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THE GEOPOLITICS OF ENERGY SECURITY AND IMPLICATIONS FOR SOUTH AND SOUTHEAST ASIA

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EXECUTIVE SUMMARY

The geopolitics of energy in today's world principally revolve around oil and, to a lesser degree, gas, both of which are not merely trading but geopolitical commodities. Global energy geopolitics will be principally shaped by the 'arc of energy', stretching from the Gulf region to the Caspian Sea, through Siberia and the Arctic region to the Russian Far East, Alaska and Canada. It is in this region that nearly 80 percent of the world's oil and gas, including potential reserves, are located. Asian countries, having the world's most dynamic economies, and comprising half the world's population, will remain dependent on energy from this arc. They will also be the principal consumers of energy from this region in the coming decades. The already complex traditional geopolitics of this region, marked by myriad inter-state disputes and instability, have been immensely further complicated by energy geopolitics and created enormous tensions and potential deadly conflicts.

Given the size of its reserves, the Persian Gulf region will remain critical to ensuring that there is sufficient production to meet the increasing global demand for oil, particularly for Asian countries. Asian countries cannot count much on Russia, the other large global oil producer, since the latter's priority market will be Europe, since it brings Russia both economic and geopolitical benefits. The geopolitics of gas are much more complicated than those of oil since multi-billion dollar gas pipelines or Liquefied Natural Gas trains tend to hardwire producers and consumers inflexibly, and the huge investments require many years to become profitable. As a high degree of mutual confidence among various parties is essential for the long-term success of a gas contract, gas deals inevitably have a strong strategic, geopolitical element. Although difficulties remain, South Asia could get access to Russian and Central Asian gas.

India is already the world's fifth largest consumer of energy and as its economy grows so will its energy needs. Hydroelectricity, nuclear energy and non-conventional sources of energy will have a marginal impact on India's energy security, which will remain dependent on coal, oil and gas for the next quarter century. As India's own resources and production are insufficient, India will have to import large quantities of oil and gas, even coal to some extent.

At present, two-thirds of India's imported oil comes from the Gulf region and another 15 percent from Nigeria. In the foreseeable future, India will have to continue to rely largely on Gulf oil. Equity investments in oilfields abroad will have only a marginal impact on India's energy dependency on the Gulf. The presence of a large and prosperous Indian population in the Gulf region is an additional factor that makes this region important. India, thus, needs to give much greater attention to the Gulf countries in its foreign policy priorities. India has to be alert to ensure that the oil reserves of the Gulf countries do not come under the control of outside powers that may be in a position to deny them to India. India needs to establish its independent military presence in the Gulf in consultation with the concerned countries. India should also take the lead in providing an alternative paradigm for Gulf security along the lines of the ASEAN (Association of Southeast Asian Nations) Regional Forum.

To meet its demand for gas, India is negotiating import of gas from Iran via an overland pipeline transiting Pakistan. Apart from providing energy security to both India and Pakistan and a steady long-term customer to Iran for its gas, an Iran-Pakistan-India (IPI) pipeline would have great geopolitical significance for the region. It would be a huge confidence-building measure between India and Pakistan that could create a momentum for a

fundamental transformation of India-Pakistan relations. As a regional energy project, the IPI could form the nucleus of a regional cooperation arrangement, in the first instance between South Asia and Iran and later perhaps within the framework of the Shanghai Cooperation Organization (SCO). Despite so many uncertainties surrounding the Turkmenistan-Afghanistan-Pakistan (TAPI) gas pipeline project, India is participating in discussions on the TAPI for geopolitical considerations. India would not like a gas pipeline to come up from Turkmenistan to Pakistan via Afghanistan without India being involved in it. It is not in India's interest that Pakistan emerges as the key country with which Central Asia, including Afghanistan, is anchored economically, politically and strategically through oil and gas pipelines, roads and railways.

At the same time, it would be prudent for India to spread its risks and not to rely exclusively on gas pipeline transit routes via Pakistan. The only possible alternative is gas from Russia and Central Asia via China. India must get involved in Eurasian oil and gas projects, not only for its energy security but for political and strategic considerations since Eurasia is likely to remain an important centre of global geopolitics. As a long-time trusted friend and strategic partner of Russia, India could expect Russia to be positively inclined towards its quest for access to Eurasian energy. However, a hard-nosed Russia is unlikely to accommodate India except as part of a larger strategic relationship and understanding. If India remains committed to an overarching India-United States strategic relationship there is not much hope for a meaningful India-Russia energy relationship.

India must have a strategic understanding on energy with China too since both are major energy consumers seeking energy from the same sources and also because China also holds the key to finding a viable alternative energy transportation route from Eurasia to India that bypasses Afghanistan/Pakistan. Although such a project faces considerable technical and political challenges, it does hold out the exciting possibility of developing a major energy corridor between Eurasia and the Indian Ocean carrying gas from Eurasia to India via China, and oil from the Gulf to China via India. If there are insurmountable technical problems in constructing pipelines, it may be still possible to transmit electricity generated from gas or hydropower projects by transmission cables across the Karakoram and Himalayan mountain ranges. Perhaps such a Eurasian energy project could be implemented within the framework of the India-China-Russia trilateral dialogue, or the SCO. Apart from energy benefits, various long-term political, strategic, economic and environmental benefits would flow to both India and China.

In the new geo-political realities of the 21st century, bold and innovative, even visionary, approaches are needed in inter-state relations, including in the area of energy security. The fructification of such a Eurasian energy blueprint offers the exciting prospect of transforming the Central Asian region into a strategic space uniting major Asian energy producers, consumers and transit countries in a web of interdependence. Instead of being the battlefield of a new 'Great Game', Central Asia could become the crossroads of a 21st century version of the traditional Silk Route, with gas and oil pipelines replacing caravan convoys. The Himalayas-Karakoram region could truly become a frontier zone of peace, friendship and development, rather than one of confrontation and conflict. A mega-project like this would also act as a huge stimulus for the global economy. Such a conceptual breakthrough would have far-reaching long-term consequences. It would not only bring all-round economic advantage, prosperity, social and political stability, but also create a solid and enduring foundation for greater trust, confidence and understanding, extensive people-to-people ties

and communication links that will hopefully lead to new, lasting and stable political and strategic relationships.

South Asia is a key region that will play an important part in the geopolitics of energy. Given its location and size, its economic and military strength and potential, and its position as a growing consumer of energy, India will be very much a part of global energy geopolitics in the coming years. If it is regarded as a responsible stakeholder and a reliable transit country, Pakistan can also become a critical player in global energy geopolitics and get many economic and political benefits.

While currently self-sufficient in oil and gas, Southeast Asia may in future have to turn to the Gulf for its energy security. It also has to ensure that satisfactory security arrangements remain in place for transit of energy shipments through the waters of this region, especially the Malacca Straits, so that the major consumers of energy do not feel tempted to resort to unilateral measures or work out alternative transportation routes that bypass or divide the region.

INTRODUCTION

A Historical Perspective

Energy is what keeps the world going. Throughout history – in all countries and through all ages – energy has been the driver of economic growth, the source of military power and the main determinant of people's welfare. It is the access to energy, whether human, animal, or natural, that has primarily determined the scale and success of a civilisation or state. That is why the major civilisations have flourished in places where there was abundant sunshine and water that translated into availability of energy. Large families meant more hands and, therefore, more energy for agriculture and hunting. War booties typically included prisoners who constituted cannon fodder for battles and wars, and an energy source for economic activity in the victorious land. Slaves were a source of energy. Colonial powers used indentured labour to cultivate plantations of tea, sugar, rubber and tin that would bring economic gains to the mother country. During the Industrial Revolution, a country's economic and military strength was critically dependent on availability of coal. In times past, these were the contours of the geopolitics of energy.

Contemporary Geopolitics of Energy

In the modern era, the geopolitics of energy operate on similar principles, with the difference that, in today's interdependent world, the matrix is more complex and sophisticated. Most countries, the industrialised ones in particular, have become unprecedentedly energy-dependent not just for their continued prosperity but even for their very survival. Whenever a country that needs and consumes energy in large quantities has a shortfall of energy – and this includes almost all the major powers in the world today – its foreign policy priorities have to be geared in large part to ensuring that adequate, reliable and cheap imported energy is available to it easily and securely. Only then can that country sustain its economic growth and its society's lifestyle. A second, equally important, imperative is to ensure that sufficient energy is available for military purposes. The geopolitics of energy arise out of the fact that most of the world's principal energy producers are not its principal consumers. For the energy producing countries, energy is not only a source of enormous power and wealth; it also constitutes leverage, since energy is a strategic resource whose denial to any rival or enemy increases the latter's vulnerability. Energy can thus be used as a very effective weapon of war. Russia, for example, is successfully using energy as a very important geopolitical tool in its relations with the countries of its 'near abroad' as well as Europe.

The geopolitics of energy in today's world principally revolve around oil and, to a lesser degree, gas. The 20th century was truly the 'century of oil.' The extraordinary technological advancements, the transportation revolution that unified countries and regions and created an interdependent globalised economy, the agricultural revolution which freed up a huge labour force from the agricultural to the manufacturing and services sectors, the thriving of sustainable concentrated urban conglomerations, the lifestyle facilitated by the petrochemical industries, the ability to amass military power and project it across the oceans – all these developments that have made the 20th century unique would not have been possible without access to plentiful and cheap oil. Oil constitutes the critical energy source for today's industrialised economies as well as for the developing economies. Without oil, the world as we know it would not exist. Disruptions in production and supply could bring the industrialised economies to a grinding halt.

Gas, increasingly being used as a substitute for coal in power generation and for heating, and as a substitute for oil in the transportation sector, has of late acquired more salience in energy security.

