming his island, Changxing, into a Galveston of the Bohai Bay.

The two largest onshore oil producing areas at Daqing and Liaohe will likely experience production decline soon and that worries the Chinese enormously.

Future oil imports will feature Russia prominently, a far more stable source for China.

It is natural gas, though, that will likely dominate China's future not only as a provider of new energy but also as a facilitator in a massive technological transformation currently well on its way in the United States and Europe. Natural gas will be the dominant fuel of choice in the foreseeable future of the world economy. For China, natural gas, with far more diverse sources will also soften the dire straights the country finds itself with precarious oil sources.

Currently at a meager 2% of China's energy mix, natural gas will have to pick up pace dramatically when compared with a worldwide market share of about 23%. The recently announced West-to-East massive pipelines with participation by ExxonMobil, BP and Shell, will establish Xinjiang Province as a domestic superpower in energy.

Even so, China will need far more gas that can possibly be produced domestically. A gas pipeline from the Irkutsk area of Siberia is compelling. However, imports in the form of liquid natural gas (LNG) and a recent variant, compressed natural gas (CNG) are the obvious means to meet the nation's future needs. A few months ago, the Chinese National Offshore Oil Company, CNOOC, announced a very large LNG project to receive Australian natural gas.

China's energy future is likely to emerge as the most serious geopolitical and economic event of the decade.