Energy Security and India-China Cooperation

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Energy security is a holistic concept which varies from country to country according to need. For the exporting country it implies continuous access of market for the selling of energy sources, whereas, for the importing country, it essentially implies "ensuring uninterrupted supplies of energy to support the economic and commercial activities necessary for the sustained growth of the economy" (Willrich, 1975). The critical relevance of this concept for India and China emanates from a growing imbalance between the demand for energy and its supply from indigenous sources, implying, therefore, growing import dependence for each nation.

Energy Profiles of India and China

Energy has an impact on the economy and in turn is affected by it. Energy consumption is both a necessary condition for growth and a consequence of it (World Energy Council, 1993). The growth of the Indian economy (8-8.5%) and China (10-11%) has led to an increase in an energy dependent lifestyle resulting in a high demand for energy sources. In 2007, China produced only 186.7 million tonnes of crude oil while its consumption was 368.0 million tonnes (Table 1) making it the world's second largest oil importer after the United States of America (Tanaka,2008).

As far as India is concerned it produced 37.3 million tonnes of crude oil in 2007 but consumption was 128.5 million tonnes. India is already importing about 75 percent of its crude oil needs. Even if its domestic production increases to 50 million tonnes in two decades from the existing 37.3 million tonnes, its import dependence will rise to 87 percent due to its high economic growth rate. On the contrary, China is consuming about three hundred percent more oil than India and it is predicted that its consumption will double in the next 25 years. While China needs to import 60 percent of its needs in 2020, India will require importing 87 percent of its total needs (World Energy Outlook, 2007). Hence, the level of dependence of both India and China is going to increase and competition for scare oil assets will continue.

Country	Proved Reserves	Production	Consumption
India	5.5 thousand million barrels	37.3 million tonnes/day	128.5 million tonnes/day
China	15.5 thousand million barrels	186.7 million tonnes/day	368.0 million tonnes/day

Source: BP Statistical Review of World Energy 2008

Table 1
Crude oil Profile of India and China in 2007-08

While China seems comfortable with respect to natural gas, India is a net importer. China produced about 2.4 percent of the total world production of natural gas and consumed about 2.3 percent of total consumption. India's share of the world's natural gas production is only 1.0 percent at the same time it accounts for about 1.4 percent of total natural gas consumption. But due to increasing use of the environmentally friendly fuel it is expected that the demand for natural gas will rise in both the countries making China, too, a net importer.

Country	Proved Reserves	Production	Consumption
India	1.06 Trillion cubic metres	27.2 million tonnes oil equivalent	36.2 million tonnes oil equivalent
China	1.88 Trillion cubic metres	62.4 million tonnes oil equivalent	60.6 million tonnes oil equivalent

Source: BP Statistical Review of World Energy 2008

Table 2
Natural Gas Profile of India and China in 2007-08

Though China has ample coal reserves, its consumption is more than production. While China produces about 41.1 percent of the total world coal production, it consumes about 41.3 percent of total world output. More than 90 percent of Chinese coal resources are located in inland provinces, but the biggest increase in demand is expected to occur in the coastal regions. This adds to the pressure on internal coal transport and makes imports into coastal provinces more competitive. China became a net coal importer in the first half of 2007. As far as India is concerned, it produces only 5.8 percent of total world output and consumes about 6.3 percent of total world demand. Thus both India and China are net coal importers.

Country	Proved Reserves	Production	Consumption
India	56498 million tonnes	181.0 million tonnes oil equivalent	208.0 million tonnes oil equivalent
China	114500 million tonnes	1289.6 million tonnes oil equivalent	1311.4 million tonnes oil equivalent

Table 3
Coal Profile of India and China in 2007-08

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Most of mainland China's electricity is produced from fossil fuels (about 80%, mainly coal) and hydro power (about 18%). Nuclear power has an important role, especially in the coastal areas remote from the coalfields and where the economy is developing rapidly. In 2007 it provided 62.86 billion kWh - 2.3% of total, and there is now 8.6 GWe (net) installed (World Nuclear Association, 2008). India's electricity generation consists of about 58 percent from coal, 26 percent from hydro power and around 2 percent from nuclear (India Year Book, 2007). In both countries the use of renewables is underdeveloped. Hence, the dependence of both India and China is going to increase and competition for scare oil assets will continue. But there are certain factors due to which India-China cooperation for energy security is warranted.

Factors for India-China Cooperation

High economic growth rate : Both India and China are not only the most populous countries but also they experience high economic growth rates, as discussed earlier, resulting in an increase in energy consuming life styles and hence a persistent rise in energy demand.

Surging imports of crude oil: Since India's indigenous oil production seems unlikely to change significantly, its dependence on foreign oil will be more than China's. India's level of urgency is more on supply side whereas that of China is on consumption side, as its consumption of oil is nearly 300% more than India's and is projected to remain the same in the next 25 years (Shen Qinu and Lei Wu, 2006). While China's indigenous production level is expected to grow marginally, during the same period its consumption will more than double. Thus both countries have to depend on crude oil imports.

