

# China's Energy Insecurity in the Context of Growing Geopolitical Competition: Implications for Future EU-China Relations

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## 1. Introduction

In recent years, China has replaced the United States as the centre of the world's raw materials' market and as a price setter for these industrial raw materials.<sup>1</sup> In 2008, it is expected to surpass even Germany as the largest exporter of goods in the world. Since 2000, China has accounted for 40% of the world's crude oil demand. In 2003, it displaced Japan as the world's second largest energy consumer and oil importer after the U.S, and surpassed Tokyo as the third largest exporter (after the U.S. and Germany). As a consequence of its hunger for energy and industrial raw materials, China has become ever more dependent on imports from distant, often politically unstable parts of the world. It has been forced to pursue a much more pro-active course in its foreign and security policies both on the regional as well as global level – reflecting China's self-perception of its energy insecurity. In the last 15 years, the economic rise of Asia, and above all China, has created an enormous regional and global energy demand that raises not only important economic issues, but also countless foreign and security policy issues for both regional and global stability.<sup>2</sup> Although growing trade will strengthen the mutual dependence among exporting and importing countries, it will also increase political risks that wells or pipelines could be closed or tankers blocked by piracy or terrorist attacks. Rapid worldwide growth in natural gas consumption and trade will foster similar concerns, as the IEA warned in 2004.<sup>3</sup> Furthermore, state-owned companies now control far more oil (around 85%) and gas reserves (70-80%) than do the traditional private energy companies, once known as the "seven sisters". Many of

these state-owned companies such as those in Russia and Venezuela are not merely following the policies of market forces, but have recently found that the new global energy environment of a "sellers' market" permits them to buy their way to political power in order to influence politics such as foreign policy objectives. The emergence of PR China as the world's leading consumer (overtaking the U.S. in 2004) and one of the largest importers of oil and gas as well as of many industrial raw materials was overlooked in Germany and many other EU member states until 2004. At the same time, global oil demand grew at the fastest rate in over 25 years. Like many other Asian countries (with the exceptions of South Korea, Japan, Singapore and Hong Kong), China has long subsidized energy consumption. The result has been an increasing inefficiency: China consumes up to five times as much energy to produce each dollar of economic output, according to the Asian Development Bank.<sup>4</sup> While China's energy policy seems to be based on a strategic approach which focuses on guaranteeing an increase in energy imports for its social economic stability and at the same time its supply security, it has neglected energy conservation, economic efficiency factors and the environmental costs of its past and present policies. At the same time, China has experienced an acute shortage of energy since 2003 which severely disrupted its industrial output and electricity supply.

Beijing's import dependencies on energy and raw materials have numerous consequences for, and impacts on, its present and future foreign, security and defence policies as its policies regarding the Iranian nuclear question have demonstrated during

the last months. The EU, China, India and other great powers may compete for the same energy resources in the Middle East, Russia and Central Asia. In this regard, whether they follow a "market strategy" or a "strategic approach" may ultimately answer the question whether they are able to cooperate for regional and global energy security or whether they will increasingly compete. As a Chinese expert admitted in 2006: "China must now view energy security in terms of economic threats and market solutions rather than military threats and diplomatic responses".<sup>5</sup>

The objective of this presentation is to analyse the global energy developments and challenges, the increasing importance of the EU's and Asia's supply security, the energy demand of China, as well as the role of energy efficiency and energy conservation for enhancing regional and global energy security. On this basis, the presentation also seeks to analyse the potential for bilateral and interregional cooperation in improving energy and supply security in China.

## **2. Market strategy or strategic approach for maintaining global energy stability? The growing importance of geopolitical factors**

Strategies to enhance energy security fall into one of the two distinct categories of "strategic approach" (or "geopolitical approach") and "market strategy". The first strategy describes primarily state-sponsored economic measures with political initiatives, whereas the latter relies on the national and international energy markets that seek to reduce the risk of disruption by improving the efficiency of these markets, and includes government interventions.<sup>6</sup>

Basically, there are three sources of threats to the security of energy supply: economic, physical and environmental. They can also

be divided into global and local energy security challenges. Any disruptions to energy supply, whether actual or threatened, can have dramatic effects on society and the economy, as we have seen during recent years in California, New York, France and Italy. Historically, we have witnessed three major disruptions during the last decades: during the 1973 Arab-Israeli war, the Iran-Iraq war between 1980-1988 (first Gulf War) and the international war against Iraq after Saddam Hussein invaded Kuwait in 1990-1991. They were all associated with an increase in consumer prices, a rise in unemployment rates and a decline in gross national product. But these supply disruptions had only short-term negative effects.

However, during the last decade the principles of subsidiarity and liberalization as well as deregulation have given the EU member states more responsibilities for governing their own energy stocks, reserve planning and crisis mechanisms in the event of a disruption to supplies. The political instability in the Middle East and Persian Gulf had persuaded many energy consuming nations to diversify their oil resources since the mid-1970s. Thanks to the more developed financial markets and the more secure investment environment in Norway and the United Kingdom, investors have expanded their oil and gas production in the North Sea and profited from attractive fiscal terms. Moreover, the increasingly widespread use of three-dimensional seismic imaging, horizontal drilling, and subsea well system technology have all helped to expand domestic oil and gas production and to reduce development and refining costs as well.

Although the world is not confronted with an overall shortage of energy resources (the oil age will last for at least another 40 years), geopolitical factors nonetheless can constrain their availability. If political factors such as crises and conflicts were to block the development of promising new

oil fields in the Middle East, the ramifications for world oil markets could be quite severe unless measures are taken immediately to diversify to other energy fields. Iran's presumed nuclear ambitions are just one indicator of the geopolitical risks of the increasing fossil energy dependence of China on Teheran and the region. China's quest for energy security, conducted through an aggressive "bilateral energy foreign policy and diplomacy", has attracted worldwide attention and has caused fears of increasing worldwide resource rivalry and even conflicts with states such as Japan and the United States if China continues to pursue energy deals with "states of concern" such as Iran and Sudan. Even in Europe and Germany, calls for a united common EU energy foreign policy have increased as a result of the recent Russian-Ukrainian energy crisis and China's Iran and Africa policies.<sup>7</sup>

Hence, regional stability and security are preconditions to ensure access to and the free flow of energy resources. Furthermore, the formerly clear dividing line between foreign, domestic and economic policies is increasingly blurring in the age of globalization. Against this background, new crisis management mechanisms need to be developed in response to these liberalization processes that give companies and regulators more responsibilities which are still not clearly defined. It is also important to analyse the changing structures, patterns and relationships in the field of energy such as changes in the future geographic location of global refinery capacity which will continue to be based in the same highly unstable countries of the Middle East and the Asia-Pacific region.

