

**Fourth High-Level Conference on  
Asian Economic Integration:  
Towards an Asian Economic Community**

November 18-19, 2005, New Delhi, India

*Organized by*



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New Delhi, India



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# **Towards an Asian Energy Community: An Exploration**

## **A Background Paper**



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# Towards an Asian Energy Community: An Exploration

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## Introduction

The notion of energy security of a nation has evolved over time. In the 1970's, with the experiences of two oil crises and a preoccupation with resource depletion, energy security concerns revolved around securing adequate physical supply of energy. From mid-1980's onward, with rapidly increasing oil import bills, energy security concerns also involved price risk in addition to quantity risk. In addition to the above, from the 90s onward, with increasing global concern for the environment due to the imminent threat of climate change, countries like China and India are under a lot of pressure to shift their energy consumption mix from the highly polluting but domestically available coal to cleaner fuels.

The Asian economies are currently experiencing rapid growth in energy demand, concomitant with economic growth and industrialization. Adequate energy supply is therefore a major challenge facing the economies in the region. The Asian countries together are expected to show the most dynamic economic growth in the coming few decades. However the potential economic progress will materialize only if the countries are able to find a solution to their rapidly increasing demand for energy. With energy demand increasing rapidly and energy imports growing, the gap between the region's energy demands and its indigenous supply is widening. Moreover, energy imports of the region are largely dependent on Middle East suppliers and any regional conflicts or transportation crises could seriously impact the stability of energy supplies to the Asian region.

Of the total world demand for oil in 2010, around 20% will be contributed by the Asian countries put together. Japan is highly concerned about securing energy supplies, as its imports are almost 99% of its oil requirement, three-fourths of which is imported from the Persian Gulf. China, which turned into a net importer of oil in 1993 will be increasingly vulnerable in the coming decades with its high rate of economic growth. India imports about 700,000 bbls/d of oil currently, which is likely to increase to 2.3 million bbls/d by 2010. Although Indonesia and Malaysia are energy exporters at present, both countries are expected to turn to net energy importers by 2010. Table 1 shows the net oil demand and supply positions of the Asian region.

Currently other regions of the world such as Western Europe and North America are seeking to improve energy market efficiency and secure cost-effective energy supply through energy market integration and system interconnection, the countries in the Asian region are depriving themselves of such opportunities primarily due to their isolated and, in some cases, fragmented energy systems. However, the Asian economies are gradually waking to the possibility of creating an energy consortium with the neighbouring countries, if not with the rest of the Asian region. The Broad objectives of an Asian Energy Consortium would be:

- To ensure security and sustainability of energy supply
- Oversee efficient utilization of natural energy resource in the region
- Rational management of energy demand, with due consideration of the environment.
- Establishing policy framework and implementation modalities for setting up of energy networks in the region; and
- To coordinate, manage and monitor the implementation of such a network

**Table 1. Oil demand and supply balance in the region under study (Million bbls/d)**

<b>Country</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>
<b>Net Imports</b>			
India	0.9	1.9	2.3
China	1.0	2.0	3.0
Japan	5.4	5.5	5.7
Korea	1.9	2.1	2.3
Philippines	0.3	0.4	0.4
Singapore	0.4	0.4	0.4
Chinese Taipei	0.8	0.9	1.1
Thailand	0.5	0.6	0.9
<b>Total</b>	<b>11.2</b>	<b>14.0</b>	<b>16.3</b>
<b>Exports</b>			
Indonesia	0.7	0.6	0.4
Malaysia	0.3	0.2	0.1
<b>Total</b>	<b>1.0</b>	<b>0.8</b>	<b>0.5</b>
<b>Deficit</b>	<b>10.2</b>	<b>13.2</b>	<b>15.8</b>

Source: APERC 1998

### **Areas of energy cooperation in Asia**

The positive economic trends witnessed at the end of 2003 in the large Asian economies such as China, Japan, and India and also the current economic growth of the ASEAN countries are likely to translate into increased energy demand in the coming years. Demand is already exceeding supply in some places, most notably in parts of China, where it is manifesting itself as rolling blackouts. To sustain economic growth, the Asian countries will be required to attract large investments in key energy infrastructure industries like power, natural gas pipelines and exploration activities and renewables.

