

Energy Trends in China and India:  
Implications for the United States

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Senator Lugar, Senator Biden, and distinguished members of the Senate Foreign Relations Committee, it is an honor and a pleasure to be asked to testify before this committee today. The following constitutes my prepared remarks. I will be happy to address other issues or elaborate further on these points during the question-and-answer session.

## Background

As a rapidly developing country, India's energy needs are likely to balloon over the coming decades. How and in what areas these needs materialize will depend on five major factors. First, these energy needs will be driven by India's quest to maintain the high levels of economic growth (around 6 to 7 percent annually) that it has enjoyed since 1994. Second, much will depend on India's ability (or lack thereof) to locate and use existing domestic gas and petroleum reserves. The third factor will be the ability of the Indian political system to address certain structural inefficiencies which contribute to significant loss and wastage. Fourth, it will also depend on its ability to adopt new and more energy efficient technologies. And fifth, much depends on India's ability to secure external sources of energy.

Already India is the world's sixth-largest consumer of energy. Most estimates suggest that to sustain its current average annual growth rate it will need to increase its energy consumption by about 4 percent annually.

Currently, domestically mined coal meets close to 70 percent of India's total energy needs; after China and the United States, India is the world's third-largest producer of hard coal. Oil supplies about another 30 percent of the country's energy. Currently, India imports more than 60 percent of its annual oil needs, or slightly more than 1.4 million barrels of oil per day. At current rates of economic growth this figure is likely to rise to as much as 5 million barrels per day by the year 2020. Unless India obtains or develops alternative sources of energy, in 15 years it will have to import close to 90 percent of its petroleum needs.

India is working on securing alternative sources of energy in cooperation with other countries. These efforts are focused on oil, natural gas, and nuclear energy. But each of these potential sources presents complicated geopolitical challenges.

## The Geopolitics of India's Energy Needs

### China

As India has entered the global energy market, it has encountered an important competitor, the People's Republic of China, one of the fastest-growing economies in the world, a rising military power with a vast appetite for oil and other raw materials—and the financial resources to satisfy that appetite.

India sees China as its principal competitor in this global quest for energy. Indian officials are loath to admit publicly the existence of such competition, to avoid possible political friction with their behemoth northern neighbor. This public silence, however, masks a number of private misgivings that persist despite apparent improvement in bilateral relations in the past decade. First, despite significant efforts, the two sides have made glacial progress on their long-standing border dispute. Second, Indian policymakers remain wary of China's close ties to India's *bête noire*, Pakistan. Third, the Indians have become increasingly concerned about China's significant diplomatic and military relations with Myanmar (Burma) in recent years. Fourth and finally, both India and China see themselves as great powers in Asia and would like to extend their influence beyond their respective shores. Although some analysts in India's strategic community do harbor hopes of potential cooperation between India and China in their global quest for energy resources, these hopes represent the triumph of fond wishes over harsh realities. India is in a fundamentally competitive if not conflictual relationship with China.

China is already well ahead of India in the search for new energy sources. Since 2000 the China National Petroleum Corporation (CNPC) has invested \$45 billion in this search, while India's Oil and Natural Gas Commission (ONGC) has invested just \$3.5 billion. The vast foreign-exchange reserves available to China's state-owned oil firms have enabled them to undercut India's efforts to obtain oil beds. For example, in 2004, the Chinese firm SINOPEC edged out ONGC Videsh (the international arm of ONGC) to acquire an oil-exploration block from Shell Oil in Angola. Furthermore, as recent events underscore, the Sino-Indian competition for new energy sources in Central Asia is well underway. In early July 2005, India was granted observer status in the Shanghai Cooperation Organization (SCO)—a forum for meetings and consultations between China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan. New Delhi was keen on obtaining this status to increase its access to and influence in the oil-producing states of Central Asia. Kazakhstan, the host of the 2005 meeting, is one of the states in which New Delhi has considerable interest, not least because of the vast Tengiz and Kashagan oil fields and the Kurmangazy and Darkhan exploration blocks. ONGC Videsh has formally bid for participation in all four areas. Yet just as India was granted observer status in the SCO, the group, at China's behest, also invited Iran and Pakistan to participate as observers. The inclusion of Pakistan, in particular, is fraught with considerable significance for India, as it gives Pakistan further ability to exert influence in the region.

#### Iran

India's emergent role in Central Asia may lead to an intensification of the Sino-Indian rivalry, but it is highly unlikely to bring India into conflict with the United States. India's attempts to obtain natural gas from Iran, however, are far more contentious from the American perspective.

India has had extensive discussions with Iran about the construction of an undersea and overland pipeline to carry natural gas to India from Iran's South Pars field. This pipeline would be about 2,700 kilometers long (about 1,687 miles) and would cost about \$4 billion to build. Some 760 kilometers (475 miles) of this pipeline would pass through

Baluchistan in southern Pakistan. Once operational, it could transfer as much as 90–95 million standard cubic meters of gas per day.

