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The Iran-Pakistan-India Pipeline
THE INTERSECTION OF ENERGY AND POLITICS

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Preface

This paper will seek to identify the strategic and economic variables involved in India's decision about whether or not to pursue a proposed natural gas pipeline from Iran. There is a lot of misinformation and misunderstanding surrounding the pipeline, its history, and the current state of negotiations. By providing a brief historical overview of the pipeline and then analyzing the pipeline's advantages and disadvantages in the context of India's energy needs and the international diplomatic environment, this paper will seek to dismiss the misinformation and provide a framework for further debate. Although the pipeline has been pending for a decade and a half, the majority of literature has either focused on its role in meeting India's energy needs, or on the geopolitical implications of the pipeline. This paper will attempt to bridge the gap between these viewpoints, underlining issues of energy and traditional security alike, and providing a comprehensive study of the pipeline project.

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Introduction

The Indian Energy Scenario

The Government of India has committed itself to vastly improving the country's human development indices by 2031-2032. In order to do so, it has estimated that the country must average economic growth of at least 8 percent per annum for the next twenty-five years.¹ Such growth will be dependent on ensuring access to secure energy at affordable prices. According to a report released by the Planning Commission of India, if India is to sustain an 8 percent level of growth, then it will need to increase its primary energy supply by at least 3 or 4 times and its electricity supply by a factor of 5 to 7 by 2031-2032. Likewise, power generation capacity will have to increase from 120,000 MW to 780,000 MW.

Meanwhile, basic capacities in energy sector infrastructure such as rail, ports, roads, and water will need to grow by factors of 3 to 6 by 2031-2032, with nuclear and renewable energy rising to over 20 times their current capacities in some scenarios. Thus, ensuring adequate energy supplies provides one of the foremost challenges to India's long-term prosperity.

In order to meet its energy needs, India must provide its citizens with access to adequate, clean, reliable and secure energy supply at the least possible cost. Doing so will raise a number of difficulties. Firstly, providing access to *adequate* energy supplies will require India to vastly increase its total production capability so that energy shortages no longer act as a constraint on economic growth. This will entail exploiting domestic resources while simultaneously increasing fuel import quantities. To ensure *clean* energy supply, India will have to

develop capital-intensive new technologies and overcome its current dependence on the two dirtiest fuels: coal and oil. *Reliability* of energy will require a massive overhaul of existing energy and electricity markets. Only by allowing electricity and resource prices to float will India be able to ensure the levels of private sector investment necessary to provide a reliable supply. All of this is further complicated by the need to provide a *secure* energy supply. While India is currently dependent on imports for 30 percent of its total energy supply, that number is likely to increase as thermal fuels develop a larger share of India's power generation. Since a larger dependency on imports increases uncertainty regarding both cost and supply availability, single-item solutions will be insufficient; Indian energy security necessitates diversity of both fuels and sources. Finally, in order to meet its ambitious human development goals, India must secure its supply at the least possible cost so that it can afford to protect the least empowered of its population. Contrary to conventional logic, doing so will require liberalization of energy markets to promote efficiency and competition.

There are six resources that can be exploited to meet India's energy production goals: coal, oil, gas, hydro-power, nuclear, and renewable resources such as solar power and wind energy. India is currently dependent on coal for 52 percent of its energy needs. Of this, it imports 10 percent and produces the rest domestically. Oil makes up 32 percent of India's energy mix, of which it imports over 70 percent. While gas currently plays only a minor role (7 percent) in meeting India's energy demand, its importance is growing quickly, with its total contribution likely to double by 2032. Although India places significant strategic importance on hydro and nuclear power for meeting its long-term energy needs, even

¹ Unless otherwise cited, the information in this section can be found in *Draft Report of the Expert Committee on Integrated Energy Policy*, Planning Commission, Government of India, December 2005.

highly optimistic growth assumptions show the two sources combined forming less than 10 percent of the country's total commercial energy supply by 2032. Moreover, renewable energy, even if it expands to 20 times its current capacity, will meet only about 5-7 percent of India's energy demand by 2032.

India is not alone in confronting the energy challenge; world energy demand has increased by 95 percent over the last 30 years and is projected to increase by an additional 60 percent during the next two decades.² This means that what is already a highly competitive market will only become more cutthroat in the near future. With the government predicting that hydrocarbons will comprise between 35 percent and 45 percent of India's total commercial energy for the foreseeable future, India will have to pursue an aggressive strategy of oil diplomacy if it is to compete in the fossil fuel market. Finding a successful energy management structure in the short term would allow India time to harvest viable renewable sources. Since hydro, nuclear and most renewable energy production will take decades to develop, India will be forced to rely on fossil fuels to meet the majority of its energy needs, especially in the short term.

Competing Objectives and Diplomatic Hurdles

Due to the size of the project, the number of stakeholders involved, and the territory covered, the trans-Pakistan pipeline faces a large number of diplomatic risks and hurdles. Although the pipeline provides an economically attractive option, India will be forced to weigh the oftentimes competing interests of the project's stakeholders if the IPI is to succeed. With the United States asserting itself as a fourth stakeholder in the trilateral project, the project's future will depend on balancing the competing objectives of the different stakeholders and

understanding the six bilateral relationships involved.

Pakistan's stakes in the IPI primarily revolve around its need for natural gas, although its uncomfortable relationships with the three other stakeholders threaten to impact the project's outcome. While Pakistan's relationship with India kept the brakes on the IPI for the first decade of discussions, its relations with Iran and the United States could potentially play an important role in pipeline negotiations. Despite claims of "long-standing brotherly relations" with Iran, tensions arising over Pakistan's support for the Taliban continue to plague Pakistani-Iranian relations. Tehran blames Pakistan for American involvement in the region and Pakistan suspects Iranian resentment over its development of Gwadar port as a competitor to Iran's port at Chabahar. Pakistan's suspicion of Indian and Iranian meddling in Balochistan furthers Pakistan's interest in the IPI since the pipeline would give both India and Iran a stake in Baloch stability. With gas comprising 60 percent of its total energy mix, and supply due to dip below demand by 2010, Pakistan has understandably demonstrated an interest in putting the pipeline before politics.

While the benefits of the pipeline for Iran are manifold, Iranian stakes in the IPI are muddied by its internal turmoil. Despite possessing the world's second largest proven reserves of natural gas, Iran's gas sector, starved of investment by twenty-five years of US sanctions, is highly underdeveloped. The IPI would not only provide Iran with a much-needed export market for its gas, but would also present it with a powerful counter-weight to US policy that has sought to isolate Iran in the international arena. However, there exists strong opposition to gas exports in Iran, dating back to Ayatollah Khomeini's belief that Iran should protect its natural resources from outsiders who seek to influence Iranian policy-making. Many Iranian politicians have used soaring oil prices to

² Talmiz Ahmad, *Oil Diplomacy for India's Energy Security*, Unpublished manuscript given to the author.

justify gas protectionism, arguing that re-injection of gas into oil fields could boost flagging oil production and also conserve Iranian gas for domestic use. Thus, Iran's stakes in the pipeline are unclear; although Iran has invested significant political capital in the IPI, there is no guarantee that it will continue to do so—especially with the natural gas market becoming increasingly seller-friendly.

The election of Mahmoud Ahmadinejad in June 2005 underlined Indian concerns about the Iranian political system. Although Iran is a functioning democracy with a strong civil society, President Ahmadinejad's aggressive rhetoric has created worries that Iran may not be a reliable gas supplier for India. Since pipeline gas would play a major role in India's energy security for at least forty years, India will not proceed until it is sure that its gas will be safe at the source as well as in transit. If negotiated improperly, the IPI could leave India beholden to Iranian interests. Similar to measures that ensure Pakistani cooperation in protecting the pipeline, measures will have to be agreed upon that guarantee Iranian gas supplies, even in the event of political fallout between itself, Pakistan and/or India. In this context, India and Pakistan have become increasingly unnerved about Iran's reliability in the face of Ahmadinejad's threats to politicize Iran's energy resources.³

India and Pakistan might be more willing to tie themselves to Iran if not for US opposition to all South Asian-Iranian ties. At odds with Iran since the Islamic Revolution in 1979, the US has sought to isolate Iran, both diplomatically and economically. The IPI, which would pump millions of dollars into the Iranian economy each year, is in direct confrontation with US policy. Thus, the US has consistently pressured India and Pakistan to pursue alternate sources of energy, using a

combination of threats and incentives to lure India and Pakistan away from Iran. While offering strategic nuclear cooperation and trade incentives on the one hand, the US also aims to deter interest in Iran by threatening to place sanctions on any entity that invests over \$20 million in Iran. As the US confronts Iran over its nuclear program, it has had difficulty in getting China and Russia to agree to effective sanctions at the UN. This means that the US has more incentives to look for other ways to starve Iran of investment. For the IPI to proceed, India, Pakistan and Iran must measure US threats and incentives against the pipeline's potential benefits.

³ "Iran May Use Oil Weapon," *Al-Jazeera Magazine*, 1 October 2005; "Tehran Plays Oil Card in Nuclear Row," *Times of India*, 26 June 2006.

1. Background of the Iran-Pakistan-India Pipeline

The idea of an overland, trans-Pakistan pipeline was first proposed in 1989 by Ali Shams Ardekani, acting Deputy Foreign Minister of Iran, and RK Pachauri, the Director General of the Tata Energy Research Institute (TERI) in New Delhi. Although the idea received a positive reaction in Iran, the initial response from New Delhi was skeptical, with Indian politicians wary of leaving their long-term energy security in the hands of Pakistan—especially during a period in which their relations were becoming increasingly sour. With Indo-Iranian relations also suffering, New Delhi seemed unlikely to allow energy concerns to override the vagaries of international relations.

However, the Gulf War underlined India's need to diversify its energy sources. In 1991, Iraq and Kuwait together supplied two-thirds of India's oil; when the war broke out, India's supply was reduced from 15 million tons to 5 million tons of oil overnight. India realized the need to form new relationships and, in 1993, India signed a Memorandum of Understanding with Iran. Meanwhile, India began to investigate other pipeline options. An agreement for an underwater pipeline project from Oman was signed in 1994, although the project soon collapsed amidst financial and technological difficulties. India explored gas options from Bangladesh and Myanmar but neither offered the long-term quantity of gas for which India searched.

As new technologies sparked interest in natural gas as a clean and cheap substitute for crude, India realized that the IPI could provide a large array of potential benefits. With the Indian economy facing significant difficulties, natural gas provided India an avenue to energy without having to compete with the US, Europe and China for the

attention of a small group of oil suppliers. Despite possessing the world's second largest proven gas reserves, Iran—unlike many of the other hydrocarbon suppliers—did not have its hands full meeting foreign demand. Two decades of US sanctions had left Iran as an exile in the oil market, and Iran was eager to find a profitable market for its gas. With the added advantage of geographic proximity, the Iran option began to appear increasingly appealing. Since Iran's enormous supply could meet long-term demand, India could invest heavily in a capital-intensive infrastructure without worrying that restricted supply would undermine its investments.

However, even as India began to entertain the notion of a trans-Pakistan pipeline, Pakistan resisted the idea. Citing a lack of confidence between itself and India, Benazir Bhutto's government made it clear that the pipeline would not be welcome on Pakistani territory. Resistance to the pipeline was especially strong amongst army and intelligence agencies, which worried about the pipeline's long-term benefits to India.⁴ Moreover, at a time of discord between Pakistan and Iran, the Pakistani's worried about the long-term affects of improved Indo-Iranian relations. In 1995, Pakistan refused to allow a feasibility study to take place in its exclusive economic zone, the 200kms of water that extend from its shores.⁵ When Nawaz Sharif returned to leadership in 1997, he threw his government's support behind the Asian Development Bank's (ADB) proposal for a

⁴ S. Pandian, "The Political Economy of Trans-Pakistan gas Pipeline Project," *Energy Policy*, Vol. 33, Issue 5, March 2005, pp. 659-70.

⁵ F. Naaz, "Indo-Iranian Relations: Vital Factors in the 1990s," *Strategic Analysis*, Vol. XXV, 2001, pp. 227-41. As referenced in Ibid.

Turkmenistan-Afghanistan-Pakistan (TAP) pipeline project as an alternative to the IPI.

Pakistan's reluctance, combined with considerable disquiet in India, led New Delhi to look into several alternate options for laying the pipeline from Iran. Aside from the overland route, India investigated two other options: a deep sea and a shallow water pipeline. New developments in underwater pipeline technology appeared, for the first time, making the possibility of a pipeline at 2000m not only feasible but also potentially viable.⁶ However, when Pakistan realized that its stake in the project was being threatened, it demonstrated a renewed interest in the idea. Upon his accession to power, General Musharraf, who had opposed the pipeline as Army Chief, changed course and decided to treat the IPI project as separate from other terms of trade normalization.⁷ With its economy in shambles, Pakistan judged that the economic gains of transit revenues and gas imports outweighed any potential political gain by India. Simultaneous deterioration of the situation in Afghanistan persuaded the government that the IPI might offer the only realistic way of meeting its energy needs.