An increased dependency on Middle Eastern oil would put all Asian countries at grave economic risk in the event that the oil supply were interrupted. This requires that the countries step up their contribution of know-how to the improvement of oil reserve systems being pursued by all the Asian countries. The prospect of constructing a joint reserve system and sharing of oil reserves between Asian countries in times of emergency needs to be examined. In a global oil market, where a supply disruption in any region due to real or perceived disturbances can lead to spiraling prices in all markets, most of the Asian economies do not have any system of collective response to such a crisis. The Asian economies are lagging far behind the US and the EU in both demand side measures and strategic reserves to fall back on. One of the target areas of Asian energy cooperation could be to build an **Asian Strategic Petroleum Reserve** and to create an **Asian Emergency Response System**. An Asian SPR would be like a global energy security insurance policy. The Asian SPR would be a safeguard against OPEC's ability to raise oil prices and would prevent any market failure, by enabling governments to provide supply liquidity in an emergency situation.

In addition to securing crude oil, natural gas, coal, and other resources, vast funding for improved infrastructure is needed in all the Asian countries to bring electricity, gas, and petroleum products to the end user. However, most developing countries in Asia cannot provide this funding out of existing national finances and must rely heavily on foreign governments, international bodies, and other forms of public funding, as well as on both loans and direct investment from foreign private corporations. Further **cooperation and coordination of energy policy** between countries like Japan, Korea, China, ASEAN and India is needed to achieve economic growth, maintain a stable supply of energy, and preserve the environment in the Asian region.

The growing population and economic expansion of the developing countries of Asia will lead to rapid energy demand and growing net energy import requirements which pose a challenging task for the individual countries to mobilize finances for their energy sector development. Under such scenario, the countries are likely to benefit from regional cooperation and energy sector investments under the institution of a sophisticated well-organized **Asian Energy Market**. Cooperation among Asian states, not only in meeting total demand of the region from **pooling of total energy resources** of the region, but also meeting **energy infrastructure** growth needs through joint pooling of investments has the potential to strengthen the Asian region and brace itself against any kind of impending energy crises. To cope with the various uncertainties associated with dependence on energy imports, in recent times countries are gradually recognizing the need for energy cooperation with other countries. To this end, multilateral regional cooperation seems to be more effective than limited bilateral short-term arrangements.

Productive and mutually beneficial energy sector development cooperation will be a cornerstone for long-term economic cooperation, energy security and peace. A forum for interaction in the fields of science and technology should also be considered.

### **Current energy co-operations in Asia**

Japan followed by Taiwan and South Korea, became first major importers of natural gas in the form of LNG. With the development of markets in these three countries, opportunities appeared in China, Singapore, Thailand, Hong Kong, and Myanmar, among others. Projects for both pipeline gas and LNG are being actively pursued and the potential for trade in the region is expanding exponentially.

In Asia, various multilateral energy cooperation programs and proposals have gained momentum in the recent years. For example, the Northeast Asian countries have discovered a lot of commonality between their contemporary energy markets as they “resemble and share common issues ever than before, and it is more effective to identify peculiarity of the region and prepare specific cures”. The Japanese government has formulated a comprehensive policy, called the Hiranuma Initiative, which is aimed at maintaining energy stability in the Asian region. This policy was presented at a meeting of energy ministers from Japan, Korea, China, and the ASEAN nations at the IEF forum in Osaka, and was approved by all participants. Such a proposal clearly would not be in conflict of long term energy policies of the other Asian countries. Examples of some recent joint energy collaborations are:

- The Asia-Pacific Energy Community ( promoted by Japan )
- The VostokPlan ( promoted by Russian Federation, 1991 )
- The Energy Silk Road Project ( China, Japan, Turkmenistan)
- Irkutsk Region Gas Project ( Russia, China, Republic of Korea; under negotiation)
- Trans-Asian Gas Pipeline Network