Nuclear energy is deeply mired in geopolitics, because the fuel and technology used to produce nuclear power can also produce nuclear weapons, which is why the global trade in nuclear materials and fuels is controlled by the cartel of the Nuclear Suppliers Group.

Even though coal is and will remain for some time the most important fuel in the overall energy mix of most developing and industrialising economies, the geopolitics of coal is limited for a number of reasons:

- a) coal is so far available in adequate quantities within most countries that need it and international trading in coal is relatively restricted;
- b) the sheer bulk of coal creates some constraints in transportation in very large quantities; and
- c) environmental considerations have to be kept in mind in expanding the use of coal which leaves a dirty footprint on our planet's eco-system and climate.

As for hydropower, its geopolitics is quite important, but strictly in a regional context, and that too only in some parts of the world like South Asia and Central Asia.

GLOBAL OIL SCENARIO

Oil in the 20th Century

When oil was discovered at the turn of the 20th century, it generated palpable excitement and hope. For the first six decades of the 20th century, oil was a commodity that was under the control of the West. Cheap oil was the foundation of the West's unprecedented economic growth and prosperity, and of its military strength. Western oil companies ("the Seven Sisters") controlled global oil production and trade. The world was shaken out of complacency by the first oil embargo in 1973 leading to oil prices rising to dizzy heights. A second oil crisis followed in 1979, after the fall of the Shah of Iran. But the world weathered these crises. The attempts by Organization of Petroleum Exporting Countries (OPEC) to manipulate oil prices have not been very successful. OPEC is often a divided house. Moreover, as oil is essentially fungible, though not fully so because different grades of oil require dedicated refineries, Saudi Arabia with its significant spare capacity could always increase its oil production at short notice and keep prices in check. In this way, prices never went out of reach and, therefore, remained a manageable concern.

21st Century Concerns about Oil

At the beginning of the 21st century the mood has turned somber and fearful. "The Seven Sisters" today produce only 10 percent of the world's oil and gas and hold about three percent of its reserves. A group of "new Seven Sisters," consisting of the national energy companies of Saudi Arabia, Russia, China, Iran, Venezuela, Brazil and Malaysia control about one-third of global oil and gas production and more than one-third of its reserves. Oil prices have been

hovering around the US\$100 per barrel mark. There is some anxiety that, led by major oil producers like Iran, Venezuela and Russia, oil pricing may be done in currencies other than the United States dollar. Such a step could dethrone the United States dollar from its current position as the world's reserve currency and threaten continued United States global economic dominance. The deepest worry is that oil is a finite and dwindling resource that may not continue to be freely available to the consuming countries for very long. The realisation is also sinking in that the indiscriminate use of oil has led to long-term and possibly irreversible changes in the world's climate, with potentially catastrophic consequences. Little wonder then that oil is not merely a trading commodity, but a geopolitical one that is too important for governments around the world to ignore.

Is the World Running Out of Oil?

Opinion is divided whether the world is running out of oil. There is some substance to the view that it is not. Statistics show that over the last two decades the world's proven reserves have risen by a little over 50 percent. Saudi Aramco, the world's largest oil company, has repeatedly dismissed fears that the world has reached the point of "peak oil." In assessing the availability of oil reserves, it feels that the world should consider not just conventional oil but all the liquid energy resources in place including condensates, natural gas liquids, tar sands, bitumen, extra heavy oil, oil shale, gas-to-liquids and even bio fuels, all of which would be economical to extract at the current high prices of oil and which can serve as substitutes for oil in many fields. By this calculation, the total in-place conventional oil is about 5.7 trillion barrels and the total in-place liquids about 13-16 trillion barrels, of which only 1.1 trillion barrels have been consumed so far. Moreover, it is true that large areas of the world remain unexplored for even conventional oil, possibly because it was not considered economical to risk huge sums of money in oil exploration when ample oil was more easily and cheaply available elsewhere. Nor should one underestimate the possibility that with newer technology, recovery rates of oil could be improved and fields hitherto considered inaccessible or impossible to exploit could be tapped. The Organisation for Economic Co-operation and Development' (OECD) International Energy Agency's assessment is also that the world has sufficient oil resources to meet the projected growth in demand to 2030. It is understandable that Saudi Arabia, the largest oil producing country, should exude optimism since oil represents the main source of its economic and political clout. Similarly, the International Energy Agency's assessments may well be conditioned by the desire to reassure people in their member-countries that there is no threat to their established way of life, including the mantra of steady economic growth.

On the other side, there is a widespread perception of looming shortages, shared by many oil companies and openly expressed by many governments and sections of civil society, who continue to be deeply worried on this count. Among the major oil companies, while Exxon-Mobil takes an optimistic view, British Petroleum, or BP as it is commonly known, has significantly chosen to project itself today not as British Petroleum, its original name, but as "Beyond Petroleum." Shell, too, is significantly investing in research and development of non-conventional energy in anticipation of the day when the world would run out of oil, and the erstwhile oil behemoths would have to look at other ways to ensure their continued relevance and profits. Oil companies have to keep in mind that their share prices would tumble unless they keep adding reserves to their pool and thereby improve their reserves-to-production (R:P) ratio. If all the principal consumers and producers of energy were confident that there is no shortage of oil, this would allay one of the principal fears of energy insecurity. But that is clearly not the case.

Role of Gulf Oil

It is estimated that global consumption of oil and other liquid fuels, which at present is about 85 million barrels per day, is expected to go up to 97 million barrels per day in 2015 and 117 million barrels per day in 2030. About three-fourths of this increase in demand will come from the developing countries, 45 percent from China and India alone. The Persian Gulf region will remain critical to ensuring that there is sufficient production to meet this increasing demand. The figures about Gulf oil speak for themselves: in 2006, this region held 743 billion barrels of oil (over 55 percent of global reserves, with 25 percent with Saudi Arabia alone), and produced 25.4 million barrels per day (more than 31 percent of global production). More important for the rest of the world is the fact that the region exported three-fourths of its production, amounting to more than 38 percent of global exports; that it has more than 80 percent of the world's excess production capacity; and that its R:P ratio is nearly 80 (against a world average of 40.5), which means that, at the current rate of production, the Gulf's reserves would last for about 80 years.

As the world's demand for oil grows, the world will have to turn to this region to meet a significant share of the additional demand because of the size of the region's reserves, because it is relatively easy and cheap to extract oil in this region, and because the countries that have the oil are keen to produce more since their own prosperity depends on having reliable and stable markets for their oil. Saudi Arabia, the world's largest producer with a current production level of 10.5-11 million barrels per day, is planning to increase this to 12 million barrels per day by 2009, and 15 million barrels per day eventually, after taking into account that it needs to add an additional capacity of 700,000 barrels per day just to compensate for declining production in existing fields.

Eurasia's Potential

Another source of oil considered important for the global oil market is Eurasia, not because of the scale of the reserves (only about 10 percent of global reserves) or of production (about 16 percent of global production) but because, unlike most other regions of the world, significant new reserves have been found here recently and future prospects remain promising. Russia is the world's second largest producer and exporter of oil after Saudi Arabia. Production in Russia has been rapidly increasing here since 2000 and is currently just short of 10 million barrels per day. About 72 percent of Russia's oil is exported, with annual exports of about seven million barrels per day. In Central Asia, Kazakhstan is rapidly increasing its production and its exports and is emerging as a significant second-rung producer and exporter of oil in the world. Most of its exports are routed via Russia, through the Soviet-era pipeline network and through the Caspian Pipeline Consortium, but increasingly larger quantities are being sent by rail and pipeline to China. Kazakhstan's oil exports to China will rise sharply once the oil pipeline under construction from Western Kazakhstan to China is completed in a couple of years.

It is very clear that Russia's priority market for oil and gas will be Europe, an established, lucrative one that Russia will not want to lose, particularly as there are also geopolitical benefits to Russia from its energy trade with Europe. Russia will want to keep Europe dependent on it for energy. It is noteworthy that most of Russia's planned new oil pipelines, as well as oil terminals, are intended for selling oil to Europe. So far, West Siberia is Russia's most important oil producing region, estimated to hold two-thirds of Russia's remaining oil. Russia will want to earmark this oil for exports to Europe. After meeting

Europe's requirements, Russia is likely to have some surplus oil available for export only if new oilfields are discovered and developed in Eastern Siberia and Sakhalin in the Russian Far East. Russia's priority is likely to be to sell this oil to the countries of Northeast Asia viz. China, Japan and South Korea, which are located closest to these regions, principally to serve Russia's political interests vis-à-vis these countries. Obviously, it would also be cost-effective for the countries of Northeast Asia to buy Russian oil since transport costs would be significantly lower for them.

Investment and Marketing Choices

Even if there is no shortage of oil, other germane and critical problems remain to be addressed. Foremost among these is whether the world has the financial, human and technological resources and the willingness to tap this oil and build the accompanying infrastructure that would deliver it as a finished product to consumers who are invariably located at considerable distance from the producing centres. It is not clear whether those who have the requisite technologies, manpower and money – and these may well be different sets of investors – would give priority to investments in oil exploration and production projects in regions that would yield optimal global benefits or whether such investment decisions would be dictated by political-strategic considerations. For example, the Western countries have shown a definite preference to invest in the development of oil reserves in locations they consider reliable or politically safe.

