

# *An Energy Community for Northeast Asia: From a Dream to a Strategy*

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## **Introduction**

From 2001-2003, in cooperation with experts from the United States and Northeast Asia,<sup>1</sup> ERINA has been working on a research and dialogue project entitled Energy Security and Sustainable Development: Prospects for Cooperative Policies. This project has proved to be a very successful exercise, thanks to our principal collaborator - the Northeast Asia Economic Forum (NEAEF) and its Chairman Dr. Lee-Jay Cho - as well as the vital support provided by the Japan Foundation Center for Global Partnership.

The project's goal was to identify obstacles for cooperation in the energy-environment realm and propose viable approaches to overcome them. Participating institutions and experts have been trying to put together a vision for coordinated efforts in a very sensitive area of energy policies, where the economies of the subregion have been operating completely independently thus far. A further project objective was to assess the prospects for cooperative approaches to energy security, outlining an institutional framework that could reduce the vulnerability arising from the region's high dependence on energy imports and its predominant reliance on the Middle East for the supply of oil.

The ultimate objective of the dialogue has been to lift the "strategic sights" of governments and the public above the limits of traditional approaches, proposing a path for cross-border energy cooperation. Our assumption was that such cooperation could play a role as an efficient tool of regional development, providing a stable, cost-effective and environmentally sound way of diversifying energy supply and serving as a cohesive confidence-building device.

Indeed, the critical energy security interests of the economies of the subregion overlap. Similarly to Europe, the complementarity of large energy markets and untapped energy reserves available in relative geographic proximity means that multilateral, cross-border partnership in the energy sector is possible. The technologies, engineering skills and managerial experience needed to achieve success in various energy ventures are available, but have rarely been applied in a bilateral or multilateral format. The exceptions have been limited to the Sakhalin oil and gas projects and the Korean Peninsula Energy Development Organization (KEDO). The KEDO framework was formerly seen as a

symbiosis of energy needs and security provisions attained via multilateral efforts, but unfortunately this approach has failed.

In 2001-2002, the list of new and large-scale projects expanded to include an oil pipeline to China promoted by YUKOS and an oil pipeline to Nakhodka proposed by Transneft. Recently, the Russian Energy Ministry revealed a plan to build a dual Trans-Siberian oil-and-gas pipeline system. Moreover, in January 2003, during the Japan-Russia Summit, Japan revealed its intention to support the construction of Trans-Siberian delivery infrastructure.

## **Cooperative policies**

Whilst it has not yet gone as far as producing a "grand design," the project has provided a valuable forum for communications and new ideas. The deliberations have also improved our understanding of Northeast Asia, helping to define both the benefits of and obstacles to a subregional energy-environment regime that, if established, could be called an "energy community".

Over the last two years, the participants of the project have come to form a "community" within their own multinational and professionally diverse group. It is worth noting that there was no disagreement that energy cooperation should be seen as an opportunity to promote regional integration, given that both markets and significant energy resources are available within the subregion. In summary, the project findings have demonstrated that subregional energy cooperation could be viable, if it meets the following criteria:

- Serves national interests in general
- Enhances energy security in particular
- Promotes competition in energy prices
- Supports international competitiveness
- Assists development of regional economies
- Strengthens regional stability and security
- Provides benefits to local communities
- Facilitates environmental management

For the project group, some fundamental conceptual underpinnings of the dialogue were quite obvious from the outset: if the energy security challenges that the energy-importing economies of the Northeast Asian subregion are facing are held in common, their management could involve coordinated responses and solutions, which would

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<sup>1</sup> Geographically, Northeast Asia includes China, Chinese Taipei, the Hong Kong SAR, Japan, the Democratic Peoples Republic of Korea (DPRK) and the Republic of Korea (ROK), Mongolia and Russia. This subregion is part of the larger Asia-Pacific area. Some of the economies, including China, Hong Kong, Taiwan (Chinese Taipei), Japan, the Republic of Korea, and Russia, belong to the Asia Pacific Economic Cooperation (APEC) forum, while others, such as Mongolia and the Democratic People's Republic of Korea, are not affiliated to this regional body.

involve Russia. Examples of such solutions among importers and exporters of energy resources and services can be found in North and South America, Europe and Southeast Asia.