A number of proposals have been developed for connecting the electricity grids of the ROK, DPRK, China, and even Japan with the grid of the Russian Far East. These proposals are aimed at consumers in China and/or Korea. There have also been proposals for exporting gas from Eastern Russia and/or the countries of Central Asia to China, Korea, and/or Japan. The feasibility of an integrated electricity network linking 10 ASEAN states is being studied. A pipeline from Sumatra linking Indonesia and Singapore has been the first step towards the longer-term goal of establishing an ASEAN gas pipeline, connecting Indonesia to other ASEAN members thus providing access to new international markets. A task force is also studying a pan-ASEAN power grid, which would help optimize energy resources, make power generation more cost-effective, spur the liberalization of national electricity markets, and attract more private-sector investment. The Trans-ASEAN Gas Pipeline (TAGP) and the ASEAN Power Grid Projects promise greater stability and security of energy supply in the ASEAN region. Currently, cross-border electricity sales take place between Thailand and Laos, Thailand and Malaysia, and Malaysia and Singapore. Installation of such extensive networks could become cost effective with inclusion of other energy markets in Asia. A detailed cost-benefit analysis would be able to evaluate the gains from extending the energy networks to other countries.

China has an agreement with the Russian government to proceed with natural gas development in eastern Siberia. The participation of Japan and Korea is also being sought in terms of financing and securing demand. Since almost 70% of China's energy comes from coal, gradual shift of its energy mix to increased use of clean-burning natural gas would be a viable solution to its environmental problems. However, Russia natural gas export project with China alone might not be financially viable for Russia and hence the latter is interested in involving both Korea and Japan in the project.

Additionally, cooperative relationships between countries like Japan, Korea, Taiwan, China and India would be able to give Asia more influence with oil-producing countries in the Middle East as the bargaining power of the entire Asian region would increase. Development of oil and natural gas pipelines from Russia's Far East will also generate leverage with oil-producing countries in the Middle East.

The countries of Philippines and Indonesia have made renewable energy the cornerstone of rural electrification programs. Both these countries have the most diverse non-conventional energy mix, spanning geo-thermal, hydroelectric (large and mini), solar, wind, and biomass. While the Philippines plans to nearly double its renewable installed capacity by 2010 from about 4.7 GW in 2003, Indonesia has plans to add another one-half of its present capacity of nearly 5 GW during the same period. Malaysia and Thailand are focusing on grid-connected renewable energy programs, predominantly biomass cogeneration, through a series of policy instruments and regulations. Laos, on the other hand, is planning to increase its green power five fold by 2010, from the current capacity of about 620 MW, and export the excess power to its neighbouring countries, taking advantage of the developing ASEAN power grid. The trans-ASEAN gas pipeline and the Malampaya gas project are likely to ensure complete regional access of the proven gas reserves and help in promoting combined cycle power plants, both within ASEAN and beyond.

Similarly, the development, distribution and efficient utilization of the vast untapped energy resources of the BIMSTEC countries (Bangladesh, India, Myanmar, Sri Lanka, Thailand, Nepal and Bhutan) are being proposed through cooperation and trade among the countries of the region. Although exchange of electricity between Nepal, Bhutan and India exists to a limited extent it is believed that full potential of the energy resources could be optimally utilized only in an organized market developed through multilateral cooperation.

The vast untapped reserves of oil and gas in the Central Asian countries are being targeted by most countries like China, India and Pakistan. However, the success of an infrastructure network of roads or pipelines would only be possible through peaceful cooperation among the countries so that the enormous investment requirement for laying such a network could reap the economies of scale.

In the recent years there have been a lot of interest in bilateral cooperation among Asian countries, which are easier to implement in the short run. For example, the Philippines and Thailand signed an agreement bolstering bilateral cooperation in the energy sector, particularly in maximizing the use of existing oil storage facilities to boost energy security in the region. The Philippines have offered the storage facility in Subic Bay as a potential strategic and commercial site for stockpiling of crude oil and refined products. Thailand and Myanmar are cooperating in natural gas export. Chinese, Indian and South Korean oil companies are also undertaking joint exploration projects in Myanmar, Vietnam, Sudan, among other countries.

All the above instances indicate that Asian countries are looking outside their geographical boundaries to enhancing their energy supply and strengthening domestic energy security. The countries have been taking individual steps to enter into joint collaboration with other Asian countries to strengthen their domestic energy reserves and improve energy security through diversification of resources. Currently, cross-border energy trade is mostly a function of series of bilateral agreements. However, developing a common Asian Energy Community by pooling of energy resources as well as finances might prove to be a more powerful long-term solution to the energy supply and security issues of the entire Asian region. In essence, new energy security measures that include the greater Asian region are needed to replace those based on unilateral thinking.