In contrast to popular opinion in the West, however, it is not only China's energy requirement that has increased. At present Asia, with its four leading economies Japan, China, South Korea and India, already imports more than 60% of its oil, and this could rise to almost 90% by 2020. This is

accompanied by a corresponding increase in Asian vulnerability to any interruption of oil supply resulting from regional conflicts and internal instabilities in the Persian Gulf.

### **2.1 China's energy demands and their implications for its "peaceful rise" and environmental sustainability**

"While the Chinese government has focused most of its attention on strategic measures, such as raising domestic production and investing in overseas sources of energy, far less effort has been directed to liberalising the internal energy markets and to initiating demand-side measures, such as coherent transport policy. Strategic measures need to be balanced by market-oriented policies which integrate China into international energy markets and ensure a more complete and less expensive energy security policy. It is this need for a more balanced policy which is the main challenge facing Chinese policy makers which, in turn, requires a shift in strategic culture where energy security is seen as much in terms of market mechanisms as state-sponsored."<sup>8</sup>

The energy demands of the People's Republic of China as the world's most populous country will have a long-term influence on regional and global energy supplies as well as manifold effects upon Beijing's foreign and security policy, regional stability in Northeast, South and Central Asia and Beijing's relations with the U.S.A. and Europe. Energy security has always been a very sensitive subject in China, where self-sufficiency was a mantra during Mao Zhedong's rule. Even today, the Chinese government regards the rising energy imports as a "strategically vulnerable resource":<sup>9</sup>

"After all, with a widening gap between domestic supply and demand, energy is being recognized as a core national interest

among China's national security apparatus. As such, energy security is not only economically vital, but also has political, diplomatic and military implications. The legitimacy of the Chinese Communist Party is largely based on rapid and sustained economic growth. That is why China's top leaders have been paying full attention to this issue and becoming actively involved in energy diplomacy toward Russia and states in the Middle East, Central Asia, West Africa and even Latin America."<sup>10</sup>

Although the three largest Chinese oil and gas firms – Sinopec, CNPC, and CNOOC – all successfully carried out initial public bids of stock between 2000 and 2002, they all involved only minority stakes and did not give the foreign investors a major voice in corporate governance such as seats on their boards of directors. The Chinese government still holds majority stakes in all three major energy companies. Although China's increasing access to Africa's oil and gas resources is not always the result of highly-coordinated government strategies to ensure China's energy security,<sup>11</sup> Beijing's energy foreign policies have been perceived as undermining U.S. and European foreign and development policies to promote good governance, human rights and democratic political systems as well as Western hopes of China becoming a "responsible stakeholder" in global order and governance.

With its 1,3 billion population, China is already the world's second largest consumer of primary energy, the third largest energy producer and after the U.S. the largest contributor to global carbon dioxide (CO<sub>2</sub>) emissions. It accounts for more than 10% of the global primary energy demand. For instance, according to official Chinese forecasts in 2005, China's demand for crude oil in 2006 was expected to grow by around 6% to 328 million tonnes (6,56 mb/d). At present, it depends on imports for around 46% of its oil consumption, and

that may rise to 84% by 2030 according to the forecasts of the IEA.<sup>12</sup>

In recent years, China has become the world's second largest consumer of primary energy. Already a key player in world energy markets and with one of the fastest growing economies in the world, the anticipated annual economic growth of around 4,8% will boost China's energy demand, though on a lower scale of around 2,7%. As a consequence of the avid demands of its transport sector, China's oil demand will rise to 40% by 2030. With a projected 3% annual increase in primary oil demand, China's oil consumption of 5 mb/d in 2001 may more than double by 2025 to 12,8-14,2 mb/d, with net imports of 9,4 mb/d.<sup>13</sup> According to IEA projections, net oil imports will rise from 1,7 mb/d in 2001 to 4,2 mb/d in 2010, around 8 mb/d and 9,8 mb/d in 2030<sup>14</sup> – which is almost equivalent to those of the United States in 2000 and more than the present total crude oil production of Saudi Arabia as the largest oil producer in the world in recent years, as well as more than the projected net imports of Japan, South Korea, Australia and New Zealand combined.

Since 1990, China has been a net importer of energy, in November 1993 it also became a net importer of oil products and in 1996 of crude oil. Those imports of oil and refined products are growing fast, whilst its crude oil reserves are limited (2,43% globally; Asia-Pacific in total just 5% of global oil deposits). China's current and future energy situation is defined by the following structural problems and challenges:

- a rapid increase in energy consumption in the next decades;
- small oil and gas deposits in China and in the immediate geographic vicinity, resulting in a huge import requirement for these two fossil fuels, especially from the Persian Gulf. This in turn has numerous foreign and security policy

- implications for China and the international community;
- simultaneous increase of the energy demand of almost all other East, Southeast and South Asian states, which could lead to energy and political rivalry – in particular with Japan, India and the U.S.A. – over access to the few regional oil and gas resources in the South China Sea and those not only in the Persian Gulf and in Central Asia but also in Africa and Latin America;
- due to its disastrous environmental impact on the population, on nature and the economy, China's heavy dependency on coal will have to be reduced in the future;
- the need for a diversification of energy sources, transport routes and production sites (especially abroad) due to global economic trends (globalization, cost efficiency etc.) and security policy factors; and
- a lack of experience in participating in global economic processes characterized by mutual dependency and an international division of labour that contrast with China's historic "strategic security culture" and its traditional preference for economic autarky and bilateral relations. Yet at the same time, the institutional interdependence of geo-economic and geo-political interests plays a central role in China's foreign and security policy, as the state-owned energy companies are still part of the network of defence institutions in the Beijing power apparatus.

China's rapidly increasing demand for energy is not due solely to population growth, but above all to the accelerated pace of agricultural electrification, urbanization and rapidly increasing consumption (refrigerators, washing machines, televisions, air-conditioning etc.) as well as the development of the transport and industrial sectors. This has meant that total urban consumption has grown more than the sec-

ondary or industrial sector.<sup>15</sup> This imbalance between demand caused by economic and population growth and domestic energy production is increasing slightly. In general, the instrument of increasing energy efficiency and energy conservation has been underestimated for enhancing national energy security. One of the major problems identified has been the tremendous regional differences in regard to energy efficiency which makes a unified energy saving concept for different provinces highly unrealistic. The least energy efficient provinces are in the hinterland that is rich in coal resources, and which depends heavily on coal consumption stemming from its secondary industry.<sup>16</sup>