If adopted in Northeast Asia, similar approaches would lead to an expanded intra-regional oil and gas supply, putting new sources in competition with existing, tried-and-tested channels. However, to make it all possible, the economies of Northeast Asia need more flexible and effective decision-making regarding cross-border infrastructure development and exploration efforts, as well as a major adjustment of energy policies.

Furthermore, the old-style price bargaining among the consumers and producers of energy should give way to comprehensive, mutually supportive relationships based on mutual benefits and long-term interdependence. On the production and supply side, Russia is expected to play a central role. However, for the foreseeable future, Russia can only play such a role in a partnership with its neighbors. In this context, "geopolitical access" to Russian reserves of hydrocarbons must be complemented by "geopolitical willingness" on the part of the economies of Northeast Asia to rely on these reserves.

On the other hand, the economies of Northeast Asia need Russia and its energy riches for their own sakes. Access to oil and gas reserves in Eurasia is a matter of vital importance. These reserves, particularly those located within reasonable proximity, could serve as an energy security device and a catalyst for fair pricing, as well as subregional economic integration. In the long term, region-wide energy infrastructure could become the foundation for a subregional system of stable, cost-efficient energy supply and environmental management - dual pillars of a proposed subregional "energy community".

### Priority Goals

Although the environmental impact of energy use seems to come a poor third to energy security and energy costs, the so-called "Three E's" - Energy Security, Economic Growth and Environmental Protection - must be seen together as the guiding principles for the energy policies of the economies of the subregion. Formally speaking, Japan and the ROK have adopted this "policy triad" as members of the International Energy Agency (IEA), which is linked to the Organization of Economic Cooperation and Development (OECD). These two economies were joined in recognizing these principles by Russia and China as they adopted the Declaration of the 5th Energy Ministers Meeting of the Asia-Pacific Economic Cooperation (APEC) Mexico forum of July 23, 2002. This should serve as common ground for further cooperative steps.

On the other hand, managing energy security at the national level involves policy choices and the setting of priorities. These choices are made by states, normally involving a balance between continuity and innovation in policy. The innovative solutions available within the Northeast Asian subregion may not be free of risk (nor free of cost), but they could substantially ease existing burdens and irrationalities in the realm of energy supplies. Cooperative actions in the field of energy promise to reduce

the cost of energy, enhance the efficiency of energy use and its sustainability, and promote economic and social development, thereby contributing to the wellbeing and overall security of the societies of Northeast Asia, a subregion with many problems. On the other hand, in the contemporary world, there is no region (or subregion) without problems and contradictions. In this regard, Northeast Asia is not unique. The difference is in the capacity of the region's component countries to manage multiple interests and what might be termed "historical problems", finding some future-oriented alternatives. In contrast to Europe and ASEAN, the economies of Northeast Asia have yet to acquire such a capacity.

In Europe, the Second World War provided the impetus for cooperation based on coal and steel. This gradually led to economic integration and unity. What could perhaps work for Northeast Asia is the concept of a competitive, efficient and region-wide energy sector that serves the needs of both consumers and national economies. Quite similarly to Europe, the energy security of Northeast Asian countries could potentially serve as common ground for a dialogue, followed by adjustments in policies and economic and investment decisions. Indeed, an interest in achieving energy security and competitive pricing could potentially be the catalyst for cooperative approaches in a number of fields.

Moreover, again similarly to Europe, the overall external dependence of Northeast Asia on hydrocarbons cannot be reduced and Russia can only play a somewhat balancing role as a supplier. However, policies that promote new subregional energy links could reduce energy security risks and the economic costs of managing those risks.