### **Related issues and concerns**

Asia is an important part of the world economy and future development in Asia can contribute to the sustainable development of the global economy. However, it will probably take time to develop a concept of an Asian Energy Community, adopting a set of obligations and rules. Also, with the possible exception of relatively short-distance road and rail links between some of the immediate neighbours, most options for regional infrastructure development in Asia are extensive, long-term propositions, with a host of formidable technical, economic, political, and sometimes environmental barriers to be overcome. Some of the impediments to trans-boundary energy sector development in Asia are the following:

#### **Political:**

- Unsettled political questions in bilateral cooperation;
- Lack of agreed framework / common energy development strategy
- Lack of institutionalized framework for multi-lateral co-operation
- Sustainability of (positive) political development trends

#### **Economic and financial:**

- High investment costs and long amortization periods
- High risk investments in some countries leading to high capital costs
- Non-market pricing / non-payment crisis in some countries
- High taxation, duties and lack of transparency for investors in some countries

## Environmental

- Insufficient enforcement of environmental standards
- Lack of compensation for local communities;

The Asian community can draw on the issues and experiences of European energy pools regarding the above problems and and examine the factors related to the following:

- Legal stability and predictability to attract investments and stimulate business activity
- Ground rules and legal frameworks for multiple cross border trade and inter-state transit flows
- The extent to which a regional entity can regulate a single market
- How to make this emerging regional regulatory framework more coherent and effective
- How to institutionalize a regional regulatory body or bodies.

To develop a well functioning organized energy network and common Asian market for energy, a lot of groundwork is required with full initiative and support from all the member countries. It is necessary to devise the common agreed principles for determining the rates for exchanges of energy including long term contracts for energy supply based on sound commercial principles. Technical and economic assessments are required for identification of institutional requirements needed to support the initiation and implementation of an Asian Energy Consortium. Following are some of the initiatives that need to be taken for the proposal of a common Asian Energy Community to take off:

- A very preliminary requirement would be to collect and disseminate information on energy supply and demand sectors of the individual countries. An independent research body or information center with representatives from all Asian countries can help ensure equitable access to information. Developing a common comprehensive energy database and analyzing energy production, consumption, export, import, prices, demand forecasting and elasticity values for the development of Asian energy market would be the prime tasks of this body. This would also require establishing uniform energy codes, technical specifications and standards for entire Asia to facilitate smooth regional energy trade. The research unit would also be responsible for detailed survey for right of way, telegraphic right of way, environmental impact statement, forest clearances etc across the countries. Detailed soil investigations for both the sea and land in the transit countries in order to firm up the configuration of the inter-regional link would have to be carried out and the research body would also be responsible for outlining detailed equipment and materials requirement and reliable cost estimate to support the same.
- Reform and restructuring of the energy sector in the member countries would be required to make them more competitive and efficient to integrate into a seamless market. Deregulation of the electricity industry is at different stages across developing Asia and the entire reform process is turning out to be a dynamic and ongoing one, based on the individual country's own past successes and failures. A common regulatory committee could be set up for reviewing legal and regulatory requirements to support development of the proposed transmission interconnection among the countries for both power and natural gas. Countries need to have the political will to assist in establishing a common regulatory regime. Across most of Asia, political will and bureaucratic procedures have been major stumbling blocks in carrying forward the reforms and attracting investments.