Besides, investments in exploration and production of oil have to be complemented by corresponding investments in oil refining, in infrastructure (ports, pipelines, electricity transmission grids), and in developing and maintaining secure transportation routes. Who will ensure that the pricing of oil products provides the fine balance between the interests of consumers and a satisfactory return on these mega investments to the investors? Who is to be responsible for research and development? Who will make the investments in human resource development? Different sets of decision-makers in sovereign states, oil companies (both national and independent), international corporate houses and banks will be involved in making choices from among various alternatives. As there are ample competing and contradictory objectives and interests in this set of issues, many decisions will be based on political and strategic, not merely economic, considerations. One can anticipate geopolitical tussles, pressures and perhaps even conflict as the different stakeholders try to protect their respective interests.

The producer countries and companies have their own priorities and preferences. The politics of OPEC are well known. Despite its close ties with the United States, Saudi Arabia has not responded to United States President Bush's recent request that it should raise its oil production. A country like Russia too may like to restrict its oil production so that the oil reserves, and hence the income from this valuable but finite resource, can be stretched out over a longer period. Sharply increasing production in the short term carries the danger that oilfields could be damaged and the quantity of ultimate recoverable oil reduced. Oil producers also tend to give preference to some customers over others, best seen in the "Asian premium" that Gulf oil producers charge Asian customers, presumably based on the reality that the Asian countries have nowhere else to turn for their oil imports.

Environmental Concerns

A second set of issues relates to whether a continuation of the present pattern of economic development and organisation of society with its heavy reliance on oil is sustainable. It is now increasingly recognised that this entails unacceptable environmental damage for the planet as a whole, but, as the virtual breakdown of the December 2007 United Nations Climate Change Conference in Bali reveals, there is still no global consensus on the steps that need to be taken by different groups of countries to meet this challenge. The world's biggest polluter, the United States, is not party to the Kyoto Protocol and was unyielding to the very end at the Bali meeting. The developed countries, whose profligate use of cheap energy over the last few decades is primarily responsible for global warming, are at odds with the developing countries who feel that as the developed countries have created the climate change problem, they should bear the primary responsibility for overcoming the looming environmental crisis.

China and India's rapidly growing energy demands have shaken the West's assumptions about their continuing ability to have the priority in consuming the shrinking global energy pie. Reluctant to curb their own use of fossil fuels and to modify their lifestyle, they want the large and rapidly growing emerging economies like China and India to cut back on fossil fuels by resorting to greater use of relatively more expensive and hazardous alternative energy sources like nuclear power, or by introducing expensive clean fuel technologies that would make their economies cost-inefficient. In any case, currently the developing countries have neither the financial means nor the technological capabilities to move away from a model of economic development based on fossil fuels and see no reason why they should sacrifice their own economic growth and prosperity for the sake of global environmental considerations.

Of course, no one really knows the true geopolitical implications of climate change, which could well turn out to be dramatic, far-reaching and a potential source of serious inter-state conflicts. In the short-to-medium term, it is not ruled out that the developed countries would want to look for ways and means to curb the economic growth of China and India, and also to encourage them to look at alternative fuels like nuclear energy so that there is less competition from these countries for increasingly scarce hydrocarbons. In a long-term perspective, climate change that leads to a rise in the sea level and melting of glaciers would enormously affect the developing countries, located mostly in the tropical zones. Historically, people migrated and settled in warm regions because it was easier to live and produce food there. If climate change results in either flooding or droughts, these countries would no longer be able to sustain large populations. This would inevitably lead to pressure to migrate to countries with better climate and more land, which would be resisted by the latter. Shrinking of glaciers in the Karakoram-Himalayas ranges and possible river diversion projects in Tibet would affect the flow of mighty rivers like the Yangtze, the Mekong, the Salween, the Brahmaputra, the Ganga, and the Indus that have given rise to the great civilisations of Asia.

Global Energy Interdependence

While looking at the global oil scenario, it comes out clearly that global energy interests are closely intertwined. If the Gulf, Russia and Central Asia have the world's largest reserves (more than 70 percent) and produce nearly half the world's oil, it is the OECD countries that have more than half of global refining capacity (the Gulf has less than 10 percent), and the

Asian countries who buy two-thirds of Gulf oil exports. Shrinking oil supplies could well lead to inter-state conflicts. Climate change may trigger off water wars. In today's interdependent and globalised world, any quest for energy independence is chimerical and unattainable. Wisdom lies in pooling knowledge to ensure sustainable energy consumption, and in sharing finite global resources equitably rather than in pursuing narrow self-interest. Unfortunately, the track record of international cooperation on global issues in general does not give much cause for optimism about cooperation on a strategic commodity like oil.

GLOBAL GAS SCENARIO

Nature of International Trade in Gas

In the 21st century, gas is slated to play only a marginally more important role in the overall energy mix but it has attracted attention since it is a 'clean' fuel and the global reserves are relatively unexploited (natural gas has a R:P ratio of 63.3 against oil's 40.5). As in the case of oil, more than 70 percent of the world's gas reserves are in the Gulf, Russia and Central Asia, with just three countries viz. Russia (26.3 percent), Iran (15.5 percent) and Qatar (14 percent) accounting for over 55 percent of proven global reserves. However, it is the OECD countries producing a little less than 38 percent of total global production that account for as much as half of global consumption, even though they have less than 15 percent of global gas reserves.

But gas is a much less fungible commodity than oil because it cannot be easily stored or transported over long distances. Gas is most easily and cheaply transported via overland pipelines, and even via short distance undersea pipelines laid at a maximum water depth of not more than 2000-3000 metres. If gas is to be transported across the oceans by tankers as liquefied natural gas (LNG), it has to be first sent via pipeline to a port terminal where it is liquefied under controlled conditions and stored in special facilities, then transported by special tankers to a port terminal in the destination country, where it is reconverted to gas and sent via pipeline to the consuming centres. As this is a highly complex and very expensive operation, as well as uneconomical for distances up to 4000 kilometres or so, the LNG route for shipping gas has so far been used mainly by the East Asian countries, which do not have easy access to natural gas by overland pipeline. Moreover, the need for complicated and capital-intensive infrastructure for LNG trade imposes constraints on the quantity of gas that can be shipped as LNG.

That is why historically more than 70 percent of gas produced has been consumed in the country of production, and gas has been a much less important internationally traded source of energy than oil. Since having proximate markets is an important parameter in cross-border trade in gas, the international gas market is essentially a regional, not a global, one. Thus, gas from Canada and Mexico supplements the United States gas reserves for supplying the huge United States market, Russian and North African gas meets the requirements of the European market, and there is trade in LNG from Southeast Asia to Japan, South Korea, China and Taiwan. In the last few years as the cost of shipping gas by the LNG route has come down, and the United States is looking for imported LNG to make up for the depleting North American gas reserves, more gas is being traded by this route. One can discern the beginnings of a global market in gas. Globally, LNG infrastructure is attracting more investment than gas pipelines. To put the matter in perspective, however, in 2006, about 75

percent of internationally traded gas was by pipeline, principally from Russia to Europe, and from Canada to the United States.

Global Gas Geopolitics

The geopolitics of gas are much more complicated than those of oil. As multi-billion dollar gas pipelines tend to hardwire producers and consumers inflexibly, and the huge investments require many years to become profitable, long-term contracts with predictable pricing (usually linked to oil prices) and rigid mutual obligations (such as “cost plus” pricing and “take-or-pay” contracts) are absolutely essential for gas contracts. Since the pipelines constitute a fixed asset that cannot be used for supplying gas to any other destination, suppliers concerned about security of demand worry that consumers may blackmail them into charging lower prices. Similarly, consumers worry that gas supplies could be switched off, bringing industries dependent on the imported gas grinding to a halt and freezing homes dependent on gas for heating. Recent moves, howsoever tentative, by major gas producers to consider setting up a “Gas OPEC,” have raised considerable concern among the gas consuming countries. Transit countries can also block gas shipments or illegally siphon off gas for their own requirements. In the case of LNG contracts, there is theoretically somewhat greater flexibility, but as the capital cost of setting up LNG trains is much higher, LNG import facilities are generally tied to LNG from a particular source. As a high degree of mutual confidence among various parties is essential for the long-term success of a gas contract, gas deals inevitably have a strong strategic, geopolitical element. It is in order to create mutual confidence and interdependence that gas pipeline projects generally have participation from a number of countries along the entire gas supply chain, and LNG projects are run by consortia having a half dozen or so companies from both producer and consumer countries.

Dynamics of Russia-Europe Gas Trade

Europe depends significantly on gas in its energy mix. Within the European Union, one-fifths of the electricity is generated from gas. Half the homes in Europe are heated by gas. Gas use in Europe is increasing as European Union energy policy seeks maximum possible shift from oil to gas. Gas consumption in the European Union has doubled over the last 25 years, and will be 40 percent higher by 2020, and 60 percent higher by 2030, than current levels. But Europe’s own production is declining, and 60 percent of the gas it consumes is imported. Over the next 25 years, European gas imports are projected to double from the existing level of 300 billion cubic meters annually. Much of Europe’s imported gas comes from Russia via pipelines that have been operating for many decades. Finland, Estonia, Latvia, Lithuania, Slovakia, Hungary, Bulgaria, Romania, Ukraine and Belarus are 100 percent dependent on Russian gas. The dependence of Austria, Czech Republic, Poland and Greece on Russian gas is 80 percent, Germany’s 40 percent (likely to go up to 60 percent), Italy’s and France’s 30 percent each. The extent of Europe’s dependence on Russian natural gas was rudely brought home two years ago when Russia suddenly cut off gas supplies to Ukraine, a move that in turn affected the flow of gas to Europe in mid-winter. This was unprecedented and caused panic in Europe. Even at the height of the Cold War there had never been any ripples in the long-term reliable buyer-seller relationship between the Soviet Union (later Russia) and Europe. As a consequence, Europe is now trying to reduce its dependence on Russian gas by trying to get gas from other sources such as Central Asia. But diversification of supplies is not easy. Alternative pipeline projects like Poseidon (involving Turkey, Greece and Italy) and Nabucco, (involving Turkey, Bulgaria, Romania, Hungary and

Austria) will take some time to come up. Europe cannot get away from its reliance on Russian gas in the foreseeable future. It will have no option but to buy as much gas as it can from Russia, and be willing to pay a premium for it by outbidding competitors.