Yet, once Pakistan joined the pipeline negotiations, New Delhi refused to deal with it as an equal partner. Wary of leaving their energy security in Pakistan's hands, India revived bilateral negotiations with Iran about underwater pipelines and LNG shipments. While Tehran offered to pursue any of the proposed options, it made clear to Delhi that the overland pipeline would cost significantly less than other options.⁸ Trying to avoid Pakistan altogether, India persuaded Iran to engage Snamprogetti, an

Italian firm, to conduct a feasibility study for a deep-sea pipeline that would be laid at 3000m in order to avoid Pakistan's exclusive economic zone. The results of the study, along with the difficulties encountered in laying a deep water pipeline in the Black Sea, persuaded the National Iranian Oil Company, amongst others, that the deep sea would entail not only unrealistic investment, but also too many technical challenges.

While the deep sea option was financially unviable and technologically too ambitious, India ruled out the shallow water pipeline because it would still run the risks incurred by running through Pakistani territory but would carry the price-tag of a deep-sea pipeline. R.K. Pachauri proposed involving large financial institutions, such as the ADB and the World Bank, who would act as stakeholders in the project, preventing Pakistan from cutting off supplies.⁹ However, India refused to proceed unless Iran would guarantee oil supplies as a substitute in the case of disrupted supplies. New Delhi argued that the agreement could only proceed if it did so in the form of a bilateral agreement between India and Iran rather than a tripartite agreement. Thus, the pipeline was left to languish in the shadow of Indo-Pakistan relations.

The breakthrough finally came when Iran agreed to take responsibility for delivering gas all the way to the Indian border. With the three countries agreeing to undertake the project as a commercial venture in January of 2005, the first real progress in the technological, commercial and legal aspects of the pipeline was made during the first six months of that year.¹⁰ The meetings took place bilaterally between Iran and India, and between Iran and Pakistan. This method ensured that political disputes would not eclipse the focus of the meetings. It also satisfied India's requirement that the

⁶ W. R. True, "Sub-sea Pipe-lay Systems, Repair Tools Advance," *The Oil and Gas Journal*, 6 September 1999, Vol. 97, Issue 36.

⁷ B. Raman, "Liberalization, but Not Normalization," *South Asia Analysis Group*, Paper No. 272.

⁸ "India's Power Projects Drive Boom in LNG Import Schemes," *The Oil and Gas Journal*, 4 October 1999, Vol. 97, Issue 40.

⁹ R. K. Pachauri, "On Track with Tehran: Shift in India's West Asia Strategy," *The Times of India*, 19 April 2001.

¹⁰ Interview with Ambassador Talmiz Ahmad, 3 November 2006.

pipeline deal be only with Tehran; if Pakistani cooperation was necessary to the pipeline, then it would be up to the Iranians to do the negotiating. In May of 2005, an Indian delegation went to Tehran but realized that, having never built a pipeline before, it lacked the technological and commercial knowledge to proceed. After a month of research, the delegation returned to Tehran and presented the first detailed project outline.¹¹

According to the Indian ministry of Petroleum and Natural Gas, the meeting encompassed such matters as “gas reserve certification and allocation, gas quantity and buildup, gas quality, system configuration, and project structure.” For the first time, the meeting also touched upon politically sensitive issues such as “pipeline routing, delivery points, transportations tariffs, transit fees, capital and operation costs and pipeline security.”¹² Between June and December of that year, another 9 bilateral meetings took place.

In December of 2005, India agreed to take part in trilateral meetings, the first of which took place in January 2006. Several major players from the gas industry attended the meeting and a variety of international companies made presentations on the relevant technology. Aside from price and a few details of contractual structure, the delegates from the three countries agreed on most of the important aspects of the pipeline, such as pressure, thickness, etc.

For the past year, pipeline progress has become mired in pricing negotiations, slowing the momentum to a standstill. Bilateral meetings have continued to take place, but with the international gas market lacking any formal pricing structures, disagreements will not be easily resolved. Since the IPI pipeline is expected to supply

gas at a pre-determined price for the next forty years, neither side has shown any hint of compromise. Although the energy consulting firm Gaffney Cline Associates spent much of 2006 composing a report aimed at resolving the price discrepancy, Iranian attempts to alter the price yet again in early 2007 have once again derailed the project.

¹¹ Ibid.

¹² “Iran-US Nuclear Row Could Hinder Iran-Pakistan-India Pipeline,” *Platts International Gas Report*, 23 September 2005.

2. India's Energy Scenario

In order to evaluate the necessity of piped gas to India's larger energy strategy, the IPI must be viewed in the context of India's other energy resource options. In so doing, both pricing negotiations and pipeline progress can be framed in a strategic context. Thus, this section will examine India's comprehensive energy vision. Beginning with the energy challenge that confronts the country, it will evaluate the role of different fuels in meeting India's energy requirements. Finally, India's supply options will be examined, with reference to their affects on the IPI pipeline project.

Energy Security for India

There exist a wide variety of definitions for energy security. The United Nations Development Programme definition, as described in the World Energy Assessment, defines energy security as the "continuous availability of energy in varied forms in sufficient quantities at reasonable prices."¹³ Despite being recognized as the most universal definition, many commentators have argued that energy security definitions should be unique to each particular country so that they can encompass the individual situations.¹⁴ With this in mind, the Planning Commission of India laid out an India-specific definition for energy security: "The country is energy secure when we can supply lifeline energy to our citizens as well as meet their effective demand for safe and convenient energy to satisfy various needs at affordable costs at all times with a prescribed confidence level considering shocks and disruptions that can be reasonably expected."¹⁵

¹³ Hisham Khatib, *World Energy Assessment*, United Nations Development Programme, 2004.

¹⁴ For an example of this argument, see Daniel Yergin, "Ensuring Energy Security," *Foreign Affairs*, March/April 2006.

¹⁵ Planning Commission, Government of India, n-1.

The Planning Commission definition differs from others by engaging questions of subsidies and domestic distribution. While these are legitimate concerns for India, they fall outside of the realm of this paper. Therefore, for the purposes of this paper, energy security will be used in closer conjunction with the UN definition, but with the stipulation that Indian energy security, unlike that of the OECD countries, is framed in reference to sustainable economic growth. With reference to issues of energy security, the Planning Commission has created an energy policy for India which aims to meet India's energy needs by providing the country with access to adequate, clean, reliable and secure energy supplies at the least possible cost.¹⁶

The Energy Challenge

Power Generation

Since long-term projections for energy requirements are based on a number of variables, they are notoriously difficult to calculate. Economic growth rates, population increases, technological improvements, energy conservation progress, lifestyle changes, and alterations in energy efficiency all affect the outcome of energy predictions. Although the potential for one or two of these factors to impact projections is relatively minor, the slightest

¹⁶ This definition is the author's own. It is derived from that of the Planning Commission document cited above which reads: "to reliably meet the demand for energy services of all sectors including the lifeline energy needs of vulnerable households in all parts of the country with safe and convenient energy at the least cost in technically efficient, economically viable and sustainable manner considering different fuels and forms of energy, both conventional and non-conventional as well as new and emerging energy sources and to ensure this supply at all times with a prescribed confidence level considering the shocks and disruptions that can be reasonably expected."

changes in all of them can create massive aggregate miscalculations. Therefore, it is with an air of caution that the Government has projected that if India wishes to sustain 8 percent economic growth until 2032, it will have to increase its total installed power generation capacity by 83 percent during the corresponding period. If growth rates of 7 percent are to be maintained, then India will have to increase its total generating capacity by 79 percent.¹⁷

India's per capita consumption of energy is one of the lowest in the world. India consumed only 435 kWh of electricity per person in 2003, compared to a world average of 2429 kWh.¹⁸ Similarly, India's per capita consumption in kilograms of oil equivalent (kgoe) is only 520 kgoe, over 1,000 kgoe lower than the world average of 1,688 kgoe. India's energy use efficiency for generating GDP at purchasing power parity is higher than the global average, demonstrating that the energy that is produced is being used relatively efficiently.¹⁹

India also performs well in terms of electricity use to GDP. Compared to a world average of .31 kWh/\$2000 PPP, India's electricity ratio is 0.16kWh/\$2000PPP.²⁰ However, the scenario is due to low electricity output rather than optimum demand side management. According to the EIA, India's installed power generating capacity as of January, 2003, was only in 126,000MW, compared to 2,221,000 MW in the OECD countries.²¹ During the 6 months from April to September 2006, India's produced 307,537 million units of electricity; yet total

demand for the corresponding period was 334,330 million units (MU).²² This corresponds to an 8 percent energy deficit at base load. At peak demand the gap grows even wider, often reaching almost a 13 percent deficit.

Although almost 75 percent of villages are electrified (439,502 of 593,732), the staggeringly low per capita consumption of electricity has acted as a constraint on economic growth and has perpetuated low human development and high poverty rates.²³ According to the 2001 census, only about 44 percent of the country's households are electrified. Even among those who do have access to electricity, unscheduled outages, load shedding, fluctuating voltages, and erratic supply prevent optimal use. Power interruptions lead to idle manpower and loss in production.

India's Energy Deficit

	Energy	Peak
2002-03	(-) 8.8 percent	(-) 12.2 percent
2003-04	(-) 7.1 percent	(-) 11.2 percent

Distribution and Deregulation

Although India's problems are mostly caused by inadequate generating capacity, they are badly aggravated by the inefficient distribution system. Over 40 percent of India's generated power is lost during transmission and distribution.²⁴ The problem lies in the fact that the sector is dominated by large state monopolies. The evolution of the energy sector in India has mirrored the economic growth strategy of the country as a whole. The need for big

¹⁷ Planning Commission, Government of India, n-1.

¹⁸ See <http://www.nationmaster.com/index.php>

¹⁹ India's total primary energy supply to GDP ratio (kgoe/\$2000PPP) is 0.19, about .02 better than the world average of 0.21. *Key World Energy Statistics 2005*, International Energy Agency, Paris, 2005.

²⁰ Planning Commission, Government of India, n-1.

²¹ Energy Information Agency, Department of Energy, Government of the United States, *International Energy Outlook 2006*, Report no. DOE/EIA-0484(2006).

²² Ministry of Power, Government of India, <http://powermin.nic.in/H>

²³ Ibid.

²⁴ Planning Commission, Government of India, n-1.

infrastructure investments in the post-Independence period, combined with populist political rhetoric, led to heavy government involvement in business and energy transmission in the sixties and seventies. When massive inflation and current account deficits forced the government to open up to international and domestic competition in the nineties, the energy supply industry slowly and reluctantly followed suit.

However, financial health of the energy sector still appears a long way off. The public sector controls over 88.4 percent of generation and practically all energy transmission.²⁵ Successive governments have sought to solve power generation problems by bringing in foreign investors to set up Independent Power Producers (IPPs). However, IPPs have not taken hold in India because the State Electricity Boards, who control the transmission infrastructure and thus would be the major purchasers of IPP power, are in financial ruin.

The problems with the SEBs emanates from the fact that they are forced to subsidize power to agricultural and domestic users. The current tariffs are structured on the basis of industrial and commercial users cross-subsidizing the agricultural and domestic power consumption. However, the system has not worked as planned. The high tariffs on industry and commerce have prevented international firms from opening in India, and the low tariffs on agriculture and domestic users have provided no incentives for efficient electricity use. With rising costs of power placing a larger financial burden on the industrial and commercial sectors, these high-paying customers have sought to circumnavigate the system by pilfering power. The financial burden of these losses falls disproportionately on the SEBs. However, until the SEBs are fixed, India will be unable to attract the investment necessary to fix the

problems emanating from the generation and distribution sectors.

Politicization of the electricity issue has made it difficult for politicians to retreat from the imbalanced tariff structure, despite the obvious need for reform. In July of 1998, the government announced that in order to attract foreign investment, all investments up to Rs 15 billion that involved 100 percent foreign equity would be approved automatically. Exempting nuclear power facilities, the act applied to investments in the generation and distribution sectors. However, most new generating capacity has continued to be funded with domestic capital or through international institutions like the ADB. The State Electricity Act, passed in 2003, appears to be making significant progress in unbundling SEB assets and opening power generation, transmission and distribution sectors up to competition.

India's National Electricity Policy aims to meet total demand by 2012, with peak shortages overcome by adequate reserves. The policy endeavors to add 100,000MW of targeted capacity increases to the national grid in the next ten years. This will almost double the 2003 electricity total—and is estimated to require nearly Rs 800,000 crores.²⁶ Moreover, India hopes to increase the per capita availability of electricity to over 1000 units from its current rate of 606 units.²⁷ Finally—and perhaps most importantly—the policy aims for full commercial viability within the electricity sector.

²⁵ Ibid.

²⁶ Ministry of Power, Government of India.

²⁷ [Hhttp://powermin.nic.in/H](http://powermin.nic.in/H)

²⁷ Ibid.

3. Energy Supply Options

If India is going to meet the ambitious economic and social goals that it has set for itself, it will not be able to rely on a single-item solution to its energy needs. By analyzing the potential of different energy sources, and the benefits and disadvantages of these sources, a contextual basis can be established through which the IPI pipeline can be discerned and analyzed.