- Public awareness programs, seminars and workshops would have to be conducted to disseminate information on the benefits of regional energy cooperation and cross border sales of electricity, oil and natural gas. Key stakeholders (such as employees, consumers, and environmentalists) need to support or at least not oppose the involvement of multiple countries in the energy sector, which is one of the most vital sectors of the country. The processes and policies need to be put in place to meet stakeholder concerns.
- Setting of rules for establishing the level and structure of tariffs would be a major task. Issues like the right to vary tariff structure and cost allocation across the customer base, procedures for raising tariffs, the roles of cost of service elements and price indexation rules, the frequency of updating, possibilities of peak tariffs, incorporating the cost of new construction into the tariff structure etc need to be resolved at the onset. The billing structure needs to ensure that it is equivalent across consumers of different member countries. The tariff structure needs to be transparent across counties and consensus needs to be built on depreciation and taxes charged across individual countries. Guidelines need to be designed as to whether the operator would be responsible for collecting all tariffs, connection fees, delinquent payments, penalties, and any other rates and charges or the tariffs would be remitted to the individual governments.
- Countries need to cooperate in mobilizing capital for energy investment needs through investor friendly fiscal and regulatory policies. If tariffs are insufficient to cover costs initially the individual governments might have to make up for any shortfalls. The primary step would be to identify any operational inefficiency that might exist in the system and also look for expansion possibilities in service coverage and improvements in quality. The impacts of increases in coverage and quality on the tariffs that consumers might be expected (and in turn willing) to pay would vary across countries. These trade offs need to be estimated for each of the countries and presented to a regulatory board. The possibility of granting finance to the smaller countries to support service improvements need to be investigated. The regulatory framework needs to be supportive for private sector companies to take on commercial risks across countries.
- Building investor confidence through political commitment would be essential. Proper judicial frameworks need to be developed to deal with issues like nonpayment, delinquent payments, enforcement of user sanctions by contractors and reconnection for delinquent users who have paid their debts. The tasks of the governments would be to monitor compliance.
- Various other important issues would have to be resolved on continuous basis like who will have the authority to decide on investments in maintenance, repair, and upgrading of the pipeline systems or utility grid network. A Committee needs to be set up for building consensus on addition of new infrastructure; allocating responsibility for carrying them out, for planning, coordination, supervision, and implementation of capital expenditure as any implementation of any project would have immense economic, political and socio-environmental repercussions in the host as well as the neighbouring countries.
- Information-sharing and compilation of existing research to help governments with policy formulation and working towards harmonization of relevant national legislation by starting with an assessment of national laws to bring them in line with international best practice could form the basis for a multilateral agreement to guide energy cooperation, once all the countries are ready for it.

## Concluding Remarks

The above discussion has shown that major countries of Asia namely Japan, China, India, Korea among others are highly dependent upon oil and gas imports and could benefit by mutual cooperation in the area. The regional cooperation in the area of energy could cover, for instance, to ensure security and sustainability of energy supply, overseeing efficient utilization of natural energy resource in the region, rational management of energy demand, with due consideration of the environment, establishing policy framework and implementation modalities for setting up of energy networks in the region such a region-wide oil or gas grids, and coordinate, manage and monitor the implementation of such a network. One of the target areas of Asian energy cooperation could be to build an Asian Strategic Petroleum Reserve and to create an Asian Emergency Response System. An Asian SPR would be like a global energy security insurance policy. The Asian SPR would be a safeguard against OPEC's ability to raise oil prices and would prevent any market failure, by enabling governments to provide supply liquidity in an emergency situation. Asian countries have some ongoing cooperation in the area as joint exploration or oil equity sharing by Japanese, Korean, Chinese and Indian oil companies in exploration projects in third countries within the region such as in Myanmar and Vietnam and outside the region as in Sudan. Japan, Korea, China and India have begun to coordinate their positions in their negotiations with OPEC with respect to Asian premium that is being charged by the Middle East countries on their supplies to Asian countries<sup>1</sup>. The cooperation could also extend to cover the joint patrolling of the sea-lanes through which the bulk of the oil and gas supplies for the region pass through such as Malacca Straits to prevent piracy. Finally JACIK (Japan, ASEAN, China, India and South Korea) countries could contemplate building an Asian gas/oil pipeline connecting them. Asian energy ministers have met January 2005 in New Delhi to advance cooperation in this area<sup>2</sup>. There is need to create an Asian Energy Dialogue combining the Asian energy enterprises and other stake holders to take the initiative of energy cooperation on a continuous basis.

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<sup>1</sup> See for more details. Ito, Kokichi, Li Zhidong and Ryoichi Komiyama (2005) Asian Energy Outlook to 2020: Trends, Patterns and Imperative of Regional Cooperation, RIS Discussion Paper # 93.

<sup>2</sup> India hosted a Meeting of Asian Energy Ministers in New Delhi in early 2005 to discuss issues of mutual concern. See *New Asia Monitor*, January 2005, RIS New Delhi, for details.