

## **A SUBREGIONAL ENERGY COMMUNITY: CLIMBING A LADDER OF ASPIRATIONS\*1**

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In February 2004, the Economic Research Institute for Northeast Asia (ERINA) and the Northeast Asia Economic Forum (NEAEF) successfully completed their three-year joint research and dialogue project on *Energy Security and Sustainable Development in Northeast Asia: Prospects for Cooperative Policies*. This multilateral program was implemented with generous support provided by the Japan Foundation Center for Global Partnership. It consisted of three international workshops, one smaller working meeting, the Tokyo conference for practitioners organized in cooperation with the CGP and the concluding Energy Forum held in Niigata on January 31-February 1, 2004.

At the Niigata Energy Forum, we were very fortunate to have Mr. Robert Priddle as the keynote speaker. Today, I am honored to be a part of this panel as a discussant. Before offering my comments mostly related to the presentation made by Mr. Priddle, I would like to highlight several points he referred to both in his paper and the opening speech.

First of all, the speaker indicated that today the price and availability of crude oil is the central energy policy issue for many countries. Among the sources of pressure that the international oil markets are experiencing there are both genuine factors such as growing demand for oil on the part of the United States, China and India, and perceived uncertainties, including the Saudi Arabia's internal politics, continuing war in Iraq, and the overall instability in the Middle East and Venezuela.

Moreover, the production capacity of OPEC producers is in question, particularly the long-term supply projections. In this context, I would refer to an article, in addition to the list of recent books mentioned by Mr. Priddle. The article entitled "2002 to see birth of New Energy Order" was published in the *Oil and Gas Journal* in January 2002.<sup>2</sup>

The author says that the *World Energy Outlook 2002* published by the IEA predicted a 2020 global oil demand of almost 119 Mbd (with 57.5 Mbd supplied by OPEC), raising the projection by 1.5 Mbd compared with its own figures published in the *Outlook 2001*. Now, as Mr. Priddle indicated, the production volume of 120 Mbd is the estimate for 2030. The question is why the IEA moderated the demand estimate in a matter of only one year?

Indeed, opinions differ on whether the world is going to face an absolute shortfall in supply of oil. The views such as "run out of oil soon" and "nothing to worry about" are both extreme and erroneous. First of all, even the resource counted as "reserves" is very difficult to estimate. Secondly, the future patterns of energy demand are also unknown. Thirdly, there is an "investment filling" between the projected demand and available supply: demand projections that are overly optimistic about capital availability could overestimate the future supply capacity.

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\*1 Comments for thematic paper presented at Session 3 "Toward a Northeast Asian Energy Community" by Robert Priddle, Executive Director of the International Energy Agency, Paris, 1994–2002.

<sup>2</sup> Aly Morteza Samsam Bakhiari, "2002 to see birth of New Energy Order," *Oil and Gas Journal*, January 7, 2002, p. 19.

For example, oil demand growth in 2004 is more than double the average of the preceding six years, but spare capacity is running very thin.<sup>3</sup> Finally, in the last two decades, resource additions in both oil and natural gas have dramatically lagged behind increases in demand.<sup>4</sup>

Political uncertainties and tensions also matter, as well as the demand dynamics of key users. The author of the New Energy Order article insists that OPEC can produce at best 40 Mbd by 2020, not 57.5 Mbd, with Saudi Arabia and Iraq together supplying 20 Mbd “under ideal political, socio-economic and industrial conditions.” On the other hand, China alone, as Mr. Priddle mentioned, could require net imports of 10 Mbd by 2030, approaching the U.S. imports of oil and products in 2000.

Does the technology offer an answer? One view is that while deposits of non-conventional oil and gas are abundant, they do face economic and technical questions about their producibility.<sup>5</sup> Another view is that advanced exploration methods have somewhat checked the decline in newly discovered reserves, albeit in areas with a challenging operating environment.