Russia too is keen to give Europe the gas it needs and, notwithstanding the 2006 episode, is anxious to be regarded as a reliable supplier. Russia has made it quite clear that Europe will remain its prime customer for gas. Russia's gas sales to Europe have been steadily increasing, and by 2015 Russia hopes to be selling 180 billion cubic metres of gas to Europe with a one-third share of Europe's imports. Gazprom already has long-term contracts (up to 2030 or 2035) with many of its principal European customers like Germany, Italy, Finland and the Czech Republic. Russia's long-term commitment to Europe is also seen in its plans to expand the capacity of existing pipelines like Yamal-Europe (supplying Belarus, Poland and Germany), the Blue Stream under the Black Sea (supplying Turkey, Greece and Italy), and the plans to build the Nord Stream pipeline under the Baltic Sea to Germany bypassing troublesome former allies like Poland. It does, however, want 'take-or-pay' provisions that will ensure a guaranteed market, bring Russia a steady stream of income, and provide the revenues needed to make fresh investments for development of gas fields and construction of gas pipelines from Russia to Europe.

Russia depends on gas (and oil) for two-thirds of its total exports and 40 percent of its budget revenues. Russia cannot ignore the premium prices it gets from its rich European customers (two-and-a-half times what the countries of Russia's 'near abroad' are willing and able to pay). It is thanks to high energy prices that Russia has paid off all its debts before the scheduled date to the International Monetary Fund, and has amassed more than US\$300 billion in foreign exchange reserves. Russia's oil and gas assets have been critical in the revival and resurgence of a newly-confident Russia that has reasserted some of its erstwhile control over the countries of the 'near abroad,' that has developed some leverage over the countries of Central and Eastern Europe that have rushed to join Western institutions like the European Union and the North Atlantic Treaty Organization, and that is now challenging the United States global hegemony.

Russia's energy resources constitute its biggest geopolitical and economic lever with Europe. Without oil and gas exports, which constitute nearly half of Russia's exports to Europe, the economic bottom would fall out of Russia's relationship with the European Union countries, with inevitable political consequences. On the other hand, Europe's continued dependence on Russian gas provides Russia a lever to moderate European positions on political and strategic issues and to hinder the consolidation of the United States-Europe alliance.

Reciprocally, Russia will need from European companies capital and advanced technology to develop new gas fields and build new pipelines in remote locations and more difficult terrain. It will, however, not waver from its strategic goal to keep control over Russia's gas (and oil) industry in the hands of the Russian state, not those of Russian oligarchs, much less of foreign oil companies. In deals that mirror the well-known Soviet-West German pipes-for-gas deal of the 1970s, new interlocking strategic alliances are being forged between Gazprom and various European companies envisaging cross-holdings that create stakes for both sides in both the upstream and downstream businesses in Russia and Europe respectively.

Another thing to bear in mind is that Russia essentially sees itself as a country with a 'European' character. Russia's European orientation is likely to be consolidated when Dmitri Medvedev, currently Chairman of Gazprom (which produces 85 percent of Russia's gas,

controls 98 percent of Russia's gas transportation network, and has exclusive rights to export Russia's gas) becomes Russia's next President.

Russia's main problem is that gas production in Russia has been flat since 2002. Seventy percent of its current production comes from three large fields in West Siberia (Urengoi, Yamburg, and Medvezh'ye) whose production is declining by 20 billion cubic metres annually. Till recently, an impoverished Russia simply did not have the resources to make the required investments in the gas industry to increase gas production. Thus, less than 10 billion rubles were invested in the gas industry between 2000 and 2005. The immediate challenges before Russia are how to maintain the present level of production. It needs to do so in order to meet the growing domestic demand for gas in tandem with the recent sharp upturn in Russia's own economic growth; to keep supplying gas to the Commonwealth of Independent States (who have no real alternative anyway) so that Russia retains an effective political lever over them; and to maintain the present level of production to meet its existing commitments in Europe. That explains why Russia is exerting so much effort to ensure that Central Asian gas continues to flow to Russia at relatively cheaper prices for re-export to Europe at a substantial profit. Russia is also sharply stepping up its investment plans, and intends to invest 106 billion rubles in its gas industry between 2007 and 2010. It is only after 2010 that Russia hopes to get additional gas from new fields in Eastern Siberia, the Far East and the Arctic region, which may be exported to Northeast Asia, the United States and perhaps even South Asia.

INDIA'S ENERGY CHALLENGES

Basic Parameters

India is today the world's fifth largest consumer of energy even though its current per capita consumption of energy is very low (490 kilogrammes of oil equivalent per capita, compared to a world average of 1780 kilogrammes). If its economic growth remains at the current high level of eight to nine percent per annum, it is likely to move up to third place by 2030. It is axiomatic that efficient and reliable energy supplies are a precondition for sustaining India's economic growth. Even if India's economic growth slows down to 5-6 percent per annum, its energy requirements will still increase sharply over the next 25 years. The Integrated Energy Policy report of the Indian Planning Commission, released in 2006, envisages that, by 2031-32, India's primary energy supply will increase at least treble, and demand for electricity increase by five to six times from 2003-04 levels.

Currently, India's primary energy mix is dominated by coal (51 percent), followed by oil (36 percent), natural gas (10 percent), hydropower (two percent) and nuclear (one percent). In rural areas the current high share (more than 60 percent) of traditional fuels (fuel wood, dung cake, etc.) for household purposes is likely to come down as an increasingly prosperous population steadily shifts towards use of commercial energy (coal, liquefied petroleum gas and kerosene oil). This is also desirable for health and environmental considerations. Thus, as India develops, its population will become more urbanised, more mobile and more prosperous, making India a more voracious consumer of energy. India's commercial energy requirements are anticipated to increase at an average rate of over six percent per annum over the next quarter century. India's incremental energy demand for the next decade will be among the highest in the world. There is general agreement that hydroelectricity, nuclear energy and non-conventional sources of energy will have a marginal impact on India's

energy security. They can at best be supplementary sources of energy to the overall energy mix which will continue to be dominated by coal, oil and gas for the next quarter century, under any scenario.

Renewable Sources

The Integrated Energy Policy of the government makes the point that “even if India succeeds in exploiting its full hydro potential of 150,000 MW, the contribution of hydro energy to the energy mix will only be around 1.9-2.2 percent.” However, it does add the significant caveat that a hydroelectric plant converts a unit of primary energy in the form of potential energy to almost one unit of electricity whereas the fossil fuel route or the nuclear route needs almost 3 units of a primary energy source to produce the same unity of electricity. Moreover, hydroelectricity’s flexibility and suitability to meet peak demand makes it valuable. Thus, the share of hydropower in electricity generation would be more significant. Perhaps this share could increase to a more significant level if, in addition to India’s own hydropower potential, the hydropower potential of Nepal, Bhutan and Myanmar, (perhaps even of Tajikistan and Kyrgyzstan) could also be tapped to India’s benefit. No doubt, India should continue to actively work with its neighbours in this regard because, while the net contribution to India’s energy security may not be so much, the income from such projects for the countries concerned could make a significant contribution to their overall development, as is already the case with Bhutan. It would also hardwire their economies with India’s, with a beneficial fall-out on overall relations. The possibility of such regional projects fructifying depends on the overall political relations that India has with its neighbours. At the same time, environmental concerns, and the problem of resettlement and rehabilitation of people affected by the setting up of hydropower plants, should not be minimised. Other renewable sources of energy like wind, solar, bio-fuels and hydrogen remain important, but not critical, for India’s energy security. The Integrated Energy Policy realistically concludes that even with a concerted push and a 40-fold increase in their contribution to primary energy, renewable sources of energy may account for only 5-6 percent of India’s energy mix by 2031-32.

Nuclear

In the context of the controversial India-United States nuclear deal, of late nuclear energy has been touted as the solution to India’s energy problems. In reality, this appears to be unjustified hype generated by political considerations. On nuclear energy, the Integrated Energy Policy has this to say:

“Even if a 20-fold increase takes place in India’s nuclear power capacity by 2031-32, the contribution of nuclear energy to India’s energy mix is also, at best, expected to be 4.0-6.4 percent. If the recent agreement with the United States translates into a removal of sanctions by the Nuclear Suppliers’ Group, possibilities of imports of nuclear fuels as well as power plants should be actively considered so that nuclear development takes place at a faster pace. Nuclear energy theoretically offers India the most potent means to long--term energy security. India has to succeed in realising the three-stage development process... and thereby tap its vast thorium resource to become truly energy independent beyond 2050. Continuing support to the three-stage development of India’s nuclear potential is essential.”

However, as the India-United States nuclear deal has stalled, at least for the moment, in the absence of a national consensus on this matter, the prospects of getting the approval of the Nuclear Suppliers Group for import of nuclear fuel, materials and technology are very uncertain. There is also widespread justifiable skepticism about many critical issues that have not been addressed so far viz. the cost-competitiveness of nuclear power; the inherent environmental and security risks of nuclear plants; the problems of waste disposal; the ambiguity about India's right to reprocess spent fuel; the guaranteed availability of uranium at economical prices by a suppliers' cartel that is even smaller than in the case of oil; and the jeopardy into which India's investments in nuclear power plants could be put in case India feels that its security interests compel it to test a nuclear weapon at any time in the future. It bears recalling that the Nuclear Suppliers Group was set up with the original objective of preventing India from developing its nuclear capabilities, and the whole thrust of the Hyde Act that governs India-United States nuclear cooperation is to monitor India's nuclear programme to ensure that any civil nuclear energy cooperation with India does not help India's nuclear weapons programme. It is evident that geopolitical considerations will be the most important ones on any decisions taken by the Nuclear Suppliers Group on India's civil nuclear power programme. Thus it would hardly be prudent for India to rely unduly on nuclear power for its energy security.