It is well known that the cost of both imported and domestically produced energy influences the rate of economic growth, balance of payments and real incomes. By promoting energy cooperation within the subregion, the leaders of Northeast Asia can create a path towards improving the investment attractiveness of the subregion, enhancing the competitiveness of its economies, industries and enterprises.

On a number of occasions, Japan and the ROK have discussed the "Asian premium" phenomenon that their industrial and individual consumers, as well as the public sector, must absorb. The economies of Northeast Asia combined pay about US\$10 million on a daily basis (about US\$1 per barrel of crude oil) more than importers in Europe and North America. Experts agree that subregional oil cooperation could improve the importing economies' bargaining power vis-a-vis the currently dominant oil exporters.

On the other hand, an "energy mix" that optimizes the basket of fuels, lowering both the share of oil and its cost, could help to improve energy security. In Europe and North America, the share of natural gas in the energy mix is much higher than in Northeast Asia. Moreover, in addition to the world's largest reserves of natural gas, Eastern Russia offers its neighbors unique hydroelectric power potential.

In other words, if an "energy community" is to be formed, it will encompass the most significant components of energy security, including oil supply security and the cost of imported oil, natural gas supplies and their

competitiveness with existing sources, the enhancement of nuclear safety, and cross-border power interconnection, including the economic and environmental benefits of untapped hydroelectric power reserves, not to mention such other issues as partnerships in the exploration and development of new energy sources.

### **Oil Security**

The higher price paid for imported oil is only one source of concern. Both Japan and the ROK experienced the dramatic economic impact of the two oil shocks of the 1970s. Hence, they have adopted capital-intensive national programs of oil stockpiling as a means of alleviating any future supply disruption. However, the expansion of strategic oil stocks in the ROK, their management in Japan and their establishment in China represent only part of the solution. For Japan and the ROK today, and for China tomorrow, oil supplies from new supplementary sources are the key to ensuring equitable energy prices, reduced dependence on the Middle East and the long-term stability of supplies.

Over the next five to ten years, China should set up a strategic oil stockpile, diversify its oil imports and promote oil substitutes. However, China's overall pressure on the oil market will be massive, given rising living standards and the prospects for increased car ownership. To remedy the possible oil security imbalances of tomorrow, decisive policy moves are required today, followed by massive investment in exploration and development, as well as the construction of high-capacity delivery infrastructure between eastern Russia and the importers of energy.

The first step to be taken is to explore new sources of oil in the vicinity, including Eastern Siberia. For example, the national oil companies of Japan, the ROK and China tried for many years to secure access to complementary sources of oil all over the world, investing billions of dollars in oil exploration and development in distant regions, including the North Sea and South America. Investing in similar activities involving Eastern Russia, other than Sakhalin 1, should become a priority. Closing this gap would require national governments to reverse the trend of avoiding major policy and investment decisions. Furthermore, a regional agreement on a scheme for multilateral oil stockpiling and the lease of oil stockpiling facilities could be an important step in right direction.

### **Prospects for Natural Gas**

There is no question that the energy-importing economies of Northeast Asia will significantly expand their reliance on natural gas. The price of LNG, which is currently imported, is linked to oil and significantly exceeds the price of pipeline gas imported, for example, by European economies. This situation can be partially explained by the fact that LNG is more expensive than pipeline gas and also by the "Asian premium" paid for Middle Eastern oil.

Eastern Russia is capable of supplying at least half of the incremental projected natural gas demand of the entire subregion. There are, however, many difficult decisions to make regarding infrastructure that integrates diverse domestic and external interests, responds to technological

developments and facilitates the mobilization of investment. In addition, market access for pipeline gas cannot be assured without major adjustments to the domestic circumstances in Japan, the ROK and China.

In Japan, pipeline infrastructure for transporting natural gas should be promoted. On the other hand, regional energy companies have enormous influence in determining the future of the power industry. If these companies, following global trends, reduce their emphasis on nuclear power, leveling off its current share in electricity generation, the market for natural gas will grow rapidly. Natural gas share in power generation could rise from the current level of 24% to 30% or more, which would justify the construction of a gas pipeline from Sakhalin to Sendai or Niigata.