## 2.2 Oil

In 2004, China's oil demand grew by nearly 16%, slowing down to 5,8% in 2006. Currently, China consumes more than seven million barrels of oil a day (b/d), or the equivalent of more than 20% of total Asian oil and 6% of global consumption. Although more than 90% of current Chinese oil is produced on the mainland, higher increases are recorded in the East and South China Sea. But even if offshore production in China rises to 73 million barrels over the next few years as China hopes, it was apparent early on that this would not be able to compensate for even faster growth in the demand for oil and other sources of primary energy. Earlier optimistic estimates of larger oil deposits in the South China Sea have not been fulfilled. Overall, China has only 2.43% of global crude oil reserves and 1,2% of the world's reserves of natural gas, as early hopes of large deposits of oil in the Tarim Basin in Sinkiang Province have so far proved illusory. Instead of the annual 13 to 29 million tons originally hoped for, only 230 million tons have been proven so far. While domestic oil production has risen by only 1,67% during the last ten years up to 3,8 mb/d in 2006, consumption

of crude oil rose by 5,77% a year over the same period up to 7,4 mb/d last year.<sup>17</sup> Analysts expect a stagnation or even decline in crude oil production on the mainland, as most of the larger oil fields that are currently being exploited are likely to be exhausted within the next five years if current production quotas are maintained.<sup>18</sup> At the same time, however, oil reserves in the entire Asia-Pacific region are very limited, amounting to only 5% of global deposits. In autumn 2001 Chinese experts are supposed to have found larger deposits of natural gas and oil in Tibet, officially put at 4 to 5,4 billion tons (or 28-37,8 billion barrels).<sup>19</sup> However, more detailed geological studies of the true extent of the newly discovered fossil resources still have to be carried out, as Beijing has repeatedly exaggerated such discoveries in the past in order to persuade Western energy companies to make larger investments.<sup>20</sup>

In order to reduce dependency and vulnerability to possible crisis scenarios in the oil producing states in the Middle East and Persian Gulf, China wants to stockpile crude oil as a strategic reserve, ultimately aiming at 90 days of imports in 2005.<sup>21</sup> The first strategic oil reserve facility was completed in August 2006, the three others in 2007 and 2008. Infilling of the first of the four planned strategic oil reserve bases, located in Ningbo in east China's Zhejiang Province, was started last January.<sup>22</sup>

While many international experts and commentators have blamed China for the sharp increase in global oil prices and are concerned about its cosy relationships with major oil producers such as Iran, Saudi Arabia, Sudan and Venezuela, Beijing as a developing country perceives itself as a victim through having to pay a huge price for mounting oil costs. In 2004 alone, China had to pay an extra US\$7 billion of its foreign exchange due to rising oil prices. The annual payment totalled over US\$43 billion. It has made crude oil and

oil products the largest single import item for the country.

However, China still has to cope with insufficient oil production volumes. During recent years, China has not only suffered an electricity shortage in many cities. In Guangdong, for instance, roughly one quarter of service stations were closed for lack of gasoline and diesel for the expanding fleets of private cars and taxis. Others have been rationing fuel to cope with the underestimated energy demand. Pressure from local governments to increase supplies in order to minimize social and economic fallout has caused an increase in the losses of its state-owned refineries as a result of subsidizing domestic gasoline. By sending the wrong price signals to the economy as a whole, continuing state control over energy prices has discouraged industry from improving energy efficiency and reversing the trend of wasting energy. It is only a question of time until China will suffer more severe supply constraints and shocks so long as the government is reluctant to raise gasoline and diesel prices. At the beginning of 2007, the IEA criticized China for a lack of transparency and inconsistency in its oil data forecasts which could have worldwide consequences. Nobody seems to know, for instance, how much illegal diesel and gasoline is smuggled in and out of China.<sup>23</sup> Nonetheless, price pressures are already having an impact on the broader economy and beyond, for example causing anger among the consumers of an increasingly assertive middle class or farmers who are already hard-pressed.<sup>24</sup>

### 2.3 Natural gas

Slightly larger deposits of natural gas have been found both in China and the entire Asia-Pacific region. However, the costs of constructing pipelines and liquefying plants are huge due to the long transport

routes. Nevertheless, and also for environmental reasons, China has made increasing the use of natural gas a high priority, despite the massive investment costs and the fact that at present gas accounts for only slightly more than 3% of its total energy consumption.<sup>25</sup> So far, however, despite annual growth rates of 18%, consumption of natural gas in the entire Asia-Pacific region remains far below the OECD average of 26%, at only 10%.<sup>26</sup> Nonetheless, China's gas consumption is believed to increase almost fivefold by 2030 (from 32 billion cubic meters in 2000, to 61 bcm in 2010, and 162 bcm in 2030). During the last five years, the level of natural gas consumption has almost doubled. The Chinese government hopes that gas will cover already 8-10% of the country's entire energy consumption by 2010, whereas the IEA has forecast that it will remain small even in 2030 at 7%.<sup>27</sup>

Chinese companies have also put forward plans to build sixteen LNG terminals. Ten of them could be operational by 2010. The first one, with a capacity to handle 3,7 mt per year (mt/y), built as part of a joint venture between BP and CNOOC, received its first 60.000 ton shipment in May 2006. A second one in Fujian Province is scheduled to be completed in 2007 with a further capacity of 3 mt/y. Although they are planned, recent LNG price increases have delayed some of these plans while Chinese companies are trying to negotiate long-term LNG supply agreements in increasing competition with other foreign companies. Last September, China signed a 25-year contract for US\$18,3 billion for Australian LNG imports, signalling that it is now forced and ready to pay much higher prices for gas imports.

#### **2.4 Coal and alternative sources of energy**

Although China with its 26,2 billion short tons possesses the third largest coal re-

serves in the world (behind the U.S.A. and Russia) and is currently the largest consumer and producer of coal globally, it will have to import greater quantities of foreign, cleaner coal in the future because its road network is inadequate, particularly in the interior of the country, and this poses insurmountable transport problems. As a result, it is sometimes more expensive to transport coal produced domestically than it is to import from abroad. China's traditional reliance on coal, and in particular low-quality coal, for power generation and domestic use has lowered the energy efficiency of the country. It is lower than that of many other developed countries due to inefficient management, insufficient investment, outdated equipment, and poor safety records. At the end of 2005, China had 28.000 coal mines, 2.000 of which were state-owned. Over the last few years China has already closed down between 20.000 and 50.000 small coal mines as part of a restructuring plan of the country's coal sector.<sup>28</sup> Hence the reduction in the use of this low-quality coal and improvement of the energy efficiency of coal-fired plants are indeed of vital importance to China's energy efficiency. Moreover, in Beijing's view, further increases in coal production have to be limited as the environment in China is already suffering from excessive pollution levels that increasingly threaten economic growth.

China's coal reserves can therefore only play a greater role if clean and cost-efficient incineration technologies find widespread use. However, as financial resources are inadequate for this, the Chinese leadership is increasingly relying on other sources of energy. At the same time, however, environmental constraints continue to limit the expansion of alternative sources of energy such as hydroelectric power, as demonstrated by resistance to gigantic construction projects such as the Three Gorges Project. Although demand for natural gas should rise by 8% a year, in the medium term up to 2020 it will only account for a

maximum 11% of China's total energy consumption.