Coal

Coal will remain India's principal source of commercial energy (estimated at about 45-50 percent but under no circumstances less than 40 percent) for the next few decades. Although India does have large deposits of coal, the coal is not always of the right quality, not always cost-effective, and not available in sufficient quantities. As Indian coal deposits are concentrated in one region viz. eastern India, Indian coal is relatively expensive compared to imported fuels along the western and southern coasts of India. Moreover, Indian coal has high ash content, thereby making it unsuitable for steel-making. India has to import about 65 percent of its coal requirements for the steel industry. It is also currently slightly deficit in coal for power generation. For all these reasons, India will be compelled to import coal in increasingly larger quantities in the coming years. The Indian government is considering setting up a new public sector undertaking, Coal Videsh Ltd., along the lines of ONGC Videsh Ltd. to pursue opportunities for investments in coal mining projects abroad. Coal imports would also necessitate setting up infrastructure for imports. In the long run, however, keeping environmental concerns in mind, India will have to reduce its reliance on coal as an energy source. Even though India currently does not have any global commitments to reduce emissions of greenhouse gases, this is likely to change in the coming years. Coal will increasingly have to give way to gas for power generation provided India can tie up long-term arrangements for import of gas as a cleaner substitute fuel for power generation.

Oil and Gas

Over the next quarter century, the share of oil and gas in total energy consumption is forecast to be at least 45 percent in the overall energy mix. India's problem is that it has only 0.5 percent and 0.6 percent respectively of global proven oil and gas reserves, but a share of 3.1 percent and 1.4 percent respectively in global oil and gas consumption. Demand for oil will increase because of increasing urbanisation and development of the transport sector, whereas the demand for gas will be driven primarily by the power and fertilizer sectors (80 percent) and some from the transport and household sectors. Unfortunately, India's indigenous oil and gas production has reached a plateau. Despite the recent discovery of new gas fields in the

Krishna-Godavari basin, the additional output from these sources will contribute only marginally to bridging the supply-demand gap in the coming years. Therefore, India's continued significant dependence on imported oil and gas is inescapable. The import dependence for oil, currently about 70 percent, is likely to increase to more than 90 percent by 2030. This makes the oil and gas sector by far the most crucial for India's energy security. The critical issues to be addressed are availability, affordability and security of oil and gas supplies.

INDIA'S ENERGY SECURITY STRATEGY – OIL

Oil from the Gulf

At present, two-thirds of India's imported oil comes from the Gulf region and another 15 percent from Nigeria. Important foreign policy implications flow from these parameters of India's energy security requirements. In the foreseeable future, India will have to continue to rely largely on Gulf oil. The presence of a large and prosperous Indian population in the Gulf region is an additional factor that makes this region important. India, thus, needs to give much greater attention to the Gulf countries in its foreign policy priorities, in particular the major powers in the Gulf such as Saudi Arabia, Iran, Kuwait, Iraq and the United Arab Emirates, which are current and potential major oil suppliers to India. Although over the last five years nearly all the rulers of the Gulf countries (including the King of Saudi Arabia) have visited India, the Indian Prime Minister has not visited a single Gulf country during this period. Nor has the Indian Foreign Minister paid sufficient attention to the Gulf. These glaring gaps in India's diplomacy need to be urgently plugged. Fortunately, the Indian Prime Minister did finally pay a long-overdue visit in 2007 to another key oil supplier viz. Nigeria.

For India, it is a great advantage that the Gulf region is located so close to India. This makes the sea-lanes of energy supplies for India much shorter than they are for other major countries. India can also leverage the presence of Indian nationals in the Gulf to protect its interests, as can other South Asian countries like Bangladesh and Pakistan that too have large numbers of their citizens working in the Gulf. But, like other countries, India is concerned that there should not be instability or disorder in the Gulf as this could lead to severe supply disruptions, as has happened in the past. India's decision to establish a strategic oil reserve will mitigate the adverse consequences of short-term oil disruptions, but this will not solve the problem of prolonged disruptions or permanent denial of supplies. India has agreed in principle with the major oil-producing Gulf countries like Saudi Arabia, Kuwait and the United Arab Emirates to develop long-term strategic relationships in the energy sector involving supply of crude oil and petroleum products, upstream and downstream joint ventures, refineries, petrochemical industries and marketing. Such strategic relationships would enhance India's energy security. If the oil-producing countries develop stakes in India's downstream sector, this will provide some assurance that India would continue to receive from them adequate oil supplies. India should also try to get some guarantees of uninterrupted oil supplies in the Free Trade Arrangement that it is currently negotiating with the countries of the Gulf Cooperation Council viz. Saudi Arabia, Kuwait, Qatar, Bahrain, United Arab Emirates and Oman. India has also taken the initiative to get together key Asian producers and consumers of energy to work out a strategy that would protect their respective long-term interests. But this has not been followed up with sufficient vigour over the last couple of years.

With the United States occupation of Iraq likely to be long-term, and a real danger that Iraq could break up, India has to be alert to ensure that the oil reserves of Iraq and other Gulf states do not come under the control of outside powers which may be in a position to deny them to India. Thus, unless India can secure the sea-lanes of communication between the Gulf and India, hostile countries could use India's energy vulnerability to exert pressure on India. The development of Gwadar port in Pakistan with Chinese assistance has caused understandable concern among Indian security planners. India, for its part, should also develop its sea denial capability vis-à-vis other powers centred around its Tri-Services Command military base in the Andaman and Nicobar Islands. This base is not only located very close to the main shipping route from the Indian Ocean to the Pacific Ocean but also enables India to monitor the northern entrance to the Malacca Straits.

India thus cannot afford to have a passive approach to issues of Gulf security. India needs to build a 'blue water' navy to secure the sea-lanes of trade and energy flows from the Gulf. This is even more necessary because of the increased U.S. military and naval presence in the Gulf and the northern Arabian Sea post-9/11 and the war against Iraq. Closer cooperation with the United States on patrolling the sea-lanes of communications is a possibility that India could consider, but so far the United States itself is reluctant, no doubt at Pakistan's behest, to involve India in the area covered by the United States Central Command. In any case, while a cooperative approach with the United States in this regard does have some benefits, it should be handled cautiously to ensure that there is no adverse fall-out on India's long-term interests in the Gulf. For India, too close an association with the United States, which evokes widespread hostility among the people in the Gulf, could put in jeopardy the welfare of the millions of Indians living and working in the Gulf. India needs to establish its independent military presence in the Gulf, but only in consultation with the concerned countries so that no undue suspicions are aroused. There are enough signals that the Gulf countries themselves are keen that the major Asian consumers of Gulf energy should get involved in helping to ensure the stability of the Gulf countries. As a major consumer of Gulf oil and gas, as the nearest significant military power, and as a country having five million of its citizens living in the Gulf, India should take the lead in providing an alternative paradigm for Gulf security. One initiative that could be urgently taken is to set up a forum for regional security, with the GCC at its core, that brings together all the countries of the region (including Iran and Israel), the neighbouring countries (like Afghanistan, Pakistan and India), and outside powers with a legitimate interest in the region (like the United States, Russia, China, Japan and the European Union).

Equity Oil Abroad

In order to diversify its sources of oil supplies, as well as to ensure that India's imported oil dependence does not go beyond the existing 70 percent, India has embarked on a policy to diversify its sources of oil by making equity investments in oilfields abroad. In the last few years, Indian oil companies, both publicly and privately owned, have made significant investments in discovered or producing oilfields as well as exploration blocks in countries as diverse as Russia, Sudan, Vietnam, Myanmar, Iran, Iraq, Yemen, Oman, Syria, Egypt, Libya, Colombia, Brazil and Cuba, as well as Nigeria and a number of other countries in West Africa. While such measures will certainly help in getting assured supplies as well as giving some protection against high oil prices, they will have only a marginal impact on India's energy dependency on the Gulf. The anticipated output from all the existing and potential properties abroad is at best expected to contribute not more than 25 percent of India's rapidly growing demand. But this would not mitigate the security risks in transportation of oil.

Thus, equity oil assets abroad cannot really provide energy security, although such investments are commercially profitable for the oil companies.

INDIA'S ENERGY SECURITY STRATEGY – GAS

Liquefied Natural Gas or Pipeline Gas?

India is fortunate that rich sources of gas are available in India's vicinity, which can be imported in large volumes by pipeline, an option that is not at all available to many large gas-consuming countries. Of course, techno-economic considerations will dictate a mix of LNG and gas pipeline options for India. Thus, it would probably be more economical to use LNG in the southern states that are near existing and planned LNG terminals, natural gas from Myanmar and Bangladesh by onshore/offshore pipelines for the eastern states, and Iranian gas by offshore/onshore pipelines for the western and, partly, the northern states.

Gas from the Gulf

Gas-rich and proximate Qatar and Iran are the obvious sources for India to tap. Since 2004, India has been importing a small volume of gas, in the form of LNG, from Qatar to supplement domestic production, but there is considerable unsatisfied demand for much larger quantities of gas if it were to become available. India is negotiating with Qatar for additional LNG contracts. A number of LNG terminals are being built on both the western and eastern coasts of India to handle imported gas from Gulf countries like Qatar, Iran and Oman, as well as other sources like Algeria and Australia with which too India is negotiating for purchase of LNG.