Despite strong interest by both Iran and India in building this pipeline, it is by no means a done deal. Indian security analysts have expressed misgivings about having such a strategic asset pass through the territory of a long-standing adversary: Pakistan. Moreover, it is far from clear that Pakistan is going to acquiesce to the construction of the pipeline through its territory. In an effort to address these concerns, India has proposed that Iran and Pakistan be responsible for the construction, maintenance and safety of the pipeline until it reaches the Indo-Pakistani border. That way, both countries not only would stand to gain from its operation but would lose substantially from any sabotage or cessation of its operation. In any event, India and Iran have yet even to reach an accord on the unit price of the gas to be delivered.

Even though this project is only under discussion, the United States had made its displeasure about it known to India. The U.S. concern, it appears, is that Iran would use the substantial gas revenues generated to fuel its ongoing nuclear weapons program. Such a concern, though reasonable from the American standpoint, will have little or no resonance in India, especially if the United States cannot offer India a viable alternative. In the end, the Indians may choose not to pursue the pipeline but to nevertheless import natural gas from Iran using tankers. At this stage, it is for U.S. policymakers to decide whether it is worth making this issue so prominent as to impede the steady and dramatic improvement that has taken place in Indo-U.S. relations over the past few years.

#### Burma & Bangladesh

The other contentious issue in Indo-U.S. relations related to energy involves the possible construction of another natural gas pipeline—this one bringing gas from Myanmar (Burma) and Bangladesh into the Indian state of West Bengal. India has sought to build this pipeline not merely to address its energy needs but also to counter Beijing's growing influence with the military junta in Yangon (Rangoon). For well over a decade India chose to isolate the Burmese junta, but faced with a growing Chinese presence in Burma, India has begun to reverse its course. This change does not imply any fondness for the State Peace and Development Council's brutal form of rule in Burma; it is merely a pragmatic attempt to ensure that the Chinese presence in Burma does not seriously impinge any further on India's regional strategic interests. India, however, has yet to persuade the paranoiac Bangladesh Nationalist Party-led regime in Bangladesh to allow this pipeline to be built. Bangladesh's anxieties stem from its overall distrust of India and its obsession with husbanding its one major natural resource, natural gas.

Once again, it would behoove the United States not to hobble the construction of this pipeline. Bangladesh desperately needs the revenues that the pipeline would generate, and the project might grant India some leverage with the Burmese. That said, it is far from clear that the current government in Bangladesh will be able to break its mindset and agree to the development of its natural gas fields and the building of a pipeline across its territory. In the face of this attitude, and after years of negotiation, the American

energy firm Unocal recently withdrew its proposals for the development of Bangladesh's gas fields.

### Domestic Bottlenecks and Impediments

In addition to handling these international difficulties about energy India will also need to address a series of domestic bottlenecks that place constraints on meeting its energy needs. These bottlenecks are the unfortunate legacies of India's erstwhile economic policies of state-led development, which the state began to reform only in 1991. In the intervening years India has sought to unknot the labyrinthine regulations that so strangled its economic growth for nearly 5 decades. However, some of these regulations and government-run entities have proven more difficult than others to dismantle.

In the energy sector, this problem is most manifest in the State Electricity Boards (SEBs), which are responsible for the production and distribution of electricity in all but 3 of India's 28 states. (The states of Delhi, Orissa, and Maharashtra have moved to privatization of electricity.) The SEBs preside over antiquated equipment and are bloated with huge numbers of inadequately trained personnel. Worse still, they are subject to rampant political interference. Thanks to choices based on politics rather than sound economics, households and the agricultural sector are provided electricity at rates well below cost. Ironically, the industrial sector pays the highest electricity rates. These skewed political priorities have led to overconsumption on the part of the subsidized sectors, contributing to widespread fiscal indiscipline.

The reform of these bodies, a critical economic priority, still lacks political momentum. Thanks to the power of organized labor in India and their links to all the major political parties, reform of the SEBs has been limited and fitful. The situation is so dire that a range of industries has chosen to build independent, proprietary (captive) power plants because of the endemic unreliability of state and national power grids. The SEBs in their current state not only constrain economic growth but pose a significant fiscal drag on the Indian treasury.

Whether the present coalition regime can tackle this ongoing but long-standing problem remains unclear. However, without fundamental reform of the SEBs, India is likely to face chronic energy shortages, thereby hobbling its economic growth.