In the ROK also, official forecasts still maintain that nuclear and coal-fired plants will account for 77% to 83% of total power generation by 2010 and 2015 respectively, with natural gas remaining marginal. A gas pipeline from Sakhalin could allow the use of less expensive gas. On the other hand, given the current state of inter-Korean relations, an inland trans-Korea gas pipeline seems unlikely.

In China, on the other hand, the prioritization of the West-East pipeline over imports may have a negative impact on gas penetration. The project is very expensive and the pipeline's capacity is comparatively low, if the transportation distance involved is taken into consideration. These factors would inevitably result in very high prices for natural gas that would have to be absorbed by customers. In addition, imported LNG will also be expensive compared with pipeline gas that could be imported from Russia or Central Asia. Both these factors are likely to hold back the pipeline segment of gas market development, potentially curbing gas demand and cross-border pipeline projects.

Conversely, in Northeast Asia, Russia need not rely on pipeline projects alone, as it does in Europe. Its gas producers should seriously consider LNG technology in combination with pipeline projects, which are bound to be more expensive, considering the distances and terrain involved, not to mention the necessity for submarine pipeline segments. A number of new technological trends and innovative marketing concepts could further enhance the advantages of LNG.

Furthermore, advanced gas transformation (gas-to-liquid) technologies could help to moderate the region's high dependence on oil, using competitive sources of natural gas transmitted via pipelines. It is also possible that in Northeast Asia natural gas will be used not only for power generation, but also for newly-designed 'natural gas supported cities', particularly those located in northerly latitudes.

### **Hydroelectricity in Far Eastern Russia**

Despite the critical significance of oil and natural gas, the most advantageous area for cross-border energy cooperation appears to be hydroelectric power. As of today, electric power is the only exportable energy resource in Eastern Siberia. The regional electric power systems in Krasnoyarskiy Krai and Irkutskaya Oblast have excess capacity, capable of producing about 16-18 billion kWh (TWh) of electricity. Annual power generation by all Far

Eastern hydroelectric power plants is 11 TWh. After the completion of four new projects, power output will grow to a combined total of 23.4 TWh a year.

Eastern Russia's unique hydroelectric power potential presents an opportunity for efficient projects both in economic and environmental terms. Moreover, the gradual deregulation of natural gas tariffs in Russia is likely to make hydroelectric power more competitive in the future. By 2010, the total newly commissioned capacity in both areas is likely to reach 4 GW, including 1.5 GW in Eastern Siberia and 2.5 GW in the Far Eastern region. During the following decade, new capacity is expected to total just 2.2 GW, including 1.4 GW in Eastern Siberia. After the completion of these projects, the hydroelectric power utilization rate in the Far Eastern region will be 6%.

The potential for electric power exports will be further enhanced with the commissioning of the Bureyskaya HPP. The Bureyskaya HPP project is the top priority for the Far Eastern region. Its commissioning will reduce the demand for coal from other regions and allow electricity exports to China and the Koreans. By 2020, if adequate investment is secured, the seven hydroelectric power projects currently under construction and those at the planning stage will generate up to 50 TWh of electricity at competitive prices. In the optimistic scenario, electricity exports from the eastern regions of Russia to neighboring countries may be estimated at 20-22 TWh by 2010 and 50-60 TWh by 2020. The Chinese market could provide an opportunity for electricity exports of about 15-25 TWh a year from Irkutskaya Oblast alone.

However, as of today, there are only 110 kV and 220 kV power lines extending to Mongolia and Northeastern China, and these have a limited transmission capacity. Discussions are underway concerning the formation of cross-border electric power network infrastructure, with Russia playing the role of the electricity supplier. This is not an easy task, considering the distances and costs involved, not to mention access to neighboring markets. The practical steps proposed by electricity experts include a 2,600 kilometer-long 600 kV "Bratsk-Beijing" 3GW (18TWh) capacity line, and a 470 kilometer-long 600 kV "Sakhalin-Japan" 4GW (22TWh) capacity line.