Although other Gulf countries, especially Saudi Arabia and United Arab Emirates, also have considerable gas reserves, albeit not on the scale of Qatar and Iran, they are not exporting gas. Most of the gas they produce is used for domestic consumption. They also prefer to use the gas for re-injecting into oilfields to boost oil output. But they are open to a variant to exports of gas, which India has successfully initiated with Oman, and is discussing with Saudi Arabia. This involves setting up joint venture gas-based fertilizer plants, using the gas resources of the Gulf countries to produce fertilizers that the Indian joint venture partner guarantees to buy back. The advantage of such a model is that the gas is used to set up industrial units that would generate employment, and exports are of value-added products manufactured from gas, not just natural gas.

Gas from Myanmar

India was also trying to get access to Myanmar gas through a pipeline either across Bangladesh or via the Northeast Region of India, but has been upstaged by China. While India dithered, and perhaps did not properly coordinate the technical discussions with the diplomatic efforts, China moved swiftly, and leveraged its economic, military and political clout with the Burmese regime to clinch the deal. However, India has recently managed to get rights to some additional offshore exploration blocks in Myanmar and it is not ruled out that if the reserves are enough a gas pipeline could be constructed from Myanmar to India. This episode brings out starkly the overwhelmingly geopolitical considerations in concluding large oil and gas deals, and the stiff competition that India faces from China.

Iran-Pakistan-India Gas Pipeline

For gas imports by pipeline, the most promising, but also the most controversial, has been the IPI gas pipeline project. Although it is a logical project since Iran is a major producer of gas while both Pakistan and India are large consumers with a growing demand, for many years India refused to countenance the idea of such a pipeline since it could not trust Pakistan not to disrupt supplies. It was only after Prime Minister Vajpayee's visit to Islamabad in January 2004 and the initiation of the India-Pakistan composite dialogue to address outstanding bilateral issues that India agreed to de-link the question of the gas pipeline from outstanding bilateral issues such as grant of most-favoured nation treatment in trade, and transit facilities to Afghanistan. As a result of the Indian government's decision – which itself reflects how important energy security issues figure in its foreign policy priorities – a series of trilateral and bilateral meetings between Iran, Pakistan and India have been held over the last three years. Iran and Pakistan appear to have resolved most of the issues between them and intend to sign an agreement for an Iran-Pakistan gas pipeline regardless of whether India gets involved in this project.

Indian participation in the IPI remains uncertain. There are still some differences between India and Pakistan over transit fees. More than the financial and security issues, it is political considerations that are holding back India's participation. Despite official denials, India has given the impression that it is deliberately going slow on the IPI because of pressure from the United States. The United States has linked India's participation in the gas pipeline project to the fructification of the India-United States nuclear deal, to which the present government in India attaches very high priority. India has grievously erred in succumbing to United States pressure since it has created deep mistrust and loss of credibility of India in Iran, leading to Iran abrogating an attractive and significant LNG deal with India, which has also lost other opportunities in Iran for investment and cooperation in the energy sector.

The geopolitical significance of an IPI pipeline would be immense. On the energy front, it would provide Pakistan and India with plentiful gas supplies for many decades. Politically, it would be a huge confidence-building measure between India and Pakistan that could create a momentum for a fundamental transformation of India-Pakistan relations. Iran too would immensely benefit. As Iran, for both political and logistical reasons, cannot easily break into the European gas market, gas exports to Pakistan and India would give Iran valuable long-term customers and a steady stream of much-needed revenue. The IPI would also bring Iran important political benefits, as it would undermine the United States policy to sanction and isolate Iran. As a regional energy project, the IPI could form the nucleus of a regional cooperation arrangement, in the first instance between South Asia and Iran (which has become an Observer of the South Asian Association for Regional Cooperation), and later perhaps within the framework of the SCO, where Iran, Pakistan and India are Observers.

While it may be difficult to get technical and financial support for this pipeline project from the Western countries, it is noteworthy that Gazprom of Russia, which is rich and technically competent, has shown interest in the project. Diverting Iranian gas to markets like Pakistan and India would leave the lucrative European market free for Gazprom to continue exploiting without facing competition from Iranian gas.

Turkmenistan-Afghanistan-Pakistan-India Gas Pipeline

Another gas pipeline proposal that has been under consideration for some time is the TAPI project. However, there are many unanswered questions that need to be addressed before India can seriously commit itself to a gas pipeline from Turkmenistan to India. The extent of Turkmenistan's proven gas reserves is not known. Turkmenistan has already pledged considerable quantities of gas to many other parties which have great influence on Turkmenistan. Turkmenistan has its traditional commitments to Russia, which Turkmenistan will keep especially after the generous price increase it has recently managed to negotiate with Russia. Turkmenistan has also made generous promises to a gas-hungry, cash-rich China, and is being wooed by Europeans keen to reduce their dependence on Russian gas. Thus, there are serious doubts whether Turkmenistan has adequate surplus gas available that would take care of the present and anticipated demand of Afghanistan, Pakistan and India over the next couple of decades or more. Without assurances on this front, it would not be prudent to make the huge investment needed in for this project in a politically risky country like Turkmenistan. India will also have to bear in mind the Russian opposition to the TAPI, since this threatens to reduce Turkmenistan's gas supplies to Russia and consequently Russia's hold over Turkmenistan too. So far the existing pipelines have ensured that Central Asian gas flows to Russia, and Russia can be expected to use all its available leverages with the Central Asian countries to keep the latter from stepping out of line. The security situation in Afghanistan and in the Afghanistan-Pakistan border regions in the North West Frontier Province and the Federally Administered Tribal Areas also creates serious doubts about any international consortium's ability to construct and maintain a pipeline.

Despite so many uncertainties surrounding the TAPI, India is participating in the discussions on the TAPI for geopolitical considerations. A TAPI gas pipeline that leaves out India would pave the way for Pakistan emerging as the key country outside the Central Asia region with which Turkmenistan (and later the other Central Asian countries too) would be anchored economically, politically and strategically through oil and gas pipelines, roads and railways. This would give Pakistan the dominant influence and strategic depth it has been seeking for a long time. Pakistan would become a key long-term strategic partner of the United States in this region. This would enormously strengthen Pakistan strategically and economically, and be a disincentive for its military leadership to seek an enduring peace with India. A stable, united Afghanistan is in India's interest, but not if it becomes an economic appendage of Pakistan. Thus, India would not like a gas pipeline to come up from Turkmenistan to Pakistan via Afghanistan without India being involved in it. Since India's interests are better served if it is part of such a project than outside it, India has wisely managed to get its foot in the door in the TAPI project.

Between the IPI and the TAPI projects, the IPI may be preferable from India's point of view since it involves only one transit country as compared to two for the TAPI. Geopolitically, Iran is no less important (because of its intrinsic size, resources, location etc.) than Afghanistan. Moreover, Pakistan is unlikely to let India get in on the TAPI if there isn't already an agreement on the IPI, which in any case is on a much faster track than the TAPI. At the same time, it would be prudent for India to spread its risks and not to rely exclusively on gas pipeline transit routes via Pakistan – whether the IPI or the TAPI. The only possible alternative, or supplement, to the IPI and the TAPI is gas from Russia and Central Asia.

A STRATEGIC VIEW OF EURASIA

India must get involved in Eurasian oil & gas projects, not only for its energy security, but for political and strategic considerations too. Eurasia is likely to remain an important centre of global geopolitics. From a geopolitical perspective, the major global players viz. the United States, China and Russia are present in a major way there. A 'new Great Game' is being played around energy issues. Among the regional players, Pakistan wants to dominate Afghanistan and keep India out of Central Asia. Aspiring to play a global role, and in order to protect its vital national interests, India too has to be an active player in this 'new Great Game' on an equal footing with the other major players. Thus, India must remain integral to Eurasian energy politics. If it is pro-active and takes a strategic view, India could try to leverage its position as a geographically proximate, major potential market that is about the same distance from both west and east Siberia, and much closer to Central Asia, as the major consuming regions of eastern China.

Can India count on Russia and Central Asia in its overall energy security strategy? Russia clearly views its energy resources as a key strategic asset. As a long-time trusted friend and strategic partner of Russia, India could expect Russia to be positively inclined towards its quest for access to Eurasian energy. India was allowed to invest in the Sakhalin-1 project on very favourable terms because of political considerations. Now, as India seeks equity investments in other projects in Russia, including the giant Sakhalin-3 project, a hard-nosed Russia is unlikely to accommodate India unless India reciprocally gives Russia favoured treatment in other areas, including defence. In other words, India is unlikely to get any concessions from Russia in the energy sector except as part of a larger strategic relationship and understanding. If India remains committed to an overarching India-United States strategic relationship, which has already had a negative fallout on India's relations with Russia, there is not much hope for a meaningful India-Russia energy relationship.

South Asia does not figure in Russia's proclaimed long-term Energy Strategy up to 2020 (approved in 2003). India will therefore have to be pro-active in exploring all possibilities to get oil and gas from energy-surplus Russia. India will have to fashion long-term policies today, before the slight window of opportunity that still remains open completely shuts. In the first instance, India must open a serious energy dialogue with Russia, which also exercises considerable, often decisive, control over Central Asia's oil and gas exports. Naturally, India will have to be ready to make significant investments, at competitive market rates, in 'greenfield' oil and gas exploration and production projects for which there are many takers.