Coal

As the world's third largest coal producer, India will rely on coal to meet the majority of its energy needs for the foreseeable future. Coal currently provides 60 percent of India's commercial energy consumption. Between 1984 and 2004, coal consumption in India increased from 140 million tons (mt) to over 400mt annually, growing at a rate of 5.4 percent per year. Of the coal consumed, 90 percent is produced domestically while about 10 percent is imported, primarily from Australia and South Africa.²⁸

India is forced to import coal because the high ash content and low calorific value of domestic supplies make it inadequate for certain purposes. Thus, over 70 percent of domestic coal production is used in thermal power generation. Indian coal averages about 4100 kcal/kg compared to imported coal, which has calorific values of about 6000kcal/kg. Although Indian coal does have a high ash content that results in high emissions of suspended particulate matter, it is generally regarded as relatively clean coal because of its low sulfur content. It is estimated that India at current consumption levels, India's coal reserves will last for another 80 years. However, it is unlikely that consumption will remain stable. If coal consumption continues to increase at 5

percent per annum, then India will run out of coal in only 40 years.²⁹

The poor quality of Indian coal has led to an acute shortage of higher quality coking coal. Since the quality of India's coal has actually been deteriorating over the past few decades, India has had to rely on ever-larger supplies of imported coal. The government has predicted 5 percent deterioration in coal quality by 2032. The recent Planning Commission report by Kirit Parikh lays out eleven potential scenarios for meeting India's energy needs. The most heavily coal-dependent of those scenarios demonstrates that India could be importing up to 48 percent of its coal by 2032.³⁰

Contrary to conventional logic, imported coal is not significantly cheaper than imported oil or gas. As a competitive fuel source, the prices of coal imports rise and fall with prices of crude. Thus, a coal dependent power sector does not protect India from sudden price hikes, although such increases would admittedly be less dramatic in the coal industry. Coal imports also require development of a very costly infrastructure. Since India's current coal infrastructure is limited at best, new ships, port capacity, inland transportation (railways), and anti-pollution measures would all have to be developed at great cost.³¹ Such infrastructure would add significantly to the cost of coal as a portion of India's power generation.

A reliance on coal imports will require a complete overhaul of the Indian coal sector. The industry was nationalized in the early 1970s and, Coal India Ltd has controlled 90

²⁸ Planning Commission, Government of India, n-1.

²⁹ Ibid.

³⁰ Ibid.

³¹ Interview with Dr. Sarbinder Singh, SARI-Energy, 20 October 2006.

percent of coal production since.³² As a government monopoly, the coal industry is plagued by low productivity, distribution problems, and a loss of market share to better quality imports. Lack of competition and the absence of an independent regulator have constrained growth in the coal industry. As the government itself has observed, “entry of the private sector in coal production is essential for realizing efficiency gains and augmenting the domestic coal supply.” Yet, since calls for liberalization spur massive labor union mobilization, politicians have, as of yet, been unable to push substantial coal sector changes.

Oil

In 2005, India consumed 2.5 million bbl/d of oil. Of that, 837,000 bbl/d, or 28 percent of the total consumption, was produced domestically, with the remaining 67 percent being imported.³³ However, while the consumption of oil has increased at 3.8 percent per annum, India’s domestic production has remained relatively stagnant.³⁴ Estimated domestic oil reserves seem to have peaked, dropping from 739 MMT to 733 MMT between 1991 and 2003. Excepting the unlikely event crude discoveries, India could only sustain current production levels for another 22 years; in the case of disrupted imports, India’s reserves could be consumed in as little as 6 years.³⁵

Unlike the majority of other fuels that India is pursuing, oil plays only a minimal role in electricity generation in India--although diesel, an oil derivative, is often used to backup peaking power plants. The majority of India’s oil goes to the transportation and industrial sectors, which consume 34 Mtoe and 19.75 mtoe respectively.³⁶ The 2006

International Energy Outlook estimates that of the projected increase in oil demand during the next two decades, one half is expected to come in the transportation sector where there are not many competitive alternatives. The industrial sector should account for 39 percent of demand growth, especially if India is able to establish an international industrial presence in the way that China has.³⁷

India currently imports 72.2 percent of its oil, with its dependence growing quickly. The EIA has predicted that Indian oil consumption will increase considerably by 2010, reaching 3.1 million bbl/d. By 2025, that number is expected to increase to 5.5 million bbl/d, showing a growth of about 4 percent a year.³⁸ However, the EIA’s estimations are based on very low GDP growth rates for India, and it is likely that oil dependency will grow faster than these numbers suggest. There exists substantial concern that an oil-dependent India would not only drastically impact international supply but would further increase oil prices. In any case, India would do well to diversify sources now to avoid the possibility of debilitating supply disruptions later.

In this light, India has been aggressively seeking to expand domestic exploration and production. The New Exploration Licensing Policy (NELP), first announced in 1997, allows foreign involvement in exploration activities previously restricted to state-owned firms. Initially the response was weak, with the number of blocks on auction exceeding the total number of bids during the first several years. However, prospects have seemed brighter in recent years with several international firms such as Cairn Energy of Britain, Russia’s Gasprom, Mosbacher from the US, and Niko Resources of Canada, bidding for blocks in the past few years. Despite these

³² Planning Commission, Government of India, n-1.

³³ Energy Information Agency, US Department of Energy, Hwww.eia.dov.govH

³⁴ Planning Commission, Government of India, n-1.

³⁵ Ibid.

³⁶ Planning Commission, Government of India, n-1.

³⁷ Department of Energy, n-21.

³⁸ “Asia’s Thirst for Oil,” *Wall Street Journal*, 5 May 2004. Reprinted by Institute for the Analysis of Global Security at <http://www.iags.org/ws050504.htm>H

investments, and the fact that only a third of the potential area has been explored, India has not witnessed a major oil find since the discovery of the Bombay High fields, over 28 years ago.

Moreover, Indian domestic oil production has faced obstacles both upstream and downstream. Drilling recovery rates in Indian oil fields have averaged about 30 percent, which falls well below the world average. New technology, brought in by foreign firms, appears to have improved recovery rates. ONGC recently announced a project to boost recovery rates from 28 to 40 percent.³⁹ Transmission problems downstream have also undermined India's domestic production. Although Petronet is currently looking to add 500,000 bbl/d of capacity to its grid, railways continue to eclipse pipelines as the principal means of oil transmission.⁴⁰ Interestingly enough, due to an enormous refining capacity, India is actually a net exporter of oil, although it is not yet clear what advantages this may hold.

Of the almost 2 million bbl/d day of crude oil that India imports, nearly 70 percent comes from the Middle East. While India has a relatively diverse total supply—importing oil from over 25 different countries—nearly two-thirds of its imports come from Saudi Arabia, Nigeria, Kuwait, and Iran. If any of these sources were to be disrupted, India would face massive shortages. Saudi Arabia, in particular, plays an enormous role in meeting India's energy needs, supplying one quarter of all India's oil. Saudi Arabia's important role in India's "oil diplomacy" was underlined earlier this year when King Abdullah sat as Chief Guest at India's Republic Day celebrations. Abdullah's visit resulted in the signing of the 'Delhi Declaration,' in which India entered into its first "strategic energy partnership."

³⁹ Investor Update, *Oil and Natural Gas Corporation Limited*, Found online at: <http://www.ongcindia.com/investor1.asp?fold=investor&file=invest1.txt>

⁴⁰ Energy Information Agency, US Department of Energy. [Hwww.eia.doe.gov](http://www.eia.doe.gov)

The agreement proposes to ensure a "reliable, stable and increased" volume of crude supplies between the two countries.⁴¹ Not only does the partnership affirm that Saudi Arabia will increase investment in India's oil refineries, marketing and construction of oil storage facilities, but also commits the Saudis to helping India construct gas-based fertilizer plants in Saudi Arabia.

While some commentators saw American involvement in the Saudi deal, former Indian Ambassador to Saudi Arabia, Talmiz Ahmad, argues that "Indo-Saudi relations have been taking shape since the end of the Cold War... There was absolutely no US role in the agreement."⁴² Either way, the deal helps to meet India's petrochemical needs in the short-term, allowing it time to harvest alternate energy sources. The deal also underlines India's goal of creating multi-faceted relationships that involve equity participation in overseas assets and participation in downstream projects on the basis of intertwined investments.

Nuclear

India has put significant political and intellectual capital into the development of its nuclear energy program. Many politicians and commentators in India believe that nuclear energy provides a unique avenue to long-term energy security and even energy independence. Although this appears unlikely to materialize, discussion of nuclear potential is inherent to all discussions of India's energy security. As Dr. Sarbinder Singh of the South Asia Regional Initiative for Energy Cooperation and Development (SARI-E) has noted, "nuclear energy provides India's only avenue towards energy independence."⁴³ The Prime Minister has similarly argued that "Thorium utilization is

⁴¹ "India, Saudi Arabia Sign Strategic Energy Pact," *Hindu Business Line*, 28 January 2006.

⁴² Interview with Ambassador Talmiz Ahmad, 1 November 2006.

⁴³ Interview with Dr Sarbinder Singh, SARI-E, 20 October 2006.

the long-term core objective of the Indian nuclear program for providing energy independence on a sustainable basis.”⁴⁴

However, current nuclear production capabilities belie the optimism of such claims. Nuclear energy currently provides only 3,900 MW of energy to the power sector per year—roughly 3 percent of the total power use. The planning commission report found that even if a 20-fold increase takes place in India’s nuclear power capacity by 2031-2032, nuclear energy would still contribute at best, 5-6 percent of the countries total energy mix. Moreover, India does not have adequate domestic uranium reserves. Domestic uranium supplies can only fuel 10,000MW of Pressurized Heavy Water Reactors. India’s uranium is also extremely low quality, being extracted at less than 0.1 percent ores compared to 12-14 percent ores that can be found elsewhere.⁴⁵ Higher quality uranium could reduce India’s nuclear bill by a factor of three or four. This explains, at least in part, India’s impetus for pursuing a nuclear deal with the United States; India hopes that the deal will provide it with adequate uranium to fuel its nuclear program until it can become thorium dependent.

India’s nuclear ambitions are not without precedent. Nuclear energy currently provides 16 percent of the world’s electricity production, with countries such as France, Belgium and Sweden producing over 50 percent of their electricity from nuclear plants. By contrast, it appears that India’s 3 percent nuclear share has ample room for growth. However, even the most optimistic projections show India creating only 16 percent of its electricity from nuclear power by 2052. Thus, although nuclear power may

provide India with a long term option, it is unlikely to serve a defining role in the next half-century.

India’s nuclear ambitions are based on the assumption that thorium-based fast-breeder reactors can be developed, which will allow India to eschew uranium. India possesses roughly one quarter of the world’s thorium, a material used in the uranium enrichment process.⁴⁶ Although India is currently dependent on uranium to fuel its nuclear reactors, it aims to eventually develop the technology to use thorium and uranium-233, a byproduct of the uranium enrichment process, for nuclear power. If the strategy pays off, India could, at least in theory, have a self-sustaining nuclear program that would meet the core of its energy needs.

As of yet, this technology is far from being operational; of the three stages necessary to implement the strategy, only the first has been completed. Roughly, the process consists of creating Pressurized Heavy Water Reactors (stage 1), Fast Breeder Reactors (stage 2), and reactors to process uranium-233 and thorium-232 (stage 3.) Although the Pressurized Heavy Water Reactors have been created, the process took far longer than anticipated, and even optimistic projections foresee the next two stages requiring at least another thirty-five years. Furthermore, it is not definite that this technology will ever materialize or meet the sort of energy demand that India’s current growth foretells. Thus, until at least 2032, nuclear power will not provide a substantial source of energy for India. For the short-term, and probably longer, India will likely be forced to resign itself to fossil fuels.

Hydro-Power & Renewable Energy

Until 1980, the growth rate of hydro and thermal power generation in India was roughly equal. Yet, during the 1980s,

⁴⁴ Message from Prime Minister Manmohan Singh, as read by Dr. Anil Kakodkar, Chairman, Atomic Energy Commission, International Atomic Energy Agency 50th General Conference, Vienna, 20th September 2006.

⁴⁵ Interview with Dr. Sarbinder Singh, SARI-E, 20 October 2006.

⁴⁶ “US approves Indian nuclear deal,” *BBC News*, 9 December 2006.

hydropower grew at only 4.4 percent per year compared with 11.6 percent growth in thermal generation.⁴⁷ Currently, hydro-generation plays a decent role in India's electricity generation, providing 30,936 MW of electricity per year, or 26 percent of the total electricity production.⁴⁸ It is estimated that even if India were to exploit its full hydro potential of 150,000MW, the contribution of hydro energy to the energy mix will only be around 1.9-2.2 percent by 2032.⁴⁹ Although some reports have argued that such calculations are distorted by the way oil equivalence of hydro electricity is calculated, it is undeniable that hydro will play only a small role in meeting India's energy needs—particularly in comparison to European countries and Canada.⁵⁰ Accelerated hydro development plans, especially in Arunachal Pradesh, have been delayed due to environmental and social effects.

The Wind Power Society has estimated India's wind energy potential to be about 65,000MW. Although the current grid capacity is only about 3,000MW, India is a forerunner in international wind energy use, ranking 5th in the world in total energy capacity terms.⁵¹ Despite a positive utilization of this market, wind energy currently contributes less than 1 Mtoe of power to India each year. Even if India harnesses all of its wind potential, the total contribution of wind energy to India's energy mix will remain below 10Mtoe.⁵²

Other renewable sources of energy include bio-mass, bio-diesel, ethanol, hydrogen and solar energy. Bio-mass includes firewood, dung cakes, and other non-commercial

energy sources. Altogether bio-mass contributed 80 Mtoe to domestic use in 2000. Of the renewable sources, solar energy has the largest potential for growth. Although at Rs. 20/kWh it is too expensive to be harvested for commercial use at the moment, the government has estimated that it could potentially create up to 1,200 Mtoe of power by 2032 if the technological progress continues at the current rate.⁵³

⁴⁷ Planning Commission, Government of India, n-1.