### **The Role of Governments**

A strategy for energy cooperation cannot be devised if nobody wants such a strategy. In this respect, national governments should promote greater understanding of rational choices and carry out economically viable programs that could facilitate a major policy shift towards an "energy community" in Northeast Asia. Energy cooperation - both bilateral and multilateral - largely depends on political leaders and their government's capacity to sustain decisions that support the building of new energy delivery infrastructure and the facilitation of cross-border energy links.

The complication is that, in the longer-term, liberalization will force governments to lower their profile in the energy sector. The private sector will have more important roles to play, albeit with fewer resources and reduced profits due to increased competition. In some cases, the distancing of the state from the energy sector has

created uncertainty, reducing the value of investment portfolios.

The new situation affects the capacity of energy companies to participate in large investment undertakings, cross-border energy ventures in particular. Governments have yet to assume responsibility for facilitating such undertakings, not to mention adopting policies that support multilateral cost-reducing schemes. Indeed, large-scale projects require huge investment and their feasibility improves, if the energy resources to be delivered - natural gas, electricity and other forms of energy - are destined for multiple markets. In practical terms, it should be reiterated that such coordination would require fundamental changes to policies and energy planning.

Furthermore, the governments of energy-importing countries can adjust institutional frameworks, reducing barriers to the trading of energy. On the other hand, Russia, as a major energy exporter, should launch effective commercial and diplomatic policies to support cross-border energy links. It should also act as an "honest broker" in designing, selecting and promoting large-scale energy ventures, emphasizing multilateral options over bilateral ones, if the project's economics allows.

It is worth noting in this context that energy planners in Moscow need to employ greater imagination, but must also exercise great care and be realistic in their proposals. Although some of the concrete overtures made thus far (such as the Sakhalin-Honshu Power Bridge) are helpful in envisaging the "bigger picture" for export-oriented energy industry development, proposals and ideas must not ignore existing barriers and/or viable and cost-effective alternatives.

Realism is a greatly needed quality when it comes to considering both the political and investment feasibility of the projects currently under consideration. For example, Transneft's ambitious export plans involving an oil pipeline to Nakhodka require the expansion of oil reserves in Eastern Russia. On the other hand, Eastern Siberia and the Far Eastern region in particular have yet to become "energy surplus" areas. A proactive stance on cross-border energy ventures should involve more focus on the projects' economics, markets, development and environmental impacts, rather than on reserves and construction costs alone.

As far as natural gas is concerned, a cross-border pipeline network for its transmission to consumption centers requires certainty and stability on both the supply and demand sides, and governments should find viable ways of promoting much needed confidence in a multilateral fashion. Regional gas delivery infrastructure should be seen as something more than a simple transportation facility; it should be the product of the coordinated aspirations and efforts of industries, provinces, municipalities and centralized administrative bodies. Such infrastructure will become a public asset for the entire Northeast Asian subregion, promoting more efficient and cleaner energy policies and new development opportunities. It must be carefully designed, accounting for all possible alternatives and economically feasible additions, integrating them into a larger regional picture encompassing energy production, transmission and rational use.

The focused application of existing cooperative structures relevant to the subregion, including such inter-governmental frameworks as APEC, the IEA and the UN, could help. New government-level initiatives that reshape the Northeast Asian 'energy landscape' would complement the energy initiatives endorsed by APEC. However, Northeast Asia could also benefit from existing and already proposed frameworks, including the "Recommendations Concerning Accelerating Investment in Natural Gas Supplies, Infrastructure and Trading Networks in the APEC Region" proposed by APEC energy ministers at their third meeting in Okinawa. This could become an extension of the APEC Natural Gas Infrastructure Initiative, promoting its implementation on a subregional level.