However, as soon as 2010, about half of oil and gas consumption will have to rely on the newly developed reserves. Most of these new reserves are located offshore, in deep-sea areas and/or in Arctic latitudes, in locations distant from consumption centers. The increasing complexity of recovery requires advanced technologies and huge start-up investment, estimated at about \$1 trillion for the current decade alone. For example, the investment program of ExxonMobil up to 2010 is estimated to total \$100 billion.

In summary, conditions that make oil and gas harder to recover will cause the prices of these resources to increase, with the lower boundary of the proposed price band nearing \$25-\$30 per barrel over the next two decades. However, the upper boundary may be above the \$45-\$50 mark (as estimated by ExxonMobil), reflecting increasing demand for oil and gas accompanied by decreasing discovery volumes.

Secondly, leaving aside the world economy development trajectory and political trends, the building up of additional supplies could help to balance the markets. There is an opinion that the new discoveries of oil and gas have not been related so much to price fluctuations, but were rather driven by the evolution of technology and geopolitical developments that have improved access to resources.

Eastern Russia, including Eastern Siberia and the Far Eastern region serves as an example of these “geopolitical developments” that have improved access to resources not only for the economies of Northeast Asia, but also for the United States. This is very much in line with another point made by Mr. Priddle: Russia along with the countries of the Middle East will meet much of the growth in both oil and gas supply, making the world (and Northeast Asia) increasingly dependent on international energy trade to balance supply and demand.

In about ten years from now, Russia’s oil exports to the “eastern markets” could reach 2.5 Mbd, including 1.6 Mbd supplied by the Taishet-Pacific oil pipeline, 0.6 Mbd delivered to Daqing, China, and about 0.3 Mbd produced by the Sakhalin projects. What policy responses are needed from importers that would support these plans?

Thirdly, as Mr. Priddle noted, the [investment] financing needs of oil and gas producing economies in most cases are well beyond the limits of their national budgets. In Russia, the oil sector is largely privatized and oil companies can compete with OPEC suppliers at the lowest

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<sup>3</sup> “Serious about depletion,” Editorial, *Oil and Gas Journal*, August 23, 2004, p. 17. See also, in the same issue “CERA: World faces 50% for \$50/bbl oil in 50 days,” pp. 24-25.

<sup>4</sup> Harry J. Longwell, Executive Vice President, ExxonMobil, Remarks at the Offshore Technology Conference, Houston, May 7, 2002.

<sup>5</sup> “Serious about depletion,” op.cit.

boundary of the projected price band, investing in the new projects on their own and at their own risk. A different matter is the delivery infrastructure availability, particularly the oil and gas pipelines and export terminals that the state-owned (Transneft) and state-controlled (Gazprom) companies are going to build and operate. Once again, it seems that the early policy responses from importers should support these plans.

The fourth point of reference was natural gas. Indeed, the entire set of issues, including gas production, transportation, markets and technological applications, is highly relevant to subregional energy cooperation. Gas is an attractive fuel both in terms of uncertainties in the oil market and environmental constraints. Indeed, Russia is the world leading gas exporting country and will remain the dominant global supplier. It is likely that these supplies will also include gas-based products such as synthetic fuel.

Finally, as it can be seen from the presentation, a subregional Energy Community cannot be based on idealistic assumptions alone, even though similar assumptions in the past led to cooperative bonds and genuine achievements in other parts of the world, including Europe, North America, and Southeast Asia.

The conundrum which the Northeast Asian economies are now facing can be depicted as the “matrix of shifting priorities.” The energy security priorities were adopted decades ago, but must be reassessed now on a number of points. The list includes (1) the levels, costs and associated risks of indigenous energy production best exemplified by nuclear power industry development in Japan and South Korea, (2) policies of self-sufficiency represented by North Korea and also, to some extent, by China’s reliance on coal, and (3) constraints, both existing and perceived, in the realm of potential cross-border projects, including gas pipelines and power transmission grids that could deliver significant volumes of cleaner energy from Russia to the neighboring markets.