⁴⁸ Ministry of Power, Government of India.

[Hhttp://powermin.nic.in/H](http://powermin.nic.in/H)

⁴⁹ Planning Commission, Government of India, n-1.

⁵⁰ N.K. Singh, "India Needs to Avoid Complacency on Energy Security," *Financial Express*, 7 October 2006.

⁵¹ American Wind Energy Association, *Global Wind Energy Market Report 2005*, May 2005.

⁵² Planning Commission, Government of India, n-1.

⁵³ Planning Commission, Government of India, n-1.

4. Natural Gas—The Fuel of the 21st Century?

“Natural gas has emerged as the most preferred fuel due to its inherent environmentally benign nature, greater efficiency and cost effectiveness. The demand of natural gas has sharply increased in the last two decades at the global level. In India too, the natural gas sector has gained importance, particularly over the last decade, and is being termed as the Fuel of the 21st Century.” - *Ministry of Petroleum and Natural Gas, Government of India.*

With serious limitations facing the development of the coal, oil, nuclear and hydroelectric sectors, it seems self-evident that India should place a premium on natural gas. Not only does the country have significant domestic reserves, but the cost of gas on the international market is significantly cheaper than that of oil. Moreover, gas is a multi-purpose fuel that can be used in power generation, but also for industry, fertilizer production, and domestic consumption. With inter-sector competition for gas, private companies have demonstrated a willingness to invest in the necessary infrastructure for both domestic production and imports. Thus, it is only natural that many have called gas the “fuel of the 21st century.”

Although less than 11 percent of electricity production is fueled by natural gas, India has been trying to increase the quantity of gas in the country’s generation mix for 15 years.⁵⁴ The Government’s Xth plan envisages a total additional generating capacity of 34,024.26 MW of energy. Of this, over 21,000 MW is expected to come from thermal power—compared to only 10,000 MW for hydro and 2,600 for

nuclear.⁵⁵ Natural gas will play an integral role in meeting this thermal growth.

Part of the attraction of natural gas is the relative speed with which it can be exploited. Whereas other sources of fuel take years to exploit, hydrocarbons can be sold in the market almost immediately. Major hydro projects can take ten or fifteen years to build—and none of the pending projects are expected to go onstream until 2015. Coal plants take four years to build, plus the cost and time involved in developing an adequate integrated infrastructure. Coal based power also requires the development of clean coal technology, which could take another decade before it is readily available in India. Although nuclear power is envisaged to play a large role in the long term, it will take at least another thirty years before India experiences even a hint of the nuclear capacity seen in Europe or the US. Thus, natural gas provides the perfect stop-gap solution. Not only is it flexible in use, but India can have gas plants up and running in only 12-18 months.⁵⁶ Clearly, at least in the short term, India’s energy needs will be highly dependent on hydrocarbons.

The Indian Government has projected that from 49 Bcm of gas consumption in 2006-2007, India’s demand for gas is expected to rise to 125 bcm by 2024-2025.⁵⁷ While optimists predict that India will be able to meet 42 percent of this demand from domestic supplies, over 75 Bcm of natural gas will still have to be imported each year either as LNG or through pipelines.⁵⁸ This will coincide with a worldwide trend towards natural gas consumption. During

⁵⁴ Interview with Dr. Sarbinder Singh, SARI-Energy, 20 October 2006.

⁵⁵ Planning Commission, Government of India, n-1.

⁵⁶ Interview with Dr Sarbinder Singh.

⁵⁷ Planning Commission, Government of India, n-1.

⁵⁸ “India Faces Challenges Meeting Gas, LNG Import Needs,” *Oil and Gas Journal*, 6 February 2006.

the next twenty years, world demand for gas is expected to increase by 97 percent while demand for oil is projected to grow by only 42 percent.⁵⁹

Demand

The demand for natural gas in India already sharply exceeds the supply. According to some sources the existing gap is between an 83 million cm/d supply and a 150 mcm/d demand.⁶⁰ The majority of gas is consumed by the power and fertilizer sectors, which taken together comprise about 75 percent of gas sales. Demand in these two sectors has grown simultaneously with increased electricity consumption being matched by a spike in fertilizer distribution with new fertilizer grants for rural development. Although gas currently makes up only a small proportion of the energy used in the power sector, the government estimates that 71 percent of the total increase in demand for gas between 2005 and 2025 will come from electricity-generating consumption.⁶¹

Gas consumption has grown faster than any other fuel in India, increasing from .63 Tcf/y in 1995 to over 1 Tcf/y in 2004.⁶² Likewise, gas as a proportion of India's total energy mix rose from 18 percent to 22 percent.⁶³ Demand projections vary based on the variables used but government projections expect demand to reach 1.8 Tcf/yr by 2015 and 2.8 Tcf/y by 2025.⁶⁴ The US Energy Information Administration predicts a consumption growth of 5.1 percent per annum but acknowledges the possibility of much higher growth rates. The majority of predictions range between 6 percent and 8 percent demand growth per year. The disparities in prediction emanate from indecision regarding pipeline deals and

LNG import schemes; if more gas is available then it will spur higher rates of demand growth. Thus, financial problems in the power sector have stalled prospects for big growth in demand. If sufficient supplies are available, it would not be inconceivable to witness a 10 percent growth in demand—even if gas is sold at market rates.⁶⁵ Yet, an easing of gas subsidies by Delhi would force prices upwards, potentially offsetting this trend.

LNG or Natural gas?

India can meet its demand for natural gas in three ways: domestic reserves; LNG imports; or pipeline imports. LNG is natural gas that is cooled to -161 C, at which point it becomes a liquid. In liquid form, the gas occupies only 1/600th of its original volume, making it convenient for shipping. However, in order to cool the gas and keep it at such low temperatures, a capital intensive infrastructure is involved, forcing up the cost of gas. Liquefaction plants, special ships outfitted with cryogenic cooling tanks, regasification terminals and domestic transmission infrastructure all add up to make LNG a relatively expensive prospect. Thus, natural gas is far cheaper if it can be obtained as is. This happens in two ways: domestic production and/or pipeline gas.

Currently, only 25 percent of world gas production is internationally traded, with 19 percent being transported through pipelines, and 6 percent being traded as LNG.⁶⁶ The majority of the pipeline trade takes place in Europe and North America. By contrast, LNG imports tend to be more prevalent amongst East Asian consumers such as Japan and North Korea who do not have access to nearby gas suppliers. However, the international gas trade is expected to increase rapidly over the next decade. With the US recently becoming a major importer

⁵⁹ Talmiz Ahmad, n-2.

⁶⁰ Energy Information Agency, US Department of Energy. Hwww.eia.dov.gov

⁶¹ Planning Commission, Government of India, n-1.

⁶² Energy Information Agency, US Department of Energy. Hwww.eia.dov.gov

⁶³ Talmiz Ahmad, n-2.

⁶⁴ Planning Commission, Government of India, n-1.

⁶⁵ Neil Ford, "India's Insatiable Demand for Gas," *Platt's Energy Economist*, 1 September 2006.

⁶⁶ Talmiz Ahmad, n-2.

of LNG, international LNG trade is projected to grow at 7 percent per annum until 2020 by which time it will make up 38 percent of all international gas trade.⁶⁷

Domestic Production

While India's domestic gas production has grown dramatically in the past few years, India cannot produce enough gas to meet its demand. In contrast to North Central Asia and the Gulf which have over 70 percent of the world's gas reserves, India and China together are home to less than 2 percent. Yet, with gas demand estimated to grow by 6 percent p.a. in India, the need for imports is already pressing and will likely become even more so barring the event that India can sustain its recent exploration successes.

India has experienced a number of major finds in recent years that will provide important boosts to domestic production as they begin to come on-stream. Reliance industries discovered a large offshore field in the Krishna-Godavari Basin in Andhra Pradesh in December of 2002. The find is estimated at 14tcf, which will provide a massive new source of energy for India when production starts in 2008. Reliance announced another major find in June, 2004 in Orissa estimated at 1 Tcf. Similarly, Cairn energy has uncovered fields in Andhra Pradesh and Gujarat estimated at 2 Tcf. A major find by the Gujarat State Petroleum Corp (GSPC) led the Ministry of Petroleum and Natural Gas to estimate in 2005 that the national reserves may be about 30 Tcf—mostly in fields lying off the coast of Mumbai. While all of these supplies will help meet domestic demand, they may, paradoxically, also increase India's need for gas imports. India's domestic finds have provided the impetus for the creation of a costly gas transmission infrastructure, which, once created, will spur leaders to find new ways of exploiting it. Moreover, by

pumping low cost domestic gas into the energy mix, India will create a market for gas, which will likely increase the demand.

The two largest domestic gas producers are the state-owned companies Oil and Natural Gas Corporation (ONGC) and Oil India Limited (OIL), although joint-ventures and private companies are playing an increasingly important role in exploration. The New Export Licensing Policy (NELP), first announced in 1997, has offered opportunities for foreign involvement in production and exploration—activities that had traditionally been restricted to state-owned firms. Although the initial response was weak, the recent finds have encouraged both foreign and domestic activity, with an unprecedented 69 bids for 20 blocks in the NELP V.

The majority of Indian gas is marketed by the state-owned Gas Authority of India (GAIL), who distributes all ONGC output and a substantial portion of OIL's production. In 2004, GAIL supplied about 62.61 mmcmd to about 300 customers.⁶⁸ The private sector provides another 8.5 mmcmd, although it is generally at much higher prices than the subsidized GAIL gas. Of this, 41 percent goes to the power sector, 32 percent to fertilizer producers, and the rest to industry, especially the sponge iron sector.

However, gas could potentially become an even larger portion of the total energy generating mix if India fully liberalizes its electricity markets. Currently, subsidies in the electricity market require that GAIL provide gas to the state-owned power companies at subsidized rates. On the other hand, private sector power companies must pay market rates for their gas but are also forced to offer the subsidized electricity rates. While GAIL can offer subsidized rates to power companies and allow the government to foot the bill, private gas

⁶⁷ S.C. Tripathi, "Integrated Energy Policy: Challenges and Opportunities," Speech given at India Energy Summit, 2006, 7 November 2006.

⁶⁸ Gas Authority of India, Ltd., [Hhttp://gail.nic.in/gailnewsite/index.html](http://gail.nic.in/gailnewsite/index.html)H.

companies are unwilling to invest heavily in infrastructure because of the low rate of return from power companies.

As one industry expert has argued, India has developed “a twin track gas sector... with the protected industries operating in a separate economic arena to other gas consumers.”⁶⁹ Forced to provide subsidized electricity, Indian power generators have a cap on what they can realistically afford to pay for gas. When that price falls below the market price, then Indian power companies must turn to other sources of fuel. India’s gas imports can still be sold profitably to private sector clients in the fertilizer and industrial sectors, but end-user restrictions in the power sector invariably determine the price that can be paid for power-generating gas. Thus, subsidies in the electricity sector can undermine India’s ability to compete in international gas markets.

Although a recent Nexant report found that “options to import gas via pipeline or in the form of LNG would be economically viable” even when calculations were based on international market prices, liberalizing the electricity and, in turn, gas markets would increase interest in private sector investment and development of import infrastructure.⁷⁰ That would increase the total demand for gas. While the UPA has not pursued liberalization of the power sector as fiercely as its predecessor, government policy has continued to promote privatization as the key to increased energy efficiency. If this trend continues, it could eventually fix the financial health of the power sector, which would in turn lead to much higher than expected long-term demand for natural gas.

LNG Import Options

International LNG trade started in the mid 1960’s and has increased rapidly ever since. Situated between the major LNG export

markets of the Middle East and Southeast Asia, India is in a geo-strategically ideal location to take advantage of LNG imports to meet its energy needs. Moreover, with the US, Europe and China already competing for oil, it appears that LNG could provide a good substitute to fuel India’s growing industry. Thus, in the late 1990s, India’s Foreign Investment Promotion Board (FIPB) decided to take advantage of LNG imports, approving twelve prospective LNG terminal projects, of which five have been built. The Government of India also tried to encourage investment by placing the import of LNG in the Open General License category, which permits 100 percent foreign investment.

However, in 2001, the FIPB stopped approving new terminals and financial problems with the Enron-backed Dabhol plant in Maharashtra called into question the financial viability of LNG imports. Although it was 90 percent completed, construction of the Dabhol plant was halted in June, 2001.⁷¹ Yet as oil prices rose in the wake of 9/11 and the US invasion of Iraq, natural gas prices remained comparatively low—and potential import costs of \$2 MMBtu revived interest in gas imports. Therefore, in 2003, Petronet, India’s largest investor in state-sector projects and a joint-venture between ONGC, OIL, GAIL, the National Thermal Power Corporation (NPTC), and Gaz de France, signed a 25 year sale-and-purchase agreement with Qatar’s Rasgas. Although the company did not have a single firm customer, the \$2.53 MMBtu price was low enough to convince Petronet to build a 5 million meter a year (mm/y) LNG import terminal at Dahej. The Dahej terminal began operation in 2004, receiving India’s first shipment of

⁶⁹ Neil Ford, n-65.

⁷⁰ Nexant, Inc. Hwww.nexant.comH.

⁷¹ Two American firms – General Electric and Bechtel – eventually pushed the Government of India to agree to completion of the Dabhol project—renamed the Ratnagiri project—in 2005. It should be finished by the end of 2007.