In 2020, the proportion of coal as a percentage of total energy consumption will decline, but not below 60%. Its production volume, however, will further increase because coal projects will probably remain much cheaper than natural gas or other sources in the years ahead. Global coal consumption is expected to increase by around two billion tons from 1996 to 2020, 85% of which will be attributable to China and India. While China currently meets around 65% of its energy requirement with coal, the figure for India is 60% and for the entire Asia region 46% (oil: 38%; natural gas: 8%). This also explains why the entire Asia region – which according to these figures meets 84% of its energy requirement with coal and oil – is already the region with the highest CO<sub>2</sub> emissions, although per capita energy consumption in Asia has so far constituted only half the global average. However, China's per capita energy consumption of oil is now almost twice as high as India's (in the case of electricity, Chinese per capita consumption amounts to 8% of the OECD average, while in India it is only 3%). In contrast to the period of 1997-2000, China's coal consumption has been growing during the last six years. For environmental reasons and reasons of economic efficiency, larger quantities of cheaper coal with a far lower sulphur content than that produced domestically could be imported from Indonesia and Australia in the future. China also plans to build several large coal liquefaction plants to convert Chinese coal into oil products in order to reduce crude oil imports.

In the long term, the State Development Planning Commission plans to reduce the percentage of coal production for national energy requirements to 35%, while oil and gas should account for 50%, with hydroelectric power, nuclear energy and other alternative sources of energy making up the

remaining 20% by 2050.<sup>29</sup> China also wants to increase the use of wind-power, for which the regions Sinkiang and Inner Mongolia offer the best perspectives. This is a long overdue development as wind-power has so far only met 1% of the national energy requirement and China lags far behind other newly industrialized countries – such as India – in this area.<sup>30</sup> Moreover, wind and solar power as an integral component of a decentralized energy supply offer the most economic solution to energy problems in isolated regions of China, where large power plants and power grids are not economically feasible. For that reason, at least 10 million Chinese have to do without electricity. By 2010, 20 million inhabitants of isolated regions should be decentrally supplied with wind and solar power, and this should significantly improve their educational opportunities and chances of economic development.<sup>31</sup> However, the share of total electricity from renewable sources will only rise to 10-12% by 2010.

In 2004, 24 of China's 31 provinces and municipalities suffered power shortages. But in coming years China may face an oversupply problem because of an overinvestment in the power sector in recent years. Nonetheless, the expansion of China's civilian nuclear power is outstanding by international dimensions. The share of civilian nuclear power as a percentage of China's total energy consumption will – despite the long-term increase in the number of nuclear reactors from 11 at present to another 27 by 2020/2030 – only rise from 1,5% in the mid-1990s to no more than 4-6% in 2020.<sup>32</sup> Last July, Beijing signed an 8 billion dollar contract with the U.S. Westinghouse Electric Co. to build four 1.1-gigawatt nuclear reactors in China, with the first one becoming operational in 2009 and the other three in 2014 and 2015.

Nonetheless, by 2050 China is projected to become the world's largest producer of nu-

clear energy.<sup>33</sup> Even China's government seemed to be surprised at the beginning of 2007 when its official statistics showed an annual increase of 18% (102 gigawatts) of electricity generating power, an amount which surpassed the entire British national grid.<sup>34</sup>

### 3. Rising environmental costs

"The environment will be the arena in which many of the crucial battles for China's future will be waged."<sup>35</sup>

China is already the largest producer of the greenhouse gases and CO<sub>2</sub> emissions that are held responsible for global warming. Even in 1997 China was the largest producer of SO<sub>2</sub> emissions, surpassing both Europe and the U.S.A, with an output of 23,46 million tons.<sup>36</sup> The main reason for this is the unusually high sulphur content of the coal that is responsible for 75% of SO<sub>2</sub> emissions, 70% of smoke and smog and 85% of all CO<sub>2</sub> emissions in China.<sup>37</sup> But in addition to this, 33% of all sulphur dioxide rainfall in South Korea and even 50% of the sulphur emissions said to be the cause of acid rain in Japan supposedly originate in China.<sup>38</sup> If current trends continue, China and India are together expected to account for 75% of all global CO<sub>2</sub> emissions in 2020. It is projected that the largest absolute growth in carbon dioxide emissions will be experienced within the next two decades. By 2025, China's CO<sub>2</sub> emissions may reach 18% of the world's total emissions. The World Bank has already black-listed 16 cities in China as the world's 20 most polluted.<sup>39</sup> Air pollution alone, primarily from burning dirty coal, might be responsible for 300.000-400.000 premature deaths per year as estimated by the World Bank and other institutions.<sup>40</sup>

A new Chinese White Paper, released by the Information Office of the State Council (China's Cabinet) on 5 June 2006, con-

firmed Western analyses by painting a very grim picture of its ecological problems

despite unprecedented efforts to protect the environment. High-profile ecological disasters have been crippling the population and the economy, and prompting social and political unrest. More than 300 million people do not have access to safe drinking water. In the next 15 years, reportedly, China's economic imperatives are threatened by a reduction of around 10% of the country's GDP annually through clean-ups of ecological disasters and other socio-economic impacts.

Meanwhile, China has sharply increased taxes on large cars (such as SUVs) to limit the environmental damage caused by the rapid increase in the use of vehicles, and has even imposed a 5% tax on disposable wooden chopsticks and wooden floor panels. Vehicles already account for a third of China's oil demand, albeit only about 1,5% of the population has so far purchased a car. The number of cars nationally doubled in just four years, rising from 8,5 million in 2000 to 17,4 million by 2004.<sup>41</sup> China is already the world's second-largest vehicle market. Over the next two decades, vehicles could account for a two-thirds increase in the country's oil demand. The newly introduced fuel economy standards for cars are already tougher than those in the U.S. Despite progress on the part of central government, the state's environmental government institutions – like the State Environmental Protection Administration (SEPA) as the most important and promising environmental authority – and the local environmental protection offices remain politically weak, financially underfunded, and under-staffed with only 300 full-time professional staff in Beijing and a few hundred throughout the country. Consequently they lack the power to enforce environmental laws and regulations which would shut down polluting factories or force companies to invest in modern environmental technologies to reduce air and

water pollution, while systemic corruption still seems to be increasing in the country-