It is important to start working together towards the harmonization of relevant national legislation (for natural gas and electric power, for example), including an assessment of national laws and international best practices. Such work does not require much money, but it should create a "professional constituency" of interests that, at the appropriate moment, will be ready to supply politicians with economically sound initiatives.

Finally, community formation requires stability and therefore cannot tolerate military confrontation. Subregional energy cooperation in Northeast Asia could serve as a vehicle and provide an opportunity for resolving the DPRK's energy and economic deadlock. A stable DPRK economy and reduced tensions on the Korean Peninsula would ensure the security of the whole of Northeast Asia. Meaningful trade and investment cooperation with the DPRK is impossible without first resolving its chronic energy supply shortages. It is important that neighboring countries cooperate in involving the DPRK in the new scheme of energy dialogues. They should also pursue policies aimed at assisting the DPRK to overhaul its energy infrastructure. The North-South gas pipeline project could be a path to institutionalized, long-term economic cooperation in the subregion. Connecting the DPRK to the ROK via a gas pipeline and power transmission grid would provide a development opportunity, forging closer ties between Pyongyang and its neighbors.

### **An Agenda for Action**

Compared with other major energy-importing regions of the world, the current oil supply situation in Northeast Asia is particularly complex. Growing oil imports by China are likely to exacerbate this situation further. These developments require focused action to be taken today, leading to investment in economically viable "alternatives" in Eastern Russia tomorrow.

Similarly, coordination among all interested agencies and groups is needed in the field of natural gas transportation and market penetration, cross-border power transmission projects and environmentally sound options for electricity production and trade. The following points underline the proposed priorities for energy sector development and trade in Northeast Asia, primarily including energy exports from Eastern Russia to this subregion:

Enlargement of reserves

New pipelines and expanded oil production  
 Large-scale GTL production  
 R&D links in the energy sector  
 Development of local gas markets  
 Expanded LNG production  
 Reduction of barriers to energy trade  
 Environmentally sound projects  
 Nuclear power safety  
 Support for investment financing

In summary, in order to move towards an "Energy Community", the countries of Northeast Asia should prioritize a shift towards energy policies based on a "new energy interdependence", rather than "energy policy continuity". Gradual geographical diversification in favor of subregional oil and gas sources is both desirable and possible. The challenge is to demonstrate to the large, influential group of "skeptical outsiders" that energy cooperation and large-scale cross-border energy flows are politically feasible, not to mention realistic in economic terms.

Governments in Japan and the ROK seem realize that effective measures to counter various energy security risks and challenges are perhaps beyond any one country's control. Workable schemes by an individual country to reduce exposure to the risk of oil supply disruptions are limited. To mitigate these risks and address environmental concerns, countries in Northeast Asia need to search for solutions within the subregion itself, launching workable cooperative schemes in key fields.

### **Conclusions**

In conclusion, investment in "alternative options", including exploration, development, transportation and conventional hydropower projects involving Eastern Russia, is likely to improve the overall economic efficiency of new and planned investment in the energy sector and the effectiveness of measures supporting the energy security of the economies of Northeast Asia.

Indeed, the subregional energy demand-supply equation could be managed differently, if politically and economically viable opportunities were fully exploited. There are two key points on which the economies of Northeast Asia should focus. Firstly, in the oil sector, there must be an improved capacity for enhancing price competition and mitigating possible supply disruptions. Collective measures in this field should include a strategic shift towards oil sources in Eastern Russia. Secondly, cooperation in cross-border energy transportation (natural gas, electricity) must be seen in the context of promoting more efficient energy trade and development opportunities for all parties. Furthermore, advanced natural gas transformation technologies could help to further moderate the region's high dependence on oil.

Active interaction should take place in the fields of technology and research. Information sharing and research into the functioning of the energy market could assist governments with policy formulation. The important point in promoting energy-environmental cooperation is a common desire for the simultaneous achievement of the 3E's. Much depends on how the economies of Northeast Asia define the efficiency and environmental soundness of

the new and proposed power projects, balancing domestic priorities with the Kyoto targets.