LNG on January 30.⁷² The gas purchased by Petronet for \$2.53 MMBtu sells in India for \$4-\$4.5 MMBtu once the insurance, freight, and regassification costs have been added.⁷³

Eager to get a stake in India's massive market, Shell Group built an LNG import terminal of their own at Hazira in Gujarat and signed contracts for LNG from Oman. Hazira went into operation in November of 2004. Petronet's second terminal at Kochi is expected to go onstream in 2009. There are currently five LNG terminals either under construction or in operation in India.

However, the low-cost, long-term contracts of 2003-2005 have proved difficult to replicate as gas prices have increasingly caught up to oil prices on the international market. In contrast to three years ago, soaring oil prices have increased both demand and prices in the gas market. International energy consultants, such as Fereidon Fesheraki, have argued that new competition for supply from the US will cause gas prices to continue to rise throughout this decade, forcing Asians to pay crude oil parity or above for LNG, rather than the discounted Japanese Crude Cocktail prices to which they had become accustomed.⁷⁴ Talk of a "gas OPEC," including Russia, Iran and Turkmenistan, has further fueled speculation about high LNG prices.⁷⁵ Keiji Takemore, General Manager of Energy Resources Development at Osaka Gas, has pointed out that there are increasingly few opportunities for LNG buyers, arguing that "The LNG market is

currently a sellers market."⁷⁶ However, there remains optimism that technological improvement could actually lower the cost of LNG in coming years. Ambassador Chandrashekar Dasgupta of TERI predicts that as the technology improves and becomes more readily available, the price differential between LNG and natural gas should decrease. "Although natural gas will never be a perfect market, improved technology will make liquefied gas a fungible commodity. Large price differences [between natural gas and LNG] will be a thing of the past."⁷⁷

While international spot prices for LNG have climbed as high as \$10MMBtu, power developers in India claim that any price over \$3-\$3.50MMBtu would not be economically viable. Although power sector reform and liberalization will reduce some of the price pressure on power sector, the problem seems likely to persist, at least in the near future. The ease with which Petronet and Shell have sold their LNG has underlined the potential demand in India, but until power sector liberalization opens up the door to gas sales at market prices, Indian firms must negotiate for gas at a disadvantage. Thus, Wood MacKenzie's John Meagher has argued that Indian LNG demand growth is "highly uncertain and depending on, among other factors, the pace of gas market price reform in India."⁷⁸ Fortunately, India's geographical proximity to the major LNG exporting countries provides it with a delivery cost advantage that has so far prevented it from being priced out of the market.

One victim of the rise in gas prices has been India's preliminary LNG deal with Iran. In a deal signed in 2003-2004, India appeared to have wrestled a remarkably low price of \$2.97 MMBtu for the first three years of a

⁷² "India Enters LNG Era," *World Gas Intelligence*, 13 January 2004.

⁷³ "India Explores Gas Supply Options," *Platt's Power in Asia*, 3 February 2005.

⁷⁴ "Rising LNG and Oil Prices in a Seller's Market: Are We Ready for the New Game?" Facts Inc, quoted in "Gas from Iran May Cost India Dear," *Rediff*, 21 March 2005.

⁷⁵ Sergey Blagov, "Russian Moves Spark 'Gas OPEC' Fears," *International Relations and Security Network Security Watch*, 10 June 2006, at [Hwww.isn.ethz.ch/news/sw/details.cfm?id=16364](http://www.isn.ethz.ch/news/sw/details.cfm?id=16364)H (16 October 2006).

⁷⁶ "Japan, India hunt for LNG as supply tightens," *Reuters*, 14 October 2006.

⁷⁷ Interview with Ambassador Chandrashekar Dasgupta, 27 October 2006.

⁷⁸ "India's terminal story: First-time lucky, tough road ahead," *Platt's Natural Gas*, 25 July 2005.

25-year, 7.5 million m/y contract. Further, the pact had linked the gas price to that of Brent crude after the first three years with a ceiling of \$31/bbl, which would cap the LNG price at \$3.1375MMBtu.⁷⁹ However, with the price of Brent crude rocketing to over \$75/bbl, Iran realized that a cap of \$31/bbl had drastically underestimated the possible revenue.

As signed by the two countries, the LNG deal stated that it would only move forward once approved by Iran's Board of Directors; but Iran's Board of Directors is answerable to the Parliamentary Committee of Economic Affairs. Thus, when a new, more conservative, Iranian Parliament was elected in June 2005, the deal that had been signed by their predecessors lost all support. Beholden to powerful Islamic and Nationalist lobbies that oppose gas exports, the new Parliamentary Committee refused to support the deal as previously negotiated.

Faced with this setback to its energy plans, India confronted a choice: it could either sue Iran in the International Commercial Court and risk losing the gas altogether or it could try to renegotiate the deal based on the new pricing environment. Eventually, India, having persuaded Iran to drop its demand for no upper or lower price limit, agreed to renegotiate the deal. Seeing that crude prices had risen by \$20 bbl, Iran initially sought to raise the ceiling price from \$31 bbl to around \$50 bbl, which would result in gas for India at about \$6 MMBtu.⁸⁰ Negotiations and the falling price of crude softened the Iranian stance during the fall of 2006 with ceilings as low as \$40 bbl being proposed.⁸¹ However, recent upward trends in the price of crude have once again created cause for disagreement between the two countries.

⁷⁹ "Iran Signs Landmark Gas Deal with India," *Energy Compass*, 14 January 2005.

⁸⁰ "Iran-Pak-India pipeline — India for linking gas prices to crude, alternative fuels," *The Hindu Business Line*, 2 January 2006.

⁸¹ Interview with Ambassador Talmiz Ahmad, 3 November 2006.

Moreover, the deal faces other obstacles. It is uncertain that Iran has the technology to liquefy the natural gas even if a pricing mechanism could be agreed upon.⁸² Iran had hoped that the sheer size of the deal would persuade international companies to invest in the necessary technology. However, when French and German firms refused to supply the technology, it became clear that persuading companies to risk the threat of US sanctions would be more difficult than expected. Furthermore, it is not clear that Iranian LNG would definitely contain the necessary petrochemicals for their gas to meet the needs of India's fertilizer and industrial sectors.⁸³ Lean gas—gas that has had chemicals such as butane, propane and ethane removed—is satisfactory for power generation, but due to the high cost of LNG, it is unlikely that India's power sector could afford to purchase LNG. Since, the other industries need rich gas, the Iranian deal is dependent on the gas supplied being of adequate quality.

Thus, India's LNG import schemes face limitations in their ability to meet India's larger energy goals. Amitav Sengupta, a director at Petronet LNG, has pointed out that "we have started taking spot cargos. So far we have taken 10 cargoes. I think there will be 4 to 6 more this year."⁸⁴ Yet Vishvjeet Kanwarpal, chief executive of Asia Consulting Group, has argued that, "The market will not pay [spot prices]. Power production in India is viable only at \$3 per million Btu gas prices."⁸⁵ However, with spot prices hovering at around \$7.5 MMBtu in the US market, it is unlikely that India will be able to secure LNG for under \$5.5

⁸² Richa Mishra, "LNG from Iran: Deal depends on access to liquefaction technology," *The Hindu Business Line*, 26 June 2005.

⁸³ Robert Cutler, "Delhi's Options Beyond Iran," *Asia Times*, 28 March 2006.

⁸⁴ "Japan and India hunt for LNG as supply tightens," *Daily Times* (Pakistan), 14 October 2006.

⁸⁵ "Gas from Iran May Cost India Dear," *Rediff*, 21 March 2005.

MMBtu. Thus, LNG imports do not provide a good option for meeting India's power needs until either the electricity market is liberalized or technology improvements in LNG infrastructure decrease the cost of LNG on the international market. As it stands right now, LNG investment is being stymied by an inability to even predict future rates of gas consumption. Although Petronet has been supplying gas to meet the public sector's power needs, it is unlikely that private sources—which can get two and a half times as much from private sales—will be willing to supply the power sector with enough gas to meet its demands.⁸⁶

Transmission Infrastructure

Before deciding to proceed with costly gas import projects, it is necessary that India develop an adequate infrastructure to transport the gas once it reaches India. Although India has been investing heavily in infrastructure development for the past few years, the internal gas distribution system is inadequate. Current pipelines favor the North-West, while the South and East of the country are void of the necessary infrastructure for gas transmission. Thus, even if gas imports increased dramatically, these sections of the country would have to rely on their coal dependency and would be unable to access gas supplies.

While the majority of India's onshore gas production is consumed locally, most of the gas that is produced in India's offshore fields is pumped through Uran from where it goes to either Mumbai or Hazira. The gas headed to Hazira is fed into the country's largest pipeline, the Hazira-Bijaipur-Jagdishpur pipeline (HBJ), running through Gujarat, Madhya Pradesh, Rajasthan, Uttar Pradesh, and Haryana. GAIL began an expansion of the pipeline in 2002, which should eventually increase the

capacity from 1.1Bcf/d to 2.1Bcf/d.⁸⁷ Hopefully, the capacity increase will enable construction of spur pipelines branching off of the main HBJ route.

GAIL has also reportedly drawn up plans for a national transmission grid, but it remains to be seen how much of it will actually be implemented. A new distribution infrastructure in West Bengal and a pipeline from Kolkatta to Chennai seem like the most likely options to actually be conceived. A lack of infrastructure in Andhra Pradesh has led Reliance to talk of constructing its own pipeline to link its fields with the existing HBJ network. While other options will need to be pursued as well, these additions should drastically increase India's transmission ability. Moreover, the entry of Reliance into the transmission sector will promote competition in an area traditionally monopolized by state-run firms.

Pipelines Options

Transnational pipelines are an attractive option for meeting India's energy needs because they provide large quantities of hydrocarbons for long-term periods while uniting the producer and consumer in a mutually dependent relationship. Unfortunately, transnational pipelines also carry a host of technical, financial and political difficulties. Perhaps for these reasons, Asia is home to comparatively few pipelines compared to the rest of the world. Yet the overwhelming nature of the demand and the availability of resources offer significant potential for pipeline expansion throughout the continent.

Although interest in pipeline deals has been renewed by the high prices of LNG, the two forms of gas import would not be mutually exclusive. The Indian gas market could easily incorporate all of the currently pending LNG and pipeline projects, although it is doubtful that they would all go

⁸⁶ "Petronet LNG Joins Hands with Delhi Government for Gas Supply to Power Plants," *IRIS*, 27 October 2006.

⁸⁷ Neil Ford, n-65.

through. Although a number of different pipeline options have been explored, there are only three that currently seem to carry any prospect of success. The first is a pipeline from Myanmar, where Indian companies have equity holdings in a gas field. The smallest of the three options, the Myanmar pipeline would carry gas into India through the Northeast states. The second pipeline option would capitalize on central Asian gas, extending from Turkmenistan, through Afghanistan, Pakistan and into India. This option is known as the TAP or TAPI, depending on whether India is involved. The final option for gas imports is the IPI, which would be the largest and most expensive option, but has also emerged as the one with the best chance of success.

Although there is probably sufficient demand for all three pipelines, it is likely that the completion of either the TAP or the IPI would hinder progress of the other by removing some of the urgency required to overcome the political obstacles. By contrast, the Myanmar option is small enough that it would probably have little effect on negotiations concerning the other two. It may be that the Myanmar option plus one of the others is the best scenario for India as it would create a situation in which gas would flow into the country from both the east and west.

Until mid-2005, the Myanmar pipeline seemed to be a relatively simple affair. India's ONGC Videsh and GAIL already held a 30 percent stake in the offshore A-1 and A-3 blocks, thus assuring that access to gas supply would not pose problems. Moreover, the pipeline could run through Bangladesh, who could, at least in theory, supplement the gas flow with some of their 10 Tcf of proven reserves. Although the pipeline would provide relatively small amounts of gas, it could provide energy directly to where it is needed most: the Northeast and east coast of the country.

However, in October 2005, Bangladesh attached a host of demands to their involvement in the pipeline project, leading one diplomatic source to say "it is clear that they have made the pipeline a political issue and are raising trivial matters to delay it."⁸⁸ Despite the hefty transit fees that Bangladesh would gain from the option, the Chairman of GAIL admitted late last year that "the Bangladesh route is as good as shelved."⁸⁹ Although the pipeline will cost up to 50 percent more without Bangladeshi involvement, India signed a supply deal with Myanmar in March 2006 that would allow the project to bypass Bangladesh and deliver the gas to Tripura.⁹⁰ Recent events, however, seem to indicate that Myanmar is looking to break its preliminary deal with India in order to sell its gas to China.⁹¹ Although economic rationale would dictate that Myanmar sell to India, whose border is less than 300 km from the gas field, Myanmar has made statements suggesting that it is going to pipe its gas over 900 km to the Chinese border, dealing a significant blow to the prospects of India piping gas in from the East.

The Turkmenistan option seems equally unlikely to materialize. Not only would the pipeline be exposed to disruption in both Afghanistan and Pakistan, but also it is unclear that Turkmenistan has adequate reserves to meet the explosive Indian demand. Like the IPI, the TAP pipeline has had a long shelf-life. First proposed in the 1990s, it managed to briefly secure the backing of US oil major Unocal, although the company eventually withdrew due to concerns about the conflict in Afghanistan.

The project has received considerable enthusiasm from Ashgabat, which is seeking to end its export dependence on Russia.

⁸⁸ "Running Into Rough Weather," *India Today*, 10 October 2005.

⁸⁹ Neil Ford, n-65.