### Recommendations and Choices

#### Electricity

India's future economic growth, among other factors, crucially depends on the formulation and implementation of a coherent energy strategy. One component of that strategy must involve the reform of the electricity sector, the problems of which I have just described. India's success in securing supplies of oil and natural gas, as well as in expanding the role of hydroelectric power and nuclear energy, will all be undermined if

the electricity sector remains in a shambles. Without external prodding, however, it is unlikely that India's policymakers will tackle the structural problems of the SEBs. Domestic politics plays too great a role in the electricity sector. To that end the United States could influence major multilateral lending institutions to stipulate that all further investments in the Indian power sector conform to market norms. Additionally, American companies seeking to invest in the electricity sector would also be wise to avoid the temptations that enticed Enron—which sought substantial counterguarantees from both the state and the central governments in India during its negotiations to build the largest-ever foreign-built electricity-generating plant in the country. Enron's experience has made both foreign firms as well as state-level governments in India wary of large-scale foreign investments in the energy sector.

### Nuclear Power

As the visit of Prime Minister Manmohan Singh to Washington last week made clear, India's policymakers are keen on expanding the role of nuclear power to meet the country's growing appetite for energy. India's unwillingness to accede to the nuclear Nonproliferation Treaty (NPT) has long constrained its ability to upgrade and expand its nuclear-power infrastructure. Consequently, at the present time, nuclear energy contributes a paltry 3 percent of India's power needs.

Without significant international cooperation, the situation is unlikely to improve. In light of this situation the decision of the administration to pursue civilian nuclear cooperation with India is of enormous significance. Although deliberation on such a change in policy is appropriate, I urge you, your Senate colleagues, and your colleagues in the House of Representatives to pass the necessary enabling legislation to make such bilateral cooperation possible.

The arguments against supplying India with civilian nuclear equipment are well known. Briefly stated, they hold that if the United States makes an exception for India, the fabric of the nonproliferation regime is likely to start unraveling; that such an action would encourage both North Korea and Iran to speed up their nuclear weapons programs, possibly to the point of testing; that Pakistan, now a Major-Non-NATO Ally, is likely to make similar requests for access to civilian nuclear technology; and that such cooperation would reward a state that is not a formal member of the carefully constructed nonproliferation regime. Though seemingly compelling, all of these arguments merit more careful scrutiny and re-examination.

Such scrutiny reveals each of these arguments to be flawed. First, since India was never part of the global nonproliferation regime, the question of India's unraveling that regime is really moot. Even before the NPT went into effect in 1970, India had made clear its explicit reservations about its lopsided expectations. Second, the choices that Iran and North Korea are likely to make about their ongoing nuclear weapons programs will be made regardless of what the United States does or does not offer India. Their leaders will make choices based on assessments of what is best for their own countries. Furthermore, it needs to be underscored that both Iran and North Korea blatantly violated the solemn international obligations inherent in their membership in the NPT—and thus if that

regime is on the verge of unraveling, it is because of their actions, not those of India. Third, despite Pakistan's present robust relationship with the United States, it cannot be allowed to constrain American policy toward India. More to the point, India, unlike Pakistan, has an excellent export-control system and has not allowed technology seepage. It has also maintained a strict and effective separation between its civilian and military nuclear establishments. And fourth, India has stated that it is willing to accept full-scope safeguards on all its civilian nuclear reactors; thus it will be submitting to the requirements of the NPT regime even without being a formal member—a stark contrast to existing signatories that refuse to submit to the requirements of the regime. Finally, as a practical matter, nonproliferation must be seen as just one of the many interests that the United States has in its dealings with India. A single issue, however important, should not become the determinant of American policy toward one of the most significant states in Asia and a potential global power.

#### Environmentally Sound Alternatives

Apart from investing in and upgrading its nuclear infrastructure, India will have to continue to tap its substantial coal reserves. Interestingly, this sector offers another important avenue for Indo-U.S. cooperation. Indian coal is extremely high in ash content and thereby highly polluting. The United States has developed clean-coal technology that could be used to alleviate the environmental effects of this crucial source of energy, and this technology should be made commercially available to India.

Finally, India has a modest renewable-energy program, and the plans for its expansion are ambitious. According to the government's *Policy Statement on Renewable Energy*, India hopes to obtain as much as 10 percent of its new power capacity from renewable sources—wind, biomass, hydroelectric, and solar—by 2012. If the country even hopes to approximate this goal, however, it will require both external funding and technological expertise. Once again, American firms, which have considerable expertise in the development of alternative and renewable energy sources, could play a vital role in energizing the Indian market.

#### Concluding Remarks

Despite some ongoing differences, Indo-U.S. relations have rarely been as cordial as they are today. In the present climate, it behooves both sides to try and circumvent the remaining differences and broaden the arenas of cooperation. The rapidly expanding Indian energy market offers substantial opportunities for Indo-U.S. cooperation. Much of this cooperation could be accomplished under the aegis of the newly initiated India-U.S. Energy Dialogue.

India's appetite for energy is unlikely to be curbed anytime soon. That said, it lacks the necessary technological expertise, financial resources, and global reach to address its energy needs. Cooperating with the United States in a gamut of energy-related projects offers the possibility of addressing these critical needs.

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