In revising this “matrix,” information exchanges and collaborative practical efforts may help to set new priorities right. We have to continue our discussions on how to revise the existing priorities and how to achieve practical results in establishing mutually beneficial links in the energy sector. In this context, the following practical efforts should be considered, being aimed at:

- Developing bilateral energy dialogues
- Merging relevant segments of these dialogues into multilateral
- Integrating potential partners into existing multilateral settings
- Launching regional exchanges on specific issues such as:
  - natural gas*
  - power interconnections*
  - hydroelectric power promotion*
  - technological collaboration*
  - GTL*
- Promoting policy coordination when energy issues are linked with security matters
- Integrating energy security issues with challenges of sustainable development
- Encouraging dialogues that focus on implementation of concrete projects and plans.

Now, allow me to conclude my comments with a few concrete proposals that we could consider as steps in the “ladder of the long-term aspirations,” a road map that leads to a subregional Energy Community. Whatever the case may be, NEAEF has greatly contributed towards these goals, but now more focused effort is needed to respond to concrete issues.

My first proposal is related to the Japan-Russia energy dialogue. This dialogue is developing at the level of central ministries of the two countries, occasionally involving companies, regional administrations and some research entities such as the Japan’s Institute of Energy Economics, Petroleum Energy Center of Japan, Japan Institute of International Affairs, KEIDANREN,

ROTOBO and others. However, still inadequate effort has been made to share the contents and the details of these exchanges with general public in Japan and Russia. These two bodies of opinion should be aware of the strategic benefits that such cooperation offers.

The public awareness is also very important because this dialogue received a considerable boost in the early 2003 when Prime Minister Junichiro Koizumi visited Moscow and discussed with President Vladimir Putin prospects for cooperation in the west-east oil pipeline project. Indeed, Japan's role in providing financing for this project should not be underestimated, nor its capacity to participate in the project implementation in other forms. However, it seems that the Russian government is committed to proceed with the project even under less favorable circumstances.

Secondly, it seems that not only general public but also mass media in Japan, Russia, China and other countries are lacking the full picture with regard to this project. At times, poor command of the facts and lack of understanding creates an unwarranted agitation within this "triangle" and beyond. This misunderstanding should be clarified: it is not Japan that competes with China over a pipeline route (Nakhodka vs. Daqing), but the destination proposed by Transneft (Nakhodka) responds to Russia's economic, development and energy security needs much better than the route and destination planned by YUKOS (Daqing). Moreover, from the summer of 2003, Moscow officially proposed to integrate both pipelines in one project (Eastern Siberia-Nakhodka route with a branch to Daqing).

In fact, Russia, Japan and China cannot afford misinterpretation on such key policy issues and should view this project and other proposals and plans in a broader perspective. By doing so they could create a positive frame of mind for trilateral and multilateral collaboration. In other words, there is a need in a trilateral discussion forum on energy issues, involving China, Russia and Japan. Such trilateral forum could begin with informal expert-level exchanges, gradually moving towards more formal consultations.

Thirdly, natural gas should be seen as a subject critical for energy security of the economies of Northeast Asia. For Russia, the central goal is to establish an integrated gas delivery system in eastern regions which (1) is linked to all major gas fields in the area, (2) adequately responds to the needs of both domestic and regional gas users, (3) is economically feasible and competitive with LNG, (4) contributes to regional energy security, efficient use of energy, sustainability and environmental soundness.

These considerations are behind the proposal to build in Eastern Russia a Central Trunk Gas Pipeline, which will be linked with gas transportation network in western regions. The proposed system would ensure stability of supplies, including exports. Beginning with the northern areas of Irkutskaya Oblast, this pipeline can be integrated with the Taishet-Nakhodka oil pipeline in terms of the route and construction plans.

It is important that this project is seen as a stepping stone for a subregional cooperation in promoting natural gas use and cross-border gas trade in Northeast Asia. There are numerous applications for natural gas that could assist economic and technological advancement of the areas linked to gas pipelines, including heating, cooling, distributed power generation, industrial uses of gas, chemical products manufacturing and natural gas use in transportation, including compressed gas vehicles and fuel