Concern for energy security : One of the strategies of energy security is to acquire overseas energy assets. India-China cooperation will increase their bargaining power for oil & gas resources, the prices of which had earlier sky rocketed with the China versus India scramble. It will make investments in upstream projects in volatile economies less risky. Previously, rivalry between Indian and Chinese companies was to the disadvantage of both regardless of who eventually won the bid. It always benefited the seller as happened in Angola. Here, India had bid US $ 600 million for a 50 percent stake in Shell's Angola Block 18 field and had promised to include US $ 200 million to support Angola's ongoing railway construction project. This was outbid by China with a US $ 2 billion offer.

Area of Energy Security Cooperation

Although both India and China are competitors, they recognise the high cost of uneconomic competition. This is the fundamental reason behind the India-China energy cooperation. There are several areas in which both the countries can cooperate.

1. Joint bidding: Both the countries have little domestic energy investment in the other's energy sectors; their interaction is mainly overseas. They both have multiple state oil companies and both consider overseas investment to be a vital aspect of energy security. Increasingly they are targeting the same assets in the same host countries. Many of the areas that India and China have targeted for upstream acquisition are high risk and thus by joint bidding risk sharing is attractive (Kang Wu, Jeffrey G. Brown and Vijay Mukherji, 2008). Joint efforts by the two countries in pooling their investments and technology would yield better resource outputs. As a result India and China were able to acquire energy assets in Syria, Sudan, Colombia, Iran and Peru (Table 4). A memorandum of understanding for energy cooperation was signed by the then Petroleum Minister of India, Mani Shankar Aiyar, and China's National Development and Reforms Commission Chairman, Ma Kai, in January 2006 (Vardharajan, Sidharth,2006).

2. Clean and renewable energy: The two sides are committed to making joint efforts to divesify the global energy mix and enhance the share of clean and renewable energy, so as to meet the energy requirements of all countries.

3.International Thermonuclear Experimental Reactor: The two sides welcome the opportunity for their outstanding scientists to work together in the International Thermonuclear Experimental Reactor (ITER) project, which

Project	Country	China's Participation	India's Participation
Yadvaran Oil Field	Iran	Sinopec 51%	ONGC(OVL) 29%
Omimex De Columbia Limited Acquisition of company having oil assets)	Columbia	Sinopec 50%	ONGC(OVL) 50%
Greater Nile Oil Project	Sudan	CNPC 40%	ONGC(OVL) 25%
Buying of Petro Canada's 37% stake in Syrian oil field	Syria	Joint holding of 37% with ONGC	Joint holding of 37% with Sinopec
Exploration right of gas Block 155 of Peru	Peru	Joint bidding of CNPC with DMCC9RIL) and Pluspetrol (Argentina)	Joint bidding of DMCC(RIL) with CNPC and Pluspetrol (Argentina)

Table 4
India-China Cooperation for Energy Security

is of great potential significance in meeting the global energy challenge in an environmentally sustainable manner. As two countries with advanced scientific capabilities, the two sides pledged to promote bilateral cooperation in civil nuclear energy, consistent with their respective international commitments. This will contribute to energy security and to dealing with risks associated with climate change.

4. Down stream cooperation: Both countries have the potential for substantial over investment and massive refining capacity overhang which could possibly be moderated through the coordination of key players in India and China. If Chinese and Indian NOCs and their respective governments could work together to rationalise downstream investment, the potential savings could be substantial.
5. Transmission and city distribution of gas: GAIL has signed an agreement with China Gas Holdings Limited for a 10 percent equity stake in the Chinese company. The two companies plan to cooperate in the areas of operation and management of city gas pipeline networks, as well as the sale and distribution of natural gas (Jog, 2008).
6. Work for Global Energy Security Community: Considering how critical oil is to the functioning of global economy, the absence of information about the oil market is striking. The two sides are convinced that it is in the common interest of the international community to establish an international energy order that is fair, equitable, secure and stable and to the benefit of the entire international community. Both producers and consumers could benefit if China and India worked more closely with the global energy communities (Kang Wu, Jeffrey G. Brown and Vijay Mukherji, 2008).
7. Pipeline networking: India and China together can look at the possibilities to building a network of pipelines to tap the Russian, Central Asian and the West Asian energy sources. This could also help the other Asia-Pacific countries for energy supply.

Conclusion

Both India and China are net importers of energy sources. According to Daniel Yergin "Global economies have become more interdependent, even though the underlying objective is to become self reliant" (Luttwak. Edward N, 2001). Real energy security requires setting aside the pipe dream of energy independence and embracing interdependence, which is the mantra which both regimes are understood to have inculcated in their revisionist approach to each other. Countries have to work for mutual benefit. China is pursuing a highly leveraged policy of energy security. Bilateral cooperation will increase the bargaining power of both countries in acquiring overseas energy assets. Also, developing domestic sources of gas and oil is a priority for both the countries. Therefore, equal emphasis should be laid on collaborative efforts in the field of exploration, exploitation and enhanced oil recovery. Both India and China must be ready to extend cooperation in upstream exploration and production as well as downstream activities such as refining and petrochemicals, marketing of petro products, transmission and city distribution of gas, and laying down of national and transnational energy pipelines.

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