⁹⁰ "Oil Ministers to Meet in June," *Financial Express*, 17 April 2006.

⁹¹ Sanjay Datta, "Myanmar ditches India for China in gas deal," *The Times of India*, 9 April 2007.

Still tied to the Soviet-era infrastructure, Turkmenistan currently relies on Gazprom to transport its gas to markets in the Ukraine and Russia. Turkmenistan's fears were underlined in March, 2006, when Russia cut off gas supplies to Ukraine during a political dispute. However, some experts doubt that the 71 Tcf Turkmenistan reserves are adequate to export the proposed 1.16 Tcf a year, especially with Turkmenistan also promising to supply gas to China and Russia.⁹² If India were to participate in the project, it would receive 60 percent of the proposed gas, or approximately 69.6 Tcf a year.⁹³

India officially joined the project in May 2006. However, there has been considerable speculation that India's motives were to put pressure on the Iranians and to meet pressure from the Americans, rather than a genuine interest in the project. The US has thrown its full support behind the TAP option, seeing it as not only a means of providing badly needed revenue to the US-backed government in Afghanistan but also as a way of distracting Indian and Pakistani interest in the Iranian option. Indian Foreign Secretary Shyam Saran legitimized speculation regarding India's intentions when he commented that "participation in the TAPI project would give us leverage with Iran on the IPI gas pipeline project. It would also be in tune with the latest US strategic thinking for the Central Asian region."⁹⁴

⁹² See "South Asia Looks North for Gas," *Platts International Gas Report*, 21 October 2005.

⁹³ Interview with Dr. Rajiv Kumar, ICRIER, 19 October 2006.

⁹⁴ "Why Does India Want to Join the Turkmenistan-Afghanistan-Pakistan Project?" *Platts International Gas Report*, 2 June 2006.

5. The Iran-Pakistan-India Pipeline

In a series of studies conducted in 2006, the Asian Development Bank found the IPI project to be the most economically viable option for Indian pipeline imports.

Although pessimism about the IPI is fueled by the fact that the project has languished for a decade and a half, assessments of the IPI should realistically focus on the period since January 2005, when progress really began. With the exception of contractual structure and pricing, all the important elements of the pipeline have been agreed upon in only two years. On the other hand, some have argued that pricing and contractual structure are the two most important—and difficult—parts of the agreement to work out. One such skeptic, Siamak Namazi, managing director of the Tehran-based consultancy, Atieh Bahar, has argued that problems often arise because “Iran doesn’t really agree with international oil companies on how to price the gas. A lot of things fall through during pricing negotiations.”⁹⁵

The environment surrounding negotiations during the past two years provides optimism for the success of negotiations. According to people present at the negotiations, all three countries involved appear determined to treat the pipeline as independent from the vagaries of day-to-day politics. Before 1995, both India and Pakistan seemed determined to link the pipeline to other issues. India tried to tie the pipeline to conditions about transit rights for trade links with Afghanistan and also to demands that Pakistan lift bilateral trade restrictions. Pakistan, on the other hand, sought to lash the pipeline to settlement of the Kashmir issue. However, since 2005, all parties have dropped such demands and determinedly kept politics and pipeline negotiations separate.

Pricing

The most difficult issue currently facing negotiators is the matter of pricing. Since the pipeline is expected to provide a stable supply of gas from Iran to Pakistan and India for the next 40 years, all three countries are wary of signing a deal that they may regret later. Iran especially appears to have learned from its LNG deal with India, and is unwilling to tie itself to a low price. Moreover, the international gas market has no regulated price mechanisms such as those found in the petroleum market. Thus, the gas price, for all intensive purposes, appears to be whatever the end user is willing to pay.

Unfortunately, in the case of the IPI, there are several end-users, who all have different priorities. Although India has not stated exactly how the pipeline gas would be allocated, preliminary negotiations suggest that it would be broken up so that 50 percent would go to power generation, 30 percent to fertilizers, 15 percent to industry, and the remaining 5 percent would be sold for domestic consumption.⁹⁶ The disconnect that arises is that all of these end-users are willing to pay different amounts for the gas. The fertilizer sector, which has no alternative other than the exorbitantly priced naphtha, would be interested in the gas at almost any rate it can get. Similarly, industrial users will pay large amounts for the gas because their alternatives are oil and coal. Although coal would be cheap, the development of environmental protection measures that would need to coincide with coal use would be highly capital intensive. However, if India is to anchor the plan in power-generation, which it desperately needs, then

⁹⁵ “Middle East Survey; Gas To Go,” *Petroleum Economist*, 6 September 2004.

⁹⁶ Interview with Ambassador Talmiz Ahmad, 3 November 2006.

the end-user is the bankrupt State Electricity Boards. Since the power sector is currently a protected industry, it cannot afford to pay commercial rates for the gas. Yet, as Iran's deputy oil minister Mohammad Nejad-Hosseinian has commented, "the price suggested by India and Pakistan is almost half of the price we offered. If the two governments intend to subsidize their domestic gas, there is no reason for Iran to pay this subsidy."⁹⁷

There has been some discussion of selling the IPI gas to the industries that can afford to pay the prices that Iran is asking. Yet such proposals also encounter difficulties. Under the current agreement, the gas coming through the pipeline would be lean gas, with Iran having already removed the majority of the petrochemicals. Lean gas is good for power generation uses but if the end-users were to be other industries, the quality of the gas would need to be renegotiated, setting discussion back by at least six months.

So far, Iran has made several offers of pricing mechanisms that have been unacceptable to India. Initially, the Iranians wanted the gas to be priced according to Henry Hub, the American spot price index. India and Pakistan instantly rejected this option because spot prices are always substantially higher than prices for long-term deals. Iran has also offered to base the price on the average of LNG prices to Japan, Korea, and India. However, this proposal too was unacceptable to India and Pakistan because Japan and Korea are entirely dependent on LNG and therefore willing to pay more than other users. India has demanded that the price of gas be offered at 'cost-plus', which is the cost of gas production plus transportation costs. An analysis of the situation under-taken by the Gaffney Cline and Associates consultancy firm failed to yield any positive results when India and Pakistan refused their proposal in late 2006.

⁹⁷ Neil Ford, n-65.

Currently Iran gas price formula places a floor of \$30 a barrel and a ceiling of \$70 a barrel of Japanese Crude Cocktail (JCC) price. If the price of gas falls between the floor and ceiling, gas will be priced at 0.063 times the JCC price, plus a fixed \$1.15. This formula would yield a price of \$4.93 per MMBtu at a \$60 barrel of Japanese crude oil. However, the \$0.49 MMBtu fee demanded by Pakistan combined with the transportation tariff of \$1.57 MMBtu would mean that the cost of gas at the Indian border would be close to \$7 MMBtu, almost \$2.50 more than India is willing to spend.⁹⁸

Security

Security concerns have transitioned from unease about Pakistan's ability to undermine India's gas supply to unease about Pakistan's ability to protect India's supply. At least 475 km of pipeline must traverse Balochistan, a hostile territory that has increasingly appeared to be outside of Islamabad's control. A recent report by the US National Intelligence Council and the CIA forecast a "Yugoslav-like fate" for Pakistan in a decade if problems in Balochistan cannot be resolved.⁹⁹ Militant Baloch tribesmen have attacked the Pakistan's Sui gas fields in the past, cutting off power to Karachi and other cities for several days. There is little indication that the Balochis would act with any more restraint towards a pipeline extending to India.

The Australian firm, BHP Billiton, the principal backer of the pipeline, plans to ensure the safety of the line by burying the entire project a meter below ground. Compressor stations will be installed every 100 km with concrete armor that, BHP believes, will protect the line from attacks; one BHP official recently noted that the line

⁹⁸ Anupama Airy, "Iran gas deal: keep it simple, stupid," *Financial Express*, 10 April 2007.

⁹⁹ Gal Luft, "Iran-Pakistan-India pipeline: the Baloch wildcard," Institute for the Analysis of Global Security, 12 January 2005.

“can withstand rocket attacks.”¹⁰⁰ Furthermore, the line would be guarded by armed patrols and motion sensors installed along the length of the route. While these measures may help to protect the security of the line, they will also substantially increase the final price tag.

Wary of the pipeline’s security in case of an armed conflict with Pakistan, India has sought a guarantee from Iran that, if Pakistan were to disrupt the gas supply, Iran would supply an equal amount of LNG at the same price. Tehran has agreed to do so and has also indicated that it will stop all deliveries of gas to Pakistan if Islamabad cuts off the supplies to India. Moreover, India hopes that by purchasing the gas indirectly through an international consortium of bankers and energy companies, it can insulate the deal from the sort of political manipulation that tends to hinder government-to-government contracts.

Financing

Due to US pressure and the Iran-Libya Sanctions Act, Iran and India may have difficulty finding financing for the project. One industry source recently told Platt’s that “after the nuclear debate, the European Bank for Reconstruction and Development is unlikely to offer funds, and neither will the US.”¹⁰¹ Iran has received Russian offers to help finance the project with President Putin himself making the case: “Iran wants it, Pakistan wants it, India wants it; Gazprom is ready to help.”¹⁰² Yet, Iran is wary of accepting help from Russia, its biggest competitor in the gas market, who it sees as trying to gain leverage over rival gas suppliers. Russia, on the other hand, is probably acting on what they see as growing European interest in Iranian gas. At present Russia provides the majority of European

gas, but caused a wave of anxiety amongst its European partners when it shut off gas supplies to the Ukraine in early 2006.

One positive sign came early this year when Norway offered to help finance the pipeline. In a trip to Islamabad, Prime Minister Jens Stoltenberg told the Pakistanis, “our country is negotiating a gas project with Iran and we can help construct the pipeline whenever the deal is made.”¹⁰³ Since the US is unlikely to place sanctions on oil majors functioning out of Europe, the statement showed that American clout might not be as much of an obstacle as previously thought.

However, unlike Qatar, Iran does not have an established reputation as a reliable export supplier. Since this is Iran’s first major gas export scheme, insurance premiums are likely to be very high, especially given uncertainty over Iran’s nuclear stance, internal problems in Pakistan and the fragile state of Indo-Pakistani relations. Although a number of international banks have certified the financial viability of the IPI project, it is unclear whether high insurance premiums and expensive security options have yet been taken into account. Although prevailing logic indicates that pipelines are always cheaper than LNG for distances under 4,400km, the unique variables impacting the IPI could conceivably undermine that logic.

Meeting India’s Energy Needs

For the first time, India’s XI plan mentions the possibility of 10 percent economic growth.¹⁰⁴ Yet, that growth is dependent on India meeting its energy requirements, which in turn are dependent on finding a sustainable source of hydrocarbon imports. Ambassador KV Rajan recently framed the argument succinctly when he said, “India cannot hope to meet 10 percent economic

¹⁰⁰ Ibid.

¹⁰¹ “Iran: Unfulfilled Potential,” *Petroleum Economist*, 14 November 2005.

¹⁰² “Russia Backs IPI Route,” *Petroleum Economist*, 12 July 2006.

¹⁰³ “Norway Offers Help With Iran-Pakistan-India Project,” *Platts International Gas Report*, 24 March 2006.

¹⁰⁴ B.K. Chaturvedi (Cabinet Secretary), *India Energy Summit*, New Delhi, 7-8 November 2006.

growth, alleviate poverty or meet any of its goals as a major power, unless the question of hydrocarbon security is tackled in an urgent manner.”¹⁰⁵ Since India will be dependent on hydrocarbons for the majority of its energy needs, natural gas sources must be secured, especially in the context of unaffordable oil prices.

India should also pursue the IPI because other sources of natural gas will become increasingly scarce in coming years. A growing number of countries have reacted to the recent hikes in crude prices by turning to natural gas. The Kyoto Protocol has enhanced this trend by tying nations to carbon-reduction standards, which rules out crude and coal as sustainable alternatives. Moreover, Hurricanes Rita and Katrina have forced America into the international gas trade. All of these factors will place the gas suppliers in an increasingly strong position. Argus has predicted that the empowerment of gas-suppliers bodes ill for the future of long term gas contracts, and that most LNG will be bought at spot prices in the future. Since India’s power sector cannot afford spot priced LNG, India should vigorously pursue pipeline imports now, so that it will not have to compete in a volatile LNG market later.

Some critics believe that India will be well-equipped to meet this change because of its domestic reserves. Even if India’s domestic supplies had been verified—which they have not—domestic reserves could actually defy conventional logic and increase India’s need for imports. As the disproportionately high demand rates in the Middle East demonstrate, availability growth and demand growth are directly correlated. This trend has already manifested itself in India. India’s discovery of domestic reserves prompted New Delhi to switch public transportation to compressed natural gas (CNG), from its traditional petrol consumption. With automobiles now

dependent on gas, the guaranteed supply must correspondingly increase.

Likewise, natural gas use has led to the development of a gas infrastructure, which should be exploited to make the investment worthwhile. GAIL is planning a national gas grid whose inevitability was described by S.C. Sharma, the Chief Commercial Officer of Petronet, as “merely a matter of time.”¹⁰⁶ Many of the pipelines included in this transmission grid are already under construction. Once the infrastructure has been built, India will look to run it at maximum capacity.

Although LNG imports have made giant strides in recent years, they are currently inadequate in meeting India’s demand. The two functioning import terminals, at Dahej and Hazira, are already functioning at maximum capacity. In order to supplement existing contracts, Shell, Petronet, and GAIL all purchased substantial amounts of LNG on the spot market last year. Pipeline imports would eliminate the need for such costly purchases. Also, since pipeline gas would be much cheaper than LNG, gas could go towards meeting the power sector’s needs, freeing LNG imports to be distributed for fertilizer, industry, and, increasingly, automotive uses.