It is important that intellectual resources are combined to study and evaluate the long-term prospects for energy sector development in Northeast Asia. A "track two" dialogue to prepare the ground for an inter-governmental process could be usefully established to run in parallel with meetings of APEC energy ministers.

Symbolic steps could help begin a formal process. It may be possible, for example, to make a joint statement to APEC or parallel requests from each government, asking for APEC's support in promoting energy cooperation within the subregion. Interested governments could be encouraged to consider APEC Facilitation Assistance Team visits in order to make assessments of cross-border energy links.

It is worth noting that recently, the Russian Energy Minister was invited to the discussion table at the International Energy Agency ministerial meeting. At the meeting, the Japanese and ROK energy ministers stressed the importance of Northeast Asia and energy cooperation. The Russian participant took note of both their views and their willingness to discuss prospects for cooperation with Russia. The ROK minister even mentioned that his country plans to establish an organization to contribute to Northeast Asian energy cooperation and urged the IEA to assist with this process.<sup>2</sup>

It is important to note that NEAEF is likely to have been the source of advice regarding this idea, transmitted to the new administration in Seoul. ERINA and other institutions, intellectual groups and associations should take heart from this, if that is indeed the case. The truth is that, similarly to Europe, the prospects for the formation of a

community in Northeast Asia depend on individuals and their capacity to recognize the genuine interests of their nations. They will need to convince their fellow citizens, as well as those in neighboring countries that, being in the same boat, everybody would be better off rowing in the same direction: towards rationality. Most important is that all these groups work together closely, demonstrating the merits of an "intellectual community" that aspires to achieving the betterment of Northeast Asia.

Indeed, Northeast Asia's potential to rely on regional sources of crude oil and natural gas, as well as hydroelectric power is huge. The problem is that the price tag of cross-border infrastructure projects is high, improvements in the investment climate are still inadequate and markets are neither easily accessible nor sufficiently secure to justify huge investment. Moreover, many of the proposed cross-border projects require multilateral financing and concerted implementation efforts. The worst aspect, however, is the lack of long-term, comprehensive strategies that enable partnership, both in negotiating and implementing the proposed mega-projects.

All these factors make the economies of the Northeast Asian subregion a unique case study for observing both the domestic economic and political hurdles, as well as the external obstacles impeding cross-border cooperation in the energy sector. The various obstacles and sources of uncertainty are wide-ranging and have yet to be fully accounted for and analyzed. Nevertheless, they amplify the necessity of working together to obtain the economic and political benefits of cooperation that could lead to a subregional "Energy Community."<sup>3</sup>

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<sup>2</sup> "We affirm the increasing importance of IEA non-Member countries in world energy markets and warmly welcome the participation of Russian Energy Minister Igor Yusufov at this meeting. We will engage Russia and other key countries more actively in our dialogue on energy policy, and we direct the Secretariat to reinforce a world-view in its work. In particular, we encourage the acceleration of energy security co-operation with international organisations and IEA non-Member countries, especially those critical to global energy supply and demand. We recognise that only through a more global framework can security be assured." See Promoting International Co-operation, Communiqué, International Energy Agency, Meeting of the Governing Board at Ministerial Level, 28-29 April 2003.

<sup>3</sup> Some points included in this overview contain ideas and proposals made by the project participants not only in the framework of the project activities, but also in their publications and presentations outside the project's framework. The author would particularly like to thank Susumu Abe, Kengo Asakura, Bradley Babson, Norio Ehara, Jianyi Hu, Victor Ishaev, Amy Jaffe, Yonghun Jung, Sang-Gon Lee, Chan Woo Lee, Robert Manning, Alexei Mastepanov, Pavel Minakir, Masana Minami, Boris Saneev, Tatsujiro Suzuki, Takehiro Togo, Xiaojie Xu, Susumu Yoshida, Daojiong Zha and Fenqi Zhou for their insight and advice.