side. As one of the best U.S. experts concluded in 2007: "The truth is that turning the environmental situation in China around will require something far more difficult than setting targets and spending money; it will require revolutionary bottom-up political and economic reforms".<sup>42</sup> While China uses one-eighth the amount of energy that the U.S. uses and therefore sees no reason to compromise its further economic development, it realized at the beginning of this year that it had failed to reach its own targets for reducing major pollution in 2006. High growth again outpaced national efforts at control. Emissions for sulphur dioxide (causing acid rain as a by-product of coal burning), for instance, still increased by 1,8% (compared with 13% in 2005). But Beijing's goal was actually to reduce such emissions by 10%. As a fast-growing polluter, China can no longer blame only the West for causing climate change. The Chinese government has finally started to realize that climate change can significantly affect China's future economic development and socio-political stability by causing crop shortages, increasing floods in the rich coastal river deltas, and higher energy use as the result of continued warming. Climate change is no longer a rich man's problem.<sup>43</sup> According to the IEA, by 2009 China may already become the world's biggest emitter of greenhouse gases. But China's participation in its international environment policies will remain conditional and it is reluctant to accept any emissions quotas and targets.<sup>44</sup> In a new warning, the OECD puts forward 51 recommendations insisting on a reorientation of economic growth by both an institutional and a market-based integration of environmental concerns in energy, agriculture, transport, urban policies and sectors as well as financing and planning.<sup>45</sup>

### **The geopolitical risks of China's energy demand: high-risk energy investments abroad**

"It must be made clear that China is not a small regional power like Iraq and North Korea. If confronted with serious threats to its energy security, it will mobilize all its economic, political and military resources to ensure a secure energy supply, or to interfere in the energy supply chains of the U.S. and its allies like Japan in key choke-points such as the South China Sea, the Strait of Malacca or even the Taiwan Strait. These counterbalancing measures would, of course, be a last resort."<sup>46</sup>

Many international energy experts fear significant price increases after 2010. However, the predicted increase in global oil production, the increasing market orientation of national energy policy including privatization and the deregulation of national energy policy, a more efficient use of energy and energy saving measures could in principle offset the massive increase in oil consumption in China and East Asia. The issue of energy security, however, depends not least of all on the policies of the states concerned and the choice of national strategies for energy security. This is especially true of the Asia-Pacific region, where 60 to 70% of all crude oil imports are still arranged by contracts with state-owned or semi state-controlled international Asian companies whose policy is not only determined by economic factors but also by strategic aspects of the foreign and security policy of the individual country.<sup>47</sup> Given the new energy policy dependencies in the early 1990s, Chinese foreign and security policy had to deal with regions and countries that until then had played either a non-existent or merely secondary role in its traditional foreign policy. For that reason, the possibility of greater economic and political rivalry, in particular with Japan, India, the

U.S.A. and, in the medium and long term with Russia in Central Asia, for shrinking global oil reserves cannot totally or principally be excluded. Consequently, Chinese energy experts are often more sceptical about global energy reserves and do not even rule out a serious shortage of oil reserves in the next 20 years. For that reason, they frequently arrive at much more alarming analyses than Western experts.

Against this background of a rapidly growing demand for energy and deteriorating prospects for major new energy discoveries in their own country, the Chinese political leadership and managerial elite has been keeping a greater lookout since 1996/7 for new energy resources abroad. As early as 1990, China purchased 81,5% of its crude oil from only three foreign states, although only Indonesia exported more than a million tons of crude oil to China. In 1997 the number of countries exporting more than two million tons of crude oil to China had doubled compared to the three in 1990: Indonesia, Oman, Yemen, Angola, Iran and Vietnam. Even in 1997, China imported oil from all Gulf States except Bahrain.<sup>48</sup>

Since early 1997 it has even been possible to observe a policy of demonstrative activity with regard to the securing of new sources of energy. In 1997 alone, the China National Petroleum Corporation (CNPC) completed no less than eighteen international petroleum and petrochemical projects with a contract value of around US\$ 750 million. These included the purchase of foreign oil companies (or the acquisition of major stakes in the companies), pipeline projects (in Turkmenistan and Thailand) or the construction of refineries and depots abroad. In addition, the People's Republic is also participating in the development of oil fields in Russia, Pakistan, Kazakhstan,

Indonesia, Egypt, Ecuador, Venezuela, Argentina, Iran and Sudan. In this way, China has paid around US\$ 8,2 billion since May

1997 for oil licences in Sudan, Venezuela, Iraq and Kazakhstan. In that year, Beijing's total commitments amounted to US\$ 20,7 billion, if the costs of the pipeline in Central Asia are included. At the same time, negotiations were conducted for other oil licences in Iran, Indonesia, Russia and Turkmenistan, while Beijing signed joint venture agreements with Italy and India. Furthermore, China increased the number of its licences in Iraq and Sudan and also acquired interests in Venezuela.<sup>49</sup> By October 1997, China had concluded 126 contracts and agreements with a value of US\$ 5,38 billion, signed with 67 companies from 18 countries.<sup>50</sup>

In 2002, China controlled more than 2,72 billion barrels of oil reserves outside its own territory by means of takeovers and international alliances.<sup>51</sup> Although China's government plans to launch a new round of exploration projects inside China to reduce the country's growing dependence on foreign energy resources,<sup>52</sup> its main focus now is on gaining more overseas drilling rights for Chinese companies. These steps, however, present new risks for China's future oil security. Nonetheless, Chinese companies have stepped up their investment abroad to acquire direct control or partial rights in some of the world's potential oil fields. Beijing has forged closer ties with almost all continents. It has become much more proactive in Africa (Sudan, Chad, Angola), Middle East (Saudi Arabia, Iran, Algeria) and Latin America (Bolivia, Venezuela, Ecuador, Columbia, Peru and Brazil).<sup>53</sup> Despite the fact that China has recently secured new supplies of oil and gas resources from Australia and Indonesia,<sup>54</sup> the Persian Gulf region has become steadily more important not only for the energy policies of China and the other Asian states, but also for their national foreign and security policies. At present Saudi

Arabia accounts for some 17% of China's oil imports, while Iran is contributing 14-15% of it.

The increasingly global orientation of Chinese foreign and security policy toward the Persian Gulf, Africa and even Latin America since the mid-1990s cannot be explained solely by China's increasing economic importance, prestige and its desire for great power status; to a considerable degree it is the result of the direct effects and consequences of China's energy requirements and rapidly increasing imports of oil and gas from countries outside the Asia-Pacific region.

China's energy strategies tend to rely on strenuous efforts to achieve as much energy autarky as possible and on a primarily military concept of safeguarding energy supplies, rather than on market economic concepts, globalization requirements, and an international division of labour and transnational energy cooperation organized by the private sector. For this reason China often seeks energy relationships with countries which are well known for their anti-Americanism, such as Iran, Sudan, Libya and Angola. China's Iran policies have not only complicated U.S. policy towards Teheran, but also that of the EU which has a strategic interest in a nuclear weapons-free Iran. In addition, it has also frustrated many efforts of NGOs and donor nations as well as organizations in their efforts to instil good governance, accountability, transparency and improving human rights in these countries. All these Chinese diplomatic activities in the energy field have produced an economic-security nexus that is determined by the most fundamental core interest of China's political leadership: economic growth and domestic stability in order to ensure regime survival. However, these unilateral energy-security strategies have undermined multilateral and regional cooperation and may be fuelling already existing strategic rivalries such as with Japan, India and the U.S.