Although pipeline gas is often seen as a risky import supply, the option could actually mitigate certain supply chain risks. By tying the producer and consumer in a mutually beneficial relationship, pipeline imports encourage stability of supply. The sheer cost of the project alone ensures that all parties will seek to increase their marginal profit from the pipeline. As attacks in Balochistan in April demonstrated, the physical security of pipelines cannot be guaranteed. Yet, no method of importing gas is going to be free of security risks; LNG imports face substantial security

¹⁰⁵ Ambassador K.V. Rajan, *India Energy Summit*, New Delhi, 7-8 November 2006.

¹⁰⁶ S.C. Sharma, “Business-Government Partnership for Energy Security,” *India Energy Summit*, New Delhi, 7-8 November 2006.

hazards during shipping and at regasification terminals.

Overall, Indian policy appears to be to proceed with IPI negotiations while keeping all of its options open. However, since gas imports will determine the rate of India's economic growth, negotiators should push hard to overcome obstacles to the IPI, which would provide the cheapest gas import scenario for India. Since Iran has offered to supply LNG at the same cost in case of disrupted supply, India has little to lose by pushing ahead with negotiations. Although the IPI pipeline is not an absolute necessity in meeting India's long-term energy security, it is certainly a desirable option.

6. The Diplomatic Matrix - Balancing the Objectives of Different Stakeholders

Unfortunately for India, the IPI pipeline option presents a number of diplomatic hurdles. Although there are three countries involved in the IPI pipeline, the dialogue has developed into a more complex scenario, with the US asserting itself as a fourth stakeholder in the pipeline's future. Therefore, the pipeline's progress will be dependent on balancing the bilateral relationship matrix between these four countries: Iran, Pakistan, India, and the US.

Each of the four stakeholders has unique objectives in the project. If India is to benefit from the pipeline, it will have to assess and understand the strategic and security interests of the three other stakeholders. Pakistan views the pipeline primarily as an economically viable way of meeting its energy needs. Similarly, India views the pipeline through an economic lens. In Iran, the debate is less clear, with the pipeline presenting a geo-political opportunity to undermine American efforts to isolate it in the international arena. Although Iran also stands to benefit from securing a long-term export market for its gas, many in Iran view gas exports as running counter to Iran's long term interests. Meanwhile, the US views the IPI pipeline as a threat to its efforts to curb Iranian nuclear ambitions.

Pakistan

Like India, Pakistan is eager to import enough natural gas to sustain high rates of economic growth. The Pakistani economy is growing at about 7 percent per year with electricity demand increasing at a similar rate. Industrial growth is even more rapid, increasing at 12.5 percent a year, and consuming an ever larger portion of Pakistan's energy supply. With a large

number of cement, fertilizer and textile factories under construction, Pakistan is likely to require a considerable increase in gas and power supplies in the near future.

Pakistan is heavily dependent on gas for meeting its energy needs, with gas making up 60 percent of its total energy basket.¹⁰⁷ National power generating capacity is fueled primarily by thermal power, which encompasses 70 percent of its total production. The hydroelectric sector adds 28 percent and nuclear power contributes the remaining 2 percent of total generating capacity.¹⁰⁸

Pakistan has had considerable luck exploiting domestic reserves, which are estimated at about 26.8 Tcf. Domestic production is expected to double by 2012, with increases of 13 percent registered in 2004-2005.¹⁰⁹ Although the Pakistani Prime Minister's adviser on energy has argued that the gas reserves could last another 23 years if frozen at current output, the demand rate is expected to grow even faster than production, creating a projected shortfall of 1.69 Bcf/d by 2015.¹¹⁰ The growth will occur mostly amongst non-power sector consumers such as industry, fertilizers, and, increasingly, automotive consumption. Since major hydroelectric and coal-fired generation projects have collapsed in recent years, Islamabad is focusing on gas to meet its power needs.

¹⁰⁷ Ibid.

¹⁰⁸ Neil Ford, "Pakistan Assesses its Options." *Platts Power in Asia*, 22 June 2006.

¹⁰⁹ "Pakistan's Output Rises 13 percent, but Still Chases Demand," *Platts International Gas Report*, 9 September 2005.

¹¹⁰ Neil Ford, n-108.

Pakistan faces similar power sector deregulation problems as India, which heighten its requirement for cheap pipeline gas. Although agreements with the International Monetary Fund have induced some reform in the past few years, the state-owned Water and Power Development Authority (WAPDA) and the Karachi Electricity Supply Corporation, control almost all generating capacity.

Similar to India, Pakistan has been pursuing a variety of gas import options, with the hope that at least one of them will materialize. While Pakistan also has its eyes on the Turkmenistan option and an extension of the Dolphin Project, that would supply piped gas from Qatar via UAE and Oman, the IPI appears to be the most feasible option for Pakistan. Since LNG is only economically competitive with pipeline gas at distances over 4,000 km, Pakistan has an even larger stake than India in pursuing pipeline supplies.

Not only would the pipeline curb Pakistan's demand-supply gap, but it would provide Pakistan with a much needed form of revenue. Estimates show that the IPI could deliver as much as \$14 billion in income over 30 years, including \$8 billion in transit fees, \$1 billion in taxes, and \$5 billion in savings.¹¹¹ Recently, Pakistan has complicated pipeline negotiations by indicating that it would like more gas than originally planned. In response, Iran has suggested the construction of two pipelines, one to Pakistan and one to India.

Although President Musharraf has indicated that Pakistan would go ahead with the IPI pipeline regardless of Indian involvement, India's participation in the IPI is very important to Pakistan. Since Iran has an interest in securing the largest possible export market, Indian participation in the pipeline will increase the impetus for Iran to go through with the project. Likewise,

¹¹¹ Kiani Khaleeq, "Slim Prospects of Trans-Pakistan Gas Pipeline," *Dawn*, 12 April 2001.

investors will be far more likely to become involved if the project also involves both countries. Moreover, Indian inclusion in the pipeline would provide Pakistan with increased supply flexibility; if Pakistan found itself over-supplied, it could easily pass its surplus along to the ever-hungry Indian market. Consequently, Pakistan has been trying to assuage India's concerns about the pipeline security. In this light, Pakistan sought to downplay attacks on domestic pipelines in Balochistan in April 2006. The Pakistanis have also sought to improve their domestic gas infrastructure, which has been prone to leakages and bad management.¹¹²

Thus, India and Pakistan currently find themselves in the unusual position of working together in opposing Iran's price demands. As Ambassador Talmiz Ahmad has noted "India and Pakistan's common disagreement with Iran about the cost of piped gas is doing more to bring the two countries together than anything else in recent years."¹¹³ Seen as a potentially potent confidence-building measure between the two countries, the IPI has been dubbed by diplomats and industry observers as the "peace pipeline." However, it remains unclear if cooperation will continue once their common objective is achieved.

Iran

As neighboring nations until 1947, India and Iran have maintained extensive trade and cultural ties for many centuries, dating back to the Indus Valley civilization. However, British occupation of the Indian subcontinent in the eighteenth century effectively cast a wedge between the two nations. Even after Indian independence, ties remained distant, with the two countries finding themselves on opposite sides of the bipolar international order. The shah of

¹¹² A 2005 survey found 50,000 leakages in the Sui Northern Gas Pipelines. See "Pakistan Struggles to Stay Ahead of Growing Demand," *Platts International Gas Report*, 7 October 2005.

¹¹³ Interview with Ambassador Talmiz Ahmad, 3 November 2006.

Iran chose to align himself with the United States in order to avoid a domestic communist advance on his power; India, on the other hand, committed itself to a Nehruvian policy of non-alignment which incorporated close economic and military ties with the Soviet Union. Positive Iranian-Pakistani relations further strained the relationship. Indo-Iranian relations rebounded slightly during a mild *détente* in the sixties and were burgeoned by the new-found strength of the respective countries in the aftermath of the 1971 Indo-Pakistani war and the 1973 oil crisis.

Although India initially supported the 1979 Iranian Revolution as an assertion of national autonomy, the post-1979 period saw a significant rise in tensions between the two powers. India found cause for anger when Iran tried to spread its revolutionary Islamic zeal to Kashmir, while Iran disapproved of India's tacit support for the Russian invasion of Afghanistan.

Relations remained strained until the early 1990s, when the two countries found cause for rapprochement lying amidst the detritus of the Cold War. The death of Ayatollah Khomeini, US attempts to assert new muscle in the region, a growing Indian energy demand, and the instability of the young Central Asian states all laid the groundwork for improved relations between the two powers. Tehran's willingness to recognize Indian Kashmir led to a series of high-level exchanges in 1991, and, more significantly, to Narisimha Rao's landmark visit to Iran in 1993. After a return visit by Iranian President Akbar Hashemi Rafsanjani, the relationship acquired a new momentum, leading to several key agreements such as the 2000 North-South Corridor agreement allowing the transportation of goods across Central Asia and the 2001 "Tehran Declaration" which, for the first time, articulated their mutual interests.¹¹⁴ With its growing thirst for

energy, India happily eschewed America's assessment of Iran as an aggressive regional power. Iran, in turn, understood that India could provide a powerful commercial counter-weight to a US policy that sought to isolate Iran.

Throughout this period, prospects of the IPI pipeline helped improve the burgeoning Indo-Iranian relationship. Receptive to India's concerns about pipeline security in Pakistan, the Iranians helped India pursue both deep-sea and shallow-water pipeline options, despite the technological and financial difficulties that such options posed. Although the Iranians did not designate gas for the potential project, they resisted putting any deadlines on Indian cooperation in the project, despite India's indecision.

In 2003, Iranian President Syed Mohammad Khatami paid a historic visit to India, where he acted as chief guest at the Republic Day celebrations—an honor reserved for only the closest friends. At a time when the US had just invaded Iraq and had only recently labeled Iran as a member of the "axis of evil," President Khatami's visit assumed greater meaning—seemingly demonstrating the depth of relations between the two countries. That same year, the two countries institutionalized the "strategic partnership," the "New Delhi Declaration" and the "Road Map to Strategic Dialogue," which sought to provide a structural basis for future cooperation.¹¹⁵ These steps created uneasiness in Washington, where analysts argued that a "Tehran-New Delhi Axis" could upset the region's delicate structural balance and run counter to US interests.¹¹⁶

¹¹⁵ See full text of "New Delhi Declaration" and "Road Map to Strategic Cooperation" at Ministry of External Affairs' website: [Hwww.meaindia.nic.in](http://www.meaindia.nic.in)H

¹¹⁶ See RAND Corp's brief analysis of the "India-Iran axis" in "Headlines Over the Horizon," *Atlantic Monthly*, July/August 2003, p. 292; Also, "The 'Strategic Partnership' Between India and Iran," *Woodrow Wilson International Center: Asia Program Special Report*, April 2004.

¹¹⁴ See full text of "Tehran Declaration" at Ministry of External Affairs website: [Hwww.meaindia.nic.in](http://www.meaindia.nic.in)H

Since 2003, the Indo-Iranian dialogue has faltered. The surprise victory of conservative Mahmoud Ahmadinejad in the 2005 Iranian presidential elections significantly altered the course of Iranian foreign policy. While the past two decades had witnessed a notable dilution of Iranian Islamic fundamentalism, Ahmadinejad has sought to re-inject Iranian policy with an Islamic bearing. Believing that he has a personal duty to lead a “Third Islamic Revolution” in Iran, Ahmadinejad’s sense of historic mission provides the framework for his approach to relations with outside powers. He has argued that any compromise with the West is a sign of weakness and has exploited strong nationalist sentiments in Iran, which, as a non-Arab, Shi’a power, has always felt a sense of isolation and regional particularism. Although it is unlikely that Ahmadinejad intended for his confrontational philosophy to extend to Iran’s relations with non-Western powers, his nationalist rhetoric has undermined Iran’s ability to make diplomatic concessions or compromise with its neighbors.

Ahmadinejad’s rhetoric has underlined tensions in the Indo-Iranian dialogue that had been successfully avoided by his predecessors. India, with a large, impoverished Muslim population of its own, is particularly sensitive to calls for Islamic unity. Although previous negotiations between the two countries had been able to sidestep the issue by focusing on commercial relations, Ahmadinejad’s tendency to view all foreign relations through the prism of Islam, has placed a significant strain on the relationship. Moreover, Tehran’s desire for regional hegemony undoubtedly conflicts with New Delhi’s belief in its own future as a dominant regional and world power. Like Russia and China, India appears unnerved by revelations about Iran’s nuclear aspirations but is reluctant to take steps that could disrupt economic connections or cause it to be politically grouped with Washington.

Although Ahmadinejad’s fiery rhetoric may have rallied elements of the international Muslim community, it has similarly unsettled the Iranian economy and scared away foreign investment from the private sector. By December 2005, the Tehran Stock Exchange (TSE) had dropped below the psychologically crucial 10,000 mark, down from around 12,500 in June’s election. The inflation rate had risen to 15 percent according to official sources, but thought to be around 20 percent by most analysts.¹¹⁷ Moreover, the new President decided to change 40 of 72 ambassadors and left the country adrift without an oil minister for several months after parliament rejected two presidential nominations. All of this has alienated New Delhi, which had seen economic cooperation as a founding principle of the previously burgeoning relationship. It has also meant that the IPI negotiations would be held hostage to Iranian internal turmoil.