Among the discovered gas fields that India might be able to access is the giant Kovykta field in east Siberia (near Lake Baikal), over which Gazprom has recently managed to regain control from the BP-TNK. Although there exists an understanding that gas from Kovykta would be used for export to China and South Korea, after taking care of demand within eastern Siberia, it is not ruled out that, as part of a larger understanding with India, Russia may prefer to sell Kovykta gas to India rather than China in today's changed circumstances. China's interest in Kovykta may weaken if, despite Russia's attempts to ensure that it remains the monopoly buyer for Turkmen gas, China manages to access Turkmenistan's gas. The planned gas pipeline from Turkmenistan to China via Uzbekistan and Kazakhstan, on which an agreement was concluded in January 2008, would inevitably pick up supplementary gas from Kazakh and Uzbek fields located along the route of the pipeline. Alternatively, under a swap arrangement, Turkmen and other Central Asian gas contracted for by China could be sent to the more proximate market of India, while China could get Kovykta, or other

Siberian gas resources located much closer to China's main consuming centres, in which India has an interest.

Thus India must have a strategic understanding on energy with China too, since both are major energy consumers seeking energy from the same sources. China also holds the key to finding a viable transportation route from Eurasia to India. Any pipeline from Eurasia to India that does not come via Afghanistan/Pakistan has to be routed via the Xinjiang region of China and then across the Karakoram and the Himalayan mountain ranges. Apart from the considerable technical challenges, the political obstacles to such an alignment are likely to be more daunting, since the pipeline route would have to cross Aksai Chin, an area disputed between India and China. But such an understanding should not be ruled out if the two countries conclude that such a project could bring considerable long-term energy and strategic benefits to both countries.

A gas pipeline project across the Karakoram-Himalaya ranges could lead to the development of a major energy corridor between Eurasia and the Indian Ocean. Although technically much more challenging, there is the possibility that oil pipelines could be built along the same alignment as the gas pipeline, but in the opposite direction. That could be of great interest to China, which is reportedly examining a Pakistani offer of creating an energy corridor for oil from the Gulf to China via Pakistan. India could offer a similar transit oil corridor. An Indian transit route may not only turn out to be more secure and technically feasible, but also have the advantage of creating a mutual dependence – Chinese dependence on India for transit of Gulf oil destined for China, and Indian dependence on China for transit of Eurasian gas destined for India. Both China and India would gain from cooperating in creating a north-south energy corridor from Eurasia to the Indian Ocean. They would get assured energy supplies for their own domestic needs, and become central to the energy flows out of Eurasia. Although they may be competitors for finite global energy resources, India and China share a larger long-term interest that the energy resources of Eurasia remain available to meet the demand of Asian consumers too, not just those of the West. To ensure this, the two countries need to use their clout as large and growing consumers of energy. If they cooperate, and act quickly, boldly and imaginatively, they can offer a viable, more secure pipeline route for export of Eurasian gas than the alternatives being considered.

There are other benefits outside the energy sector that could flow to China from pipelines connecting China and India. China could earn considerable amounts of money as transit fees from pipelines transiting Xinjiang and Western Tibet. Investments for pipeline projects would provide employment opportunities and stimulate the economic development of, and stabilise, Xinjiang and Western Tibet. China may welcome more people-to-people contacts and economic ties between Xinjiang and India (as an outlet for the frustration of the Uighurs and to relieve the drain on China's own financial resources) in preference to linkages of Uighur separatists with fundamentalist elements in Pakistan. China realises that the unresolved problem of Xinjiang separatism, which is also linked to the situation in the Central Asian Republics, has the potential to spin out of control. Thus, China has an important stake in the prosperity and stability of both the Central Asian region and Xinjiang. If China feels that closer economic ties of Xinjiang with India serve its long-term interests, it may welcome proposals for sub-regional cooperation for Xinjiang along the lines of, and perhaps as part of a package deal including, China's own 'Kunming initiative' for sub-regional cooperation between Southwest China, Myanmar, Bangladesh and India. While Pakistan can be expected to put pressure on China to oppose any such links, there are recent encouraging signs of a more even-handed and realistic Chinese approach to India-Pakistan relations.

India too stands to gain enormously from such a project. Eurasian-Indian pipeline projects would not only boost India's energy security but also bring India many significant long-term advantages. Availability of a cheap and plentiful clean energy source like gas would go a long way towards resolving growing problems of deforestation and environmental degradation in the Himalayas. This would also stimulate the economic development of the States of Jammu and Kashmir (Jammu and Kashmir) as well as Himachal Pradesh. Most important, this could open the way for a long-term solution to the festering problem of Kashmir. It is only if the emotionally alienated Kashmiri people, particularly the unemployed frustrated youth, become part of the Indian mainstream economic and political life and concretely benefit from such an association that they will turn away from militancy. This makes the economic angle as important as the military and political ones in finding a long-term solution to Kashmir. Geographically remote from India's heartland, Jammu and Kashmir has not attracted private investment, and tourism has not proved to be a sufficient catalyst for the State's economic development. As a state in the Central Asian geo-strategic space, Jammu and Kashmir could benefit enormously from a re-opening of its traditional links with Xinjiang and western Tibet via Ladakh.

An energy project between India and China traversing sensitive and strategic areas like Jammu and Kashmir and Xinjiang would have a positive fall-out on overall bilateral relations. Notwithstanding mutual security concerns and suspicions between India and China, there is no logical reason why proposals for energy pipelines between Eurasia and India via China should not be pursued. After all, India and Pakistan, who share a similarly antagonistic relationship, have agreed on road links across the Line of Control in Jammu and Kashmir, and are actively discussing a gas pipeline from Iran to India crossing Pakistan. Major joint energy projects such as pipelines would not only give an enormous catalytic boost to economic relations, but would also hardwire India and China into an inter-dependent relationship, helping to create a climate of greater mutual trust and confidence. If both China and India remain stable and grow more prosperous and powerful, as is likely, they need to work out a non-hostile and cooperative relationship. Moreover, there will be a more stable Pakistan-China-India strategic equilibrium if China feels that its long-term national interest lies in closer ties with India too, rather than an exclusive strategic relationship, cemented by shared animosity towards India, between China and Pakistan. Both China and Pakistan could be reassured that the gas flows from Eurasia to India could also be shared with Pakistan, if needed, through pipeline extensions from Jammu and Kashmir to Pakistan-occupied Kashmir (POK) across the Line of Control and from the Indian State of Punjab to Pakistan's Punjab Province across the international border. Such an arrangement would, in fact, build in a reciprocal Pakistani dependence on gas transiting via India that would assuage India's security concerns about gas to India transiting Pakistan, whether by the IPI or the TAPI.

An energy pipeline project could perhaps even create a better climate in India for eventually resolving the border dispute with China on the basis of the Line of Actual Control. Both sides have reiterated, during the visit of Indian Prime Minister Manmohan Singh to China in January 2008 that there has to be a political solution to the India-China border dispute on the basis of the April 2005 Agreement on Political Parameters and Guiding Principles on this matter. The 1962 Indian Parliament resolution on the subject complicates the task for any government to settle with China on the basis of the existing ground realities, even though it is widely recognised that China is unlikely to give up control of Aksai Chin across which it has built a strategically important road, whereas Aksai Chin is not much use to India militarily. Perhaps the Aksai Chin problem can be finessed. It is likely that there would be acceptance by the Parliament and the public of a settlement broadly along the Line of Actual Control in

the Western Sector if the Aksai Chin road built by China at great cost and effort is seen to benefit India economically by serving as a major economic artery linking India and China, including gas and oil pipelines in both directions. While this would not resolve all the issues in the long-standing India-China border dispute, a large strategic energy-related project across the disputed border would definitely constitute a huge confidence-building measure.

The technical difficulties in a Eurasia-India pipeline project obviously cannot be underestimated. In general, pipelines can be built more easily and cheaply along existing roads and rail links, since that would clearly facilitate transport of heavy equipment for pipeline construction. Secondly, it is much easier to transport gas, compared to oil, at high altitudes and low temperatures. A gas pipeline from Eastern Siberia could be easily built up to Kashgar, which is connected by rail. While a proper topographical and techno-economic feasibility study would have to be done to determine the optimal route, preliminary studies have shown that the best route may be along the existing Aksai Chin road alignment, with entry into India either at Rutog or Demchok. Both these places have easy connectivity to the existing road from Leh in the Ladakh region of Jammu and Kashmir to Manali in Himachal Pradesh.

If, on detailed examination, it turns out that gas pipelines are technically difficult and economically too expensive to construct across the Karakoram and Himalayan ranges, the project could be modified. Eurasian gas could be used to set up gas-fuelled power plants in Central Asia and Xinjiang region of China, and the electricity generated could be transmitted across the Karakoram-Himalayas ranges. This would provide value addition to the gas reserves, create local employment and promote regional economic development. Another complementary approach would be to set up hydropower plants in Kyrgyzstan and Tajikistan, both of which have enormous hydropower potential, for export of electricity to South Asia. It might be cheaper and simpler to import hydropower from north of the Himalayas than to set up hydropower projects in the Himalayas. The latter have not taken off meaningfully because of political hesitations on the part of Nepal, apart from environmental concerns, geological surprises and the problem of resettling displaced populations.

A successful Eurasian energy project is possible if Russia, as a major energy producer, develops a strategic understanding with India and China, both major energy consumers. If the three countries agree in principle that they should have strategic cooperation in the field of energy, the details can be quickly worked out. Perhaps this could constitute a concrete project within the India-China-Russia trilateral framework, where energy is an agreed area of cooperation. It could also be considered subsequently within the framework of the SCO, where Russia, China, Kazakhstan, Uzbekistan, Kyrgyzstan and Tajikistan are Members, while India, Pakistan, Iran and Mongolia are Observers. Turkmenistan and Afghanistan, while being neither Members nor Observers, nevertheless have an interest in the SCO, seen in the presence of their respective heads of states at the 2007 Bishkek summit of the SCO. In this way, all the countries involved in the SCO are either major producers or consumers of energy, or key transit countries in energy flows between Eurasia and South Asia.

In the new geo-political realities of the 21st century, bold and innovative, even visionary, approaches are needed in inter-state relations, including in the area of energy security. The fructification of such a Eurasian energy blueprint offers the exciting prospect of transforming the Central Asian region into a strategic space uniting major Asian energy producers, consumers and transit countries in a web of interdependence. Instead of being the battlefield of a new 'Great Game', Central Asia could become the crossroads of a 21st century version

of the traditional Silk Route, with gas and oil pipelines replacing caravan convoys. The Himalayas-Karakoram region could truly become a frontier zone of peace, friendship and development, rather than one of confrontation and conflict. A mega-project like this would also act as a huge stimulus for the global economy. Such a conceptual breakthrough would have far-reaching long-term consequences. It would not only bring all-round economic advantage, prosperity, social and political stability, but also create a solid and enduring foundation for greater trust, confidence and understanding, extensive people-to-people ties and communication links that will hopefully lead to new, lasting and stable political and strategic relationships.

CONCLUSION

Global energy geopolitics will be principally shaped by the 'arc of energy' stretching from the Gulf region to the Caspian Sea, through Siberia and the Arctic region to the Russian Far East, Alaska and Canada. It is in this region that nearly 80 percent of the world's oil and gas, including potential reserves, are located. Asian countries, having the world's most dynamic economies, and comprising half the world's population, will remain dependent on energy from this arc. They will also be the principal consumers of energy from this region in the coming decades. The Indian Ocean, earlier the principal conduit for the colonisation of Asia and eastern Africa, and today controlling the access to and from the Gulf, has become the world's 'energy super-waterway.' Southwest Asia, washed by the northern Indian Ocean and the Persian Gulf, and the adjoining landlocked Central Asia, has become the most militarised region in the world, much like Europe was during the Cold War era. Even though the United States, the world's largest consumer of energy, is following a conscious policy of reducing its energy reliance on Asia, it remains firmly entrenched at multiple locations on land and sea in the Eurasia-Indian Ocean region. Its traditional policy of dominating the Gulf, which is inextricably linked to energy geopolitics, remains in place. Unfortunately, this has given rise to many destabilising tendencies with a global impact, such as terrorism and fundamentalism. The already complex traditional geopolitics of this region, marked by myriad inter-state disputes and instability, have been immensely further complicated by energy geopolitics and created enormous tensions and potential deadly conflicts.

South Asia is a key region that will play an important part in the geopolitics of energy. Given its location and size, its economic and military strength and potential, and its position as a growing consumer of energy, India will be very much a part of global energy geopolitics in the coming years. Since energy flows and energy projects are often key determinants of many bilateral relationships, and invariably have a regional, at times even a global, significance, India needs to give much greater and more focused attention to energy issues in its foreign policy. India can no longer assume that global markets can provide solutions to its long-term energy requirements. Nor can energy security considerations be fitted into existing paradigms of foreign policy. Rather, foreign policy will have to be reshaped to take account of India's continued dependence on imported energy. India's energy security requires that it give much greater attention to its relations with the Arab Gulf states, Iran, Russia and China. But India will have to deal with these neighbours to its north and west from the perspective of its own long-term energy and other interests, not through the prism of the United States. Aspiring to play an increasingly central role on the world stage, India has to evolve a determined, coordinated and sustained long-term strategy to ensure its energy security. Although there is much greater awareness of the issue of energy security in India today than even a few years ago, India needs to develop a holistic energy policy that meshes into an overall strategy

covering domestic policies and reforms in the energy sector, foreign policy, national security, economic development and environmental concerns.

Pakistan, South Asia's second largest economy, could solve its own energy problems once the Iran-Pakistan gas pipeline project is completed. It can also become a critical player in global energy geopolitics because of its geographical location between India and the major sources of gas in the world. If Pakistan is regarded as a responsible stakeholder and a reliable transit country for global and regional energy flows, this could bring Pakistan many benefits, both economic and political. Pakistan could earn substantial sums as transit fees, and have many other indirect economic benefits. Current negative international perceptions about Pakistan would change, and give many countries and businesses a huge stake in Pakistan's stability. A stable Pakistan would in turn bring stability to the region as a whole. A conscious policy of creating a mutual dependency in the fields of energy and trade between India and Pakistan could lead to a long-term improvement of Pakistan's relations with India. But if Pakistan remains caught up in its traditional geopolitical approach of blocking India in every possible way and of dominating Afghanistan, then Pakistan not only risks getting marginalised and ostracised by the international community, but will have to bear the overwhelming burden of a turbulent, lawless and fractured Afghanistan.

India's other large neighbour, Bangladesh, could become self-sufficient in energy if it could exploit its proven gas reserves. However, like Pakistan, it has shied away from any projects that are likely to bring benefits to India, never mind that such an approach hurts Bangladesh itself. As India has discovered significant gas reserves in the Bay of Bengal, Bangladesh gas no longer has the same importance for India as it did a few years ago. By introducing extraneous considerations for transit of Myanmar gas to India, Bangladesh was at least partly responsible for India losing the opportunity to build a pipeline to transfer gas from Myanmar to India. Even if more gas is found in Myanmar, it is likely that India would prefer to have a pipeline route from Myanmar to India via its Northeast Region, not via Bangladesh. Bangladesh has lost much of its potential leverage over India because of political obduracy. Many international gas majors have given up their plans for Bangladesh since they do not make economic sense unless Bangladesh gas is in some way tied to the Indian market.

The Himalayan states of Bhutan and Nepal have adopted different approaches to exploiting their vast hydropower potential. Bhutan has been happy to consciously create interdependence with India in the energy sector by allowing India to finance the development of hydropower projects in Bhutan whose output is used by Bhutan for its domestic needs as well as for export to India under long-term contracts. Nepal, on the other hand, has been unable to reach any agreement with India on any significant hydroelectric power project because of a prickly nationalism. If Nepal were to follow the Bhutan route, it could become quite prosperous, leading in turn to stability, something that Nepal badly needs.

Southeast Asia as a whole is so far self-sufficient in energy, and will remain so for a decade or more. The region is surplus in energy, but Indonesia, the region's largest oil and gas producer, has become a slight net importer of oil in the last two to three years. In the future, unless new reserves are discovered in unexplored locations in the region, Southeast Asia may also have to depend on the Gulf for its energy security. However, the Southeast Asian countries are major players in the global LNG market, though not the world oil market. Southeast Asia's importance in the current global energy scenario also arises from the fact that large volumes of crude oil, refined oil products (Singapore is the largest refinery hub in Asia) and liquefied gas destined for the west coast of the United States and the large and

growing economies of East Asia viz. China, Japan, South Korea, Taiwan, pass through this region, in particular the ‘choke point’ of the Malacca Straits. Consequently, it has to be a high priority for the littoral states to ensure security for the safe passage of energy flows. So far, there has been no cause for undue worry. The regional security arrangements that the littoral states viz. Singapore, Malaysia, Indonesia (and Thailand) have worked out through their ‘Eyes in the Sky’ policy are operating satisfactorily. Piracy incidents have come down in recent years.

However, if at any time these measures are perceived as being ineffective, the major consumers of energy dependent on safe passage through the Malacca Straits and Southeast Asia may be tempted to take unilateral measures to ensure security. The United States already has a significant military presence in and arrangements with Singapore, Thailand and the Philippines. Both China and India are also steadily building their naval ties with many countries of Southeast Asia. Already, countries like China, Japan and South Korea have evinced interest in alternative routes for transporting energy bypassing the Malacca Straits. Among the various proposals being considered is a canal across the Kra peninsula in Thailand, a pipeline across northern Malaysia, and a pipeline from Kyaukphyu in Myanmar to Yunnan in China. Pakistan too is trying to interest China in an energy corridor from Gwadar up the Indus plains and then via the Karakoram Highway to Xinjiang.

Admittedly, all these proposals are in a very preliminary stage, and major questions relating to financing, economic viability, technical feasibility and environmental impact remain unaddressed. But Southeast Asia in general and Singapore in particular cannot but remain watchful about these trends. Any canal across the Kra peninsula or a pipeline across northern Malaysia would divide ASEAN horizontally, not just geographically but politically too. This would accentuate existing tensions within ASEAN, and potentially deprive ASEAN of its cohesiveness that has enabled it to play a much larger role in Asia and the world. Singapore may not be a major energy producer or consumer, but its economy relies to a significant degree on its status as a major port and oil refining hub. This could be threatened by any security-related problems in the Malacca Straits, by any moves to develop alternative energy routes to the Malacca Straits, or by any kind of turbulence within ASEAN. Trying, as always, to stay ahead of the curve, Singapore is giving much greater attention to the countries to its west. In the first place, there is India, which occupies an increasingly important dimension in Singapore’s attempts to diversify its external economic linkages. It is doing this in two ways. Firstly, closer ties with India will enable Singapore both to reduce its economic dependence on the Pacific Rim countries. Secondly, by repositioning itself as an Asian hub for finance, aviation, tourism, education, and other services, Singapore will move away from its traditional reliance on shipping and oil refining as motors of economic activity. It is also noteworthy that Singapore has of late started taking greater interest in the energy-rich Gulf countries like Saudi Arabia and Qatar, and is encouraging a deeper study of energy issues and the energy-rich Middle East region.

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