China has undertaken unambiguous efforts to satisfy its energy demand by increasing exploitation of other energy sources, mod-

ernizing its own production and extraction plants with the goal of increasing its own capacity, floating shares in Chinese oil companies on international stock exchanges and making global investments to secure foreign energy resources while at the same time diversifying imports of crude oil and natural gas. Nevertheless, these measures have only been partially successful. Thus energy security is still a cause of continued concern to the political leadership in Beijing<sup>55</sup> and the reason behind its continuing global resource diplomacies.

An analysis of Chinese "oil diplomacy", especially in the Middle East, reveals that while China is now more willing to participate in joint ventures with foreign energy companies to exploit both domestic resources as well as those in other countries and regions, it also seeks access to energy resources in countries where Western, and in particular U.S. companies, have a weaker presence. This is especially true of states that the United States classifies as "rogue states," such as Iran, Iraq, Yemen or Sudan.

China's energy policies and "oil diplomacy" continue to give bilateral relations clear priority over multilateral strategies and solutions designed to safeguard its energy supply. However, at the start of the 21st century, these are utterly inadequate to deal with the countless challenges that the process of globalization has created for international trade, regional conflict management or international efforts in the field of arms control policy and non-proliferation measures for weapons of mass destruction and sensitive dual-use technologies (including conventional weapons systems). Such multilateral political strategies vis-à-vis the oil and gas producing nations of the Middle East are needed more than ever before and will, in future, be needed for the countries of Central Asia and the Caspian Basin. Both regions are confronted with countless inter-

nal and regional instabilities that could have a strong negative impact on the reliability of regional and global energy supplies in the future.

Besides, China could find itself exposed to growing political pressure from the oil and gas exporting states in the Middle East. This political pressure could result in either greater Chinese arms exports, including sensitive dual-use goods and technologies, or to concessions by Beijing on other political issues that run counter to Western and EU policies and long-term strategic interests such as in the case of the Iran. Chinese support for the Russian and French positions on UN sanctions and objections to military action against Iraq, Western policy toward Iran and problematic arms exports to this and other Gulf states (including ballistic missiles) in the 1990s have already demonstrated this problem.<sup>56</sup> And in the case of North Korea, barter and counter-trade deals such as "oil for weapons" are the rule rather than the exception, while during the Iran-Iraq war China was a major exporter to the Persian Gulf states. On the other hand, while Chinese transactions of this kind declined significantly in the 1990s as Beijing also supported the UN sanctions,<sup>57</sup> exports of Chinese ballistic missiles to the region continued. A solution to this problem is hardly likely to be found in the near future as, in practical terms, Chinese non-proliferation policy regarding ballistic missiles and other sensitive dual-use technologies ultimately depends upon the quality and stability of its bilateral relationship with the U.S.A. and, simultaneously, is also increasingly influenced by domestic vested interests.

On the other hand, increasing political and economic interdependencies could have a number of positive effects on the basic structures of the international system and regional political stability in the Middle East. The long-term interest of the Chinese government in political stability in the re-

gion could therefore increase, in turn opening up greater possibilities of cooperation not only for bilateral U.S.-Chinese relations.<sup>58</sup> Expansion of its political and economic, military and military-technology relations with the Middle Eastern states will also give China an increasing degree of influence over them and strengthen Beijing's position at a global level (in the UN for example). At the same time, however, these energy and foreign policy dependencies are also a risk for Beijing as it will increasingly run the risk of being unwillingly drawn into local or regional political conflicts, but without having a political influence comparable to that of the U.S.A. on the possible parties to the conflict. Despite all of Beijing's efforts to diversify its oil and gas imports, roughly half of China's imported oil still comes from the Middle East, with Saudi Arabia alone accounting for 17% in the first quarter of 2005.

#### 4. Conclusions and Perspectives

"The strategic question for Beijing is where Chinese oil companies can go to avoid either political or business obstacles, or both, put in place by the international community. Meanwhile, the question the international community poses is how China can match its commercial power with responsibility. The challenge is for China and other leading energy consuming countries to cooperate in defining and addressing the political and social challenges that arise in many of the oil states of the world."<sup>59</sup>

During the 10-year period from 1994 to 2004, China accounted for 28% of the growth in worldwide consumption. Many experts predict that the Chinese economy will be second to the United States by 2020 and possibly surpass it by 2050. However, there are manifold limits to China's "developmental autocracy"<sup>60</sup> such as the effects of ecological disasters on its economy

and socio-economic stability. Furthermore, China's insatiable hunger for energy resources and its unilateral energy policies to guarantee national energy security have increasingly caused concern in the United States, Japan and even in Europe. Western governments worry about the future global governance and regional stability efforts in the Middle East, Central Asia and Africa when China enters their spheres of influence or strikes energy deals with "states of concern" they have tried to marginalize and/or sanction internationally. The result might fuel mistrust in China's foreign and security policies and question Western economic and technological aid for China's efforts to reform its energy sector as the Achilles' heel of its economy.

Similarly, China itself has become increasingly concerned about its energy security as a result of the reactions of other countries and their security perceptions which may cause a new security dilemma in the Asia-Pacific region as well as on a global scale. With the rising dependence on foreign energy resources and their imports via the sea lines of communication (SLOCs) of the Indian Ocean, the choke-point of the Malacca Strait and the South China Sea with its overlapping territorial claims, the Chinese government has developed a new sense of insecurity and vulnerability towards the U.S.A. and its naval capabilities to block any maritime energy imports. Reportedly, Beijing is trying to counter the perceived vulnerability by developing a high-cost "string of pearls" strategy of military bases and diplomatic ties alongside the Indian Ocean, the Strait of Malacca and the South China Sea in order to protect its oil and other strategic interests.

Furthermore, Chinese companies have started to build their overseas energy empires at a time of steeply rising prices and renewed nationalism among the governments of oil and gas producing countries. Despite its "aggressive oil diplomacy" and

Chinese firms' investment in overseas oil and gas assets, their total contribution to China's oil imports is well under 300.000 mb/d as of mid-2005.<sup>61</sup> Consequently, their combined overseas reserves remained one tenth of the reserves of a single big Western multinational such as BP.<sup>62</sup> For their part, Chinese experts often dismiss Western concerns about China's energy foreign policy and its "peaceful rise" rhetoric.

In the future, China's energy policy must comprehensively address the issues of energy conservation and pollution control in order to avoid and control rising environmental, economic and social costs. Although Beijing has set new priorities for increasing energy efficiency, such as adjusting the electricity supply structure to achieve higher efficiency or importing modern coal-mining technologies with high efficiency and clean burning technology, it is insufficient and is only part of an overall comprehensive strategy which would include all sectors of the economy and private households. Therefore, China should also adopt wider oil and gas conservation practices (such as more stringent emission standards for its cars, buses and trucks) as well as better practices in electricity usage such as in the application of electrical appliances, and technical improvements to stem the huge transmission and distribution losses in the system. Although China's official energy policy is paying more attention to improving energy conservation and efficiency, it is still one of the most neglected factors. Furthermore, though China does not have to fulfil any obligations of the Kyoto Protocol, in the years ahead international pressure on Beijing will increase to improve energy efficiency. Hence China needs to design more radical incentive strategies to promote energy efficiency comprehensively, and thereby further its renewable energy development as well as enhance its cooperation with the international community, in particular with EU members and Japan as the leading and most experienced countries of

high energy efficiency standards. In the past, China had largely responded to environmental crises on a rather piecemeal basis instead of pursuing a broader and comprehensive strategy to stabilize its ecological system and to seek sustainable development. Beijing's newly announced "scientific development concept" has endorsed the intention to implement an environmentally friendly approach to industrialization, and has given energy conservation a high priority. For the first time, Beijing has established compulsory targets on the efficient use of energy by 2010:

- energy consumption per unit of GDP is to decrease by 20%;
- water consumption per unit of industrial added value is to decline by 30%; and
- industrial solid waste recycling and conservation rate is to grow 60%.<sup>63</sup>

While this new approach will be welcomed in the U.S., EU and Japan, doubts will remain whether China is able to implement it effectively in its vast land mass due to the systemic factors of its political system.

Moreover, China still needs to recognize that a more market-oriented strategy to cope with its energy challenges is a better path than a unilateral strategy based on a strategic or geopolitical approach. Indeed, "big consumers can best protect their strategic interests in keeping oil supplies steady and prices predictable by joining forces to counterweigh the influence of

producers rather than by trying to force privileged relations with them"<sup>64</sup>. The West will certainly have to observe China's energy policies very closely and express its concerns. But it should also more actively engage China by recognizing its "vast energy market potential in technology of energy conservation and efficiency, environmental protection techniques and know-how, renewable and alternative energy production, and joint efforts in managing global warming"<sup>65</sup>. That, however, depends on the political willingness of Beijing to follow a more market approach, to improve the ramifications for international investments and to initiate political reforms in the future.

The experiences of the EU and its new comprehensive strategy of June 2005 are also a good starting point for closer EU-China energy cooperation and improving China's critical energy efficiency in the future. It has global dimensions and is therefore in the EU's own long-term security interests. In this light, the Western aim of encouraging China's integration into the international structures of global cooperation, while insisting that in return Beijing abide by the same rules as everyone else, will remain the major strategic goal and challenge for the years to come. In this context, energy efficiency and energy conservation can become an important if not necessarily strategic factor for China's and Asia's energy demand, and consequently for enhancing their supply security.

## Notes

<sup>1</sup> See Hale, David: China's Growing Appetites, *National Interest*, Summer 2004, pp.137-147.

<sup>2</sup> See also Umbach, Frank: *Globale Energiesicherheit. Herausforderungen für die europäische und deutsche Außenpolitik*, München 2003, pp. 122 ff.; idem: *Future Impacts of Chinese and Asian Dependency on Energy Imports from the Middle East and Central Asia*, in: *The Impact of Asian Powers on Global Developments*, eds. from Erich Reiter

and Peter Hazdra, Heidelberg/New York 2004, pp.143-163.

<sup>3</sup> So the executive summary, called "Energy Security in a Dangerous World", in: *International Energy Agency (IEA), World Energy Outlook 2004*, Paris 2004, here p.29f.

<sup>4</sup> See Bradsher, Keith: *IHT*, 7.9.2005, p.14.

<sup>5</sup> Daojiong, Zha: *China's Energy Security: Domestic and International Issues*, Survival, Spring 2006, pp.179-190, here p.181.

- <sup>6</sup> See Andrews-Speed, Philip/Liao, Xuanli/Dannreuther, Roland: *The Strategic Implications of China's Energy Needs*, IISS-Adelphi Paper 346, Oxford University Press, 2002, here p.18f.
- <sup>7</sup> See also Umbach, Frank: *The Legs of the Triangle – The EU-China Relations*, in: *The New Strategic Triangle: China, Europe and the United States in a Changing International System*, eds. from Wilfried Jung, Konrad-Adenauer-Stiftung, KAS-Schriftenreihe 76, Beijing, pp.36-45.
- <sup>8</sup> So Andrews-Speed/Liao/Dannreuther: *The Strategic Implications*, here p.100.
- <sup>9</sup> So, for instance, China's Foreign Minister, Tang Jiaxuan, – see NAPSNet-Daily Report, 6.3.2003.
- <sup>10</sup> Lei, Wu/Qinyu, Shen: *Will China Go to War over Oil?*, in: FEER, April 2006, pp.38-40, here p.39f.
- <sup>11</sup> See Downs, Erica S.: *The Fact and Fiction of Sino-African Energy Relations*, in: *China Security*, Vol.3, Summer 2007, pp.42-68.
- <sup>12</sup> See here *China – An In-Depth Study*, in: OECD/IEA (Ed.): *World Energy Outlook 2002*, Paris 2002, pp.237-268.
- <sup>13</sup> See also EIA, *China Country Analysis Briefs*, Washington D.C., August 2005, here p.2.
- <sup>14</sup> The U.S. EIA forecasts net imports of 10.9 mb/d in 2025 – see *ibid.*
- <sup>15</sup> See Allaire, Julien: *The Impact of Urban Development in China on Global Warming*, *China Perspectives* 1/2007, pp.51-61.
- <sup>16</sup> See Dan, Shi: *Regional Differences in China's Energy Efficiency and Conservation Potentials*, in: *China & World Economy* 1/2007, pp.96-115.
- <sup>17</sup> See also EIA, *China. Country Analysis Briefs*, August 2006, here p.2.
- <sup>18</sup> See also Chung, Chien: *China's Energy Strategy in the 21st Century*. Peace Forum Essays, Taipei 2001 [www.dsis.org.tw/peaceforum/p\\_2e.htm#7](http://www.dsis.org.tw/peaceforum/p_2e.htm#7)
- <sup>19</sup> For a comparison: the largest oil field in the world Ghawar in Saudi Arabia comprises 70-85 billion barrels of crude oil. The Kazakh oil field Kashagan, another mega oil field, contains around 10-30 billion barrels of crude oil.
- <sup>20</sup> Compare: *Potentially Massive Oil and Gas Find in China*. Stratfor.Com, 5.9.2001; *China Finds Oil in Tibet*, BBC-News, 21.8.2001 (Internet Version).
- <sup>21</sup> See Ying, Wang: *China Daily*, 17.6.2006.
- <sup>22</sup> See *ibid.*
- <sup>23</sup> See Su, Sherry: *WSJE*, 13.2.2007, p.32.
- <sup>24</sup> See also Peter Wonacott, *WSJE*, 17.8.2005, p.1 and A8.
- <sup>25</sup> See EIA, *China Country Analysis Briefs*, August 2006, here p.8.
- <sup>26</sup> See also Robert A. Manning: *The Asian Energy Predicament*, in: *Survival*, Spring 2000, pp.73-88, here p.79.
- <sup>27</sup> See *China – An In-Depth Study*, p.255f.
- <sup>28</sup> See EIA, *China, Country Analysis Briefs*, p.10f.
- <sup>29</sup> See also the chapter: *Energy*, in: FEER, *Asia 2001 Yearbook*, p.49.
- <sup>30</sup> See also "Changes in the Wind?", *Stratfor.Com*, 4.1.2001.
- <sup>31</sup> Sieg, Klaus: *Der Tagesspiegel*, 12.6.2002, p.B.2.
- <sup>32</sup> So far China only operates two reactors – the nuclear power plant Dayawan in Guangdong province and one in Qinshan Zhejiang –, while three others are under construction. The sixth nuclear power plant has been under construction since January 2002 – see *China Daily*, 7.1.2002 (Internet Version).
- <sup>33</sup> See Zweig, David/Jianhai, Bi: *China's Global Hunt for Energy*, in: *Foreign Affairs*, September-October 2005, pp.25-38, here 36.
- <sup>34</sup> See McGregor, Richard/Dicke, Mure: *FT*, 7.2.2007.
- <sup>35</sup> Economy, Elizabeth C.: *China's Environmental Challenge*, in: *Current History*, September 2005, pp.278-283, here p.280; see also *idem*: *The River Runs Black: The Environmental Challenge to China's Future*, Ithaca 2004.
- <sup>36</sup> See also Shixian, Gao: *China*, in: *Rethinking Energy Security in East Asia*, ed. from Paul B. Stares, Tokyo/New York 2000, pp.43-58, here p.52.
- <sup>37</sup> See also Guang, Yang: *China's Stabilizing Role*, p.40.
- <sup>38</sup> See also Breslin, Shaun: *The China Challenge? Development, Environment, and National Security*, in: *Security Dialogue* 4/1997, pp.497-508, here p.499; see also Foster, Gregory D.: *China's Environmental Threat: Crafting a Strategic Response*, in: *Comparative Strategy* 2000, pp.123-143.

- <sup>39</sup> See also Economy: China's Environmental Challenge.
- <sup>40</sup> See *ibid.*, here p.282.
- <sup>41</sup> See Allaire, Julien: The Impact of Urban Development, here p.58.
- <sup>42</sup> Economy, Elizabeth C.: The Great Leap Backward? The Costs of China's Environmental Crisis, in: Foreign Affairs, September-October 2007, pp.38-59, here p.39.
- <sup>43</sup> See Oster, Shai: WSJE, 13.2.2007.
- <sup>44</sup> See also Meidan, Michael: China in a Post-Kyoto Architecture, China Perspectives 1/2007, pp.65-71.
- <sup>45</sup> See OECD, Environmental Performance Review of China (2007), Paris, July 2007.
- <sup>46</sup> Two Chinese experts – Wu Lei and Shen Qinyu – in an article titled "Will China Go to War over Oil?", here p.40.
- <sup>47</sup> See also Suetsugu, Katsuhiko: Energy Markets and Power Politics, in: Gulf-Asia Energy Security, ed. from John Calabrese, p.55.
- <sup>48</sup> See also Guang: China's Stabilizing Role, p.41f.
- <sup>49</sup> See also Myers Jaffe, Amy/Lewis, Steven W.: Beijing's Oil Diplomacy, p.122ff.
- <sup>50</sup> See Shengliang, Deng/Xiaojie, Xu: The Oil Dragon's Move, p.83.
- <sup>51</sup> See also China's Quest for Energy Independence, p.2f.; Lague, David: The Quest for Energy to Grow, p.4.
- <sup>52</sup> In August 2002, China awarded a \$12 billion liquefied natural gas contract to Australia for its Northwest Shelf gas fields over the next 25 years. At that time, Australia had won out over Indonesia because of its record of economic and political stability. A month later, however, China signed another pact worth \$7,8 billion for Indonesia to supply liquefied natural gas from 2007.
- <sup>53</sup> For an overview see Drew Thompson, China's Global Strategy for Energy, Security, and Diplomacy, in: China Brief (ed. by the Jamestown Foundation), Vol.5, Issue 7, 29.3.2005 and Ian Storey, China Seeks to Reduce its Dependence on Strait of Malacca, JIR, May 2005, pp.36-39.
- <sup>54</sup> See Dhume, Sadanand/Lawrence, Susan V.: Buying Fast into Southeast Asia, FEER, 28.3.2002 (here Internet version); Murphy, David/McBeth, John: Having a Gas in China, FEER, 22.8.2002, pp.16-17, Financial Times, 9.8.2002, p.6; Bradsher, Keith: IHT, 9.8.2002, p.11; Wonacott, Peter/Bahree, Bushan: Wall Street Journal, 9.-11.8.2002, p.A2.
- <sup>55</sup> See also Kühl, Martin: Financial Times Deutschland, 28.3.2002, p.10.
- <sup>56</sup> Myers Jaffe/Lewis: Beijing's Oil, p.115f.
- <sup>57</sup> See also Suetsugu: Energy Markets, pp.53-60, here pp.56-58.
- <sup>58</sup> See also Manning, Robert A.: The Asian Energy Predicament, p.82.
- <sup>59</sup> See Daojiang, Zha: China's Energy Security, p.182f.
- <sup>60</sup> See Pei, Minxin: China's Trapped Transition: The Limits of Developmental Autocracy, Cambridge 2006; *idem*: The Dark Side of China's Rise, in: Foreign Policy, March-April 2006, pp.34-40.
- <sup>61</sup> EIA, China Country Analysis Brief, here p.4.
- <sup>62</sup> Bradsher, Keith/Mouawad, Jad: IHT, 9-10 July 2005, p.11.
- <sup>63</sup> See Jiang, Wenran: Beijing's "New Thinking" on Energy Security, in: China Brief, Vol.6, Issue 8, 12.4.2006, here p.2.
- <sup>64</sup> Zweig/Jianhai: China's Global Hunt, p.37.
- <sup>65</sup> See Jiang: Beijing's "New Thinking", here p.3.