Ahmadinejad’s propensity to suggest that he could politicize the distribution of energy resources is of the utmost concern to India in planning the pipeline project.¹¹⁸ Even if Tehran’s use of the ‘oil weapon’ was aimed at the West, India, one of Iran’s largest energy export partners, would potentially be hurt worse than anyone else—particularly since oil is fungible and even cuts in only select markets would drastically impact international prices.¹¹⁹ While hesitant, India appears about ready to trust international consortiums and contractual obligations to safeguard its energy needs in Pakistan. But it will be much harder to justify if Tehran also appears unreliable. Not only is a reliable Iran crucial to overcoming doubts about a reliable Pakistan, but moreover, Iran

¹¹⁷ “Batten Down the Hatches,” *The Banker*, 5 December 2005, p. 97.

¹¹⁸ “Iran May Use Oil Weapon,” *Al-Jazeera Magazine*, 1 October 2005; “Tehran Plays Oil Card in Nuclear Row,” *Times of India*, 26 June 2006.

¹¹⁹ For more information see Stephen Mufson, “The Weapon Iran May Not Want to Use,” *The Washington Post*, 19 May 2006.

is the starting point for the gas, not a mere transit country. Whereas Pakistani moves to turn off the gas could be overcome with Iranian help, breaches of contract by the Iranians would be almost impossible to offset. Thus, India has been unsettled by Ayatollah Khomeini's remarks that "If the Americans make a wrong move toward Iran, the shipment of energy will definitely face danger, and the Americans would not be able to protect energy supply in the region."¹²⁰

New Delhi's jitters are underlined by the fact that Iranian support for the IPI pipeline is far more tenuous than might be expected. Although Iran has a stake in finding a proper export market for its gas, there is significant opposition within Iran to exporting its gas supplies. Ayatollah Khomeini banned gas exports in the wake of the 1979 Islamic Revolution because he felt that they would provide international companies with undue leverage over Iran's resources. Today, the anti-export faction, led by powerful nationalist and Islamic lobbies, believes that Iran should remain loyal to Khomeini's vision and protect its gas for domestic consumption and re-injection into its oil fields. By re-injecting gas into the oil fields, Iran could boost its dwindling oil production, which, in the current climate of soaring crude prices, would likely be more profitable than exporting gas. A recent report by Feridun Fesharaki, head of FACTS Inc, a US-based energy consultancy, found that "exporting oil will provide Iran with five to six times' higher revenue than exporting gas on the basis of heat value at the wellhead."¹²¹

Those in Iran who oppose gas exports also note that Iran is heavily dependent on oil and natural gas to fuel its economy. Unlike countries without large domestic resources, Iran has not had an incentive to develop

alternate means of energy. Since it appears that nuclear development will not proceed without considerable international opposition, Iran will probably be dependent on hydrocarbons to meet its energy needs for a long time to come. With heavily subsidized domestic consumption, imported hydrocarbons at market prices are politically unviable for Iran. These very low gas and oil prices have also spurred widespread waste and inefficient consumption. With Ahmadinejad's election giving impetus to the Islamic and nationalist lobbies that oppose gas exports, it is highly unlikely that Iran will agree to any compromises in gas pricing until new elections are held in 2009. However, it appears that, at least for the moment, the conservative's argument in favor of protecting its gas reserves has found some support amongst Iran's more pragmatic, realist factions as well.¹²²

The Role of the United States

Despite repeated statements by Indian officials that India's "relationship with one country does not depend on that country's relationship with other countries", the budding Indo-US relationship and the nuclear deal between the two countries will undeniably impact India's ability to negotiate the IPI with the Iranians. The confrontational history between Iran and the United States has already manifested itself in Indian opposition to Iran at the IAEA and in Indo-Iranian economic cooperation.

Since Iran's nuclear ambitions currently feature amongst the top US foreign policy

¹²⁰ Thom Shanker, "Rice Dismisses Iranian Cleric's Warning on Oil," *The New York Times*, 5 June 2006.

¹²¹ "Iran Not Yet 'Up to Par' for Gas Exports," *Platts International Gas Report*, 3 June 2005.

¹²² Interview with Ambassador Talmiz Ahmad, 3 November 2006. For more information on the divide between Iran's revolutionary Islamists, led by Ahmadinejad, and its Persian nationalist realists, led by Ali Larijani, see Ray Takeyh, "Responding to Iran's Nuclear Ambitions." Prepared Testimony before the Senate Committee on Foreign Relations, 19 September 2006; and also Chatham Report, "Iran and its Neighbors". For a view from within Iran see "Foreign Relations Strategic Council to make up for deficiency in foreign policy-making" *IRNA*, 27 June 2006.

concerns, the past five years of growth in Indo-US relations have constantly been at odds with positive Indo-Iranian relations. While the Bush administration has vowed to “help India become a major world power in the 21st century,” American politicians have placed significant pressure on India to help the US isolate Iran both politically and economically. However, it remains unclear to what extent US politicians would seek to punish India if it went ahead with the IPI.

Although there is universal agreement in the US that India could provide diplomatic leverage vis-à-vis Iran, US officials have been divided in their approach to assuring Indian cooperation. Certain US politicians have sought to explicitly link US-Indian relations to Iran. Ambassador David Mulford warned India that voting with Iran at the IAEA would “be devastating” to the future of the civil nuclear initiative.¹²³ Likewise, US Representative Tom Lantos (D-CA) argued that “India will pay a very hefty price for its total disregard of US concerns vis-à-vis Iran.”¹²⁴ The cornerstone of this explicit, anti-Iranian American policy is the Iran-Libya Sanctions Act (ILSA), which threatens to place US sanctions on any entity that makes an “investment” worth over \$20 million in Iran in one year.¹²⁵

However, other US officials appear to believe that explicit measures to curb Indo-Iranian cooperation are unnecessary and counterproductive. While the House of Representatives bill on nuclear cooperation with India (H.R. 5682) made it US policy to “secure India’s full and active participation in United States efforts to dissuade, isolate, and, if necessary, sanction Iran for its efforts to acquire weapons of mass destruction”, the legislation passed by the Senate Foreign Relations Committee contains no such

wording.¹²⁶ Moreover, an amendment to make the House stipulation on Iran binding was rejected, as were moves to delay the vote on the bill by officials who thought that India been adequately cooperative vis-à-vis Iran. In fact, one House Resolution, introduced in July 2005 (HR305) actually expresses support for the pipeline as “an instrument of harmonizing the relations between India and Pakistan.”¹²⁷ Both President Bush and Secretary of State Condoleezza Rice, who have invested significant political capital in heightened Indo-US relations, have sought to persuade India to help with Iran without explicitly linking Indo-US cooperation to the Iran issue. In testimony before Congress, Secretary of State Rice downplayed the Iran issue, saying only that “the United States has made it very clear to India that we have concerns about their relationship with Iran.”¹²⁸ Meanwhile, Bush has noted that “our beef with Iran is not the pipeline” and argued that he “understands” South Asia’s need for gas.¹²⁹ In fact, no US official has directly stated that the IPI would be considered a violation of ILSA.

Although midterm electoral gains by the Democrats may increase pressure on the nuclear deal, it is unlikely that the Democrats will take a harder stance towards Iran. Many Democrats have advocated negotiating with Iran, and a softening of US policy towards the IPI may be a relatively easy concession for the US to make. Robert Gates, the new US Secretary of Defense, has advocated “selective engagement” with Iran and made it clear that he favors dialogue.¹³⁰ All of this indicates that, while the US will

¹²³ “India rejects linking Iran vote to nuclear deal with US,” *The Hindu*, 26 January 2006.

¹²⁴ Siddharth Srivastava, “US-India through the Tehran prism,” *Asia Times*, 15 September 2005.

¹²⁵ Kenneth Katzman, “The Iran-Libya Sanctions Act,” *Congressional Research Service*, Library of Congress, 26 April 2006.

¹²⁶ House of Representatives. Res. No. 353, 109th United States Congress, 1st Session1, 1 July 2005.

¹²⁷ Ibid.

¹²⁸ Transcript, “Senate Foreign Relations Committee Holds Hearing on US-India Atomic Energy Cooperation,” 5 April 2006.

¹²⁹ “Bush U-turn on Iranian pipeline,” *BBC*, 4 March 2006; Amitav Ranjan, “Pipeline: Bush nod gives India an edge,” *Indian Express*, 14 March 2006.

¹³⁰ Suzanne Maloney, Robert Gates and Zbigniew Brzezinski, “Iran: Time for a New Approach,” *Council on Foreign Relations Press*, July 2004.

seek to maintain pressure on India and Pakistan to avoid investing in Iran for their energy supplies, it is unlikely to take any substantive action should the pipeline proceed.

Despite its notoriety, ILSA sanctions have never actually been imposed. Amidst criticism from the European Union, the Clinton administration developed a “national interest” waiver (Section 9(c) of ILSA), which it used to allow Total SA of France, Gazprom of Russia, and Malaysia’s Petronas to sign a \$2 billion contract in 1998. Since then, another \$11.5 billion have been invested in Iran, without action from the US. In fact, ILSA’s definition of “investment” does not mention long-term oil or gas purchases, or the building of energy transit routes to or through Iran, as violations of ILSA. The Clinton Administration chose to leave the definition vague, arguing that energy routes might violate ILSA if they “directly and significantly contribute to the enhancement of Iran’s ability to develop petroleum reserves.”¹³¹ The Bush administration appears to take an equally lenient view of ILSA, choosing not to impose sanctions on a pipeline project from Iran to Turkey in 2001. With pending LNG deals with Iran provoking no threats from the US, it is highly unlikely that ILSA sanctions would be employed in the case of the IPI.

¹³¹ The US House of Representatives, *Iran-Libya Sanctions Act of 1996*, Section 5(a), HR3107.

Conclusion

In conclusion, the geopolitical risks associated with the Iran-Pakistan-India pipeline may be high, but safety mechanisms exist that should decrease the marginal costs should any such situations materialize. The diplomatic hazards are manifold: there is a significant risk of both state-sponsored and grassroots terrorism in Pakistan; Iran is an untested and potentially unreliable supplier; and proceeding with the IPI project may alienate India's powerful partial-ally, the United States.

Yet, steps have been taken to mitigate the majority of these risks. Iran has agreed to supply alternate fuel if Pakistan meddles with India's supply and has promised to discontinue exports to Pakistan itself should such an eventuality occur. Meanwhile, an international consortium of bankers and oil majors will back the project, which should help ensure that Iran acts in good faith. Finally, with the nuclear deal all but complete, it appears that, while the US will voice concern over the pipeline's progress, it currently lacks both the political will and the international support to take any significant action.

While the IPI is not an absolute necessity in meeting India's energy needs, it would be highly beneficial to the country's economic future. Piped natural gas poses perhaps the most environmentally and economically cost-effective solution to India's dire energy situation. Not only could the IPI pipeline provide the necessary fuel to India's fertilizer and industrial sectors but also, imported gas could help revitalize the defunct electricity market and encourage the federal government to hasten the speed of power sector liberalization. India's inadequate infrastructure could also benefit from a reliable energy source, which would, in turn, encourage further foreign investment. As the Planning Commission

report on an integrated energy policy has noted, the benefits of a stable power source would eventually be tangible for people at every socio-economic level of Indian society. Furthermore, since high-demand for gas in the private sector will only increase over time, the pipeline is guaranteed to be profitable even if the power sector is eventually able to overcome its dependency on thermal generation.

Interestingly, Dr. RK Pachauri, the father of the IPI pipeline, remains the person who understands the pipeline's future best. Dr. Pachauri has indicated that only by pursuing a course of "quiet diplomacy" can India manage the diplomatic hurdles between itself and a successful pipeline.¹³² Rather than proceeding with the politically satisfying but counter productive, high-profile debate on the issue, India should employ backdoor diplomatic channels that do not make headlines. In so doing, India can not only lessen the risk that the US will feel threatened by the project but also, it can provide itself with space to address its security concerns without holding negotiations hostage to the ebb and flow of Indo-Pakistani relations. Learning from Petronet's LNG deal with Qatar, India should pursue patient yet poised negotiations in order to take full advantage of volatility in the gas market to ensure itself an advantageous price for its gas.

As India travels down the diplomatic gauntlet surrounding the IPI, it would do well to keep in mind the lessons learned by Europe in the 1970s. At the height of the Cold War, Europe realized that it needed gas imports, and that piped gas from the Soviet Union would be the most valuable long-term solution. Since the Soviet Union needed a market for its gas—much as Iran

¹³² D. Ravi Kanth, "Gas Pipeline: Use Diplomacy," *Deccan Herald*, 24 June 2005.

does today—and Europe needed the imports, they proceeded with the pipeline despite America’s protests, agreeing to keep economics separate from politics. When the Soviet Union eventually collapsed in the early 1990s, economic ties established by the pipeline helped cushion the transition for both Europe and Russia. Moreover, the relatively consistent supply of natural gas has fueled two decades of European growth. If India, Pakistan, and Iran are able to similarly put economic concerns above the

vagaries of day-to-day politics, the long-term economic benefits to all three countries could be enormous. Since doing so would also lock the three countries into a state of economic interdependence, the Iran-Pakistan-India pipeline could potentially translate into gains in the unstable South Asian political arena—earning the project the right to finally be called by its epithet: “the pipeline of peace.”

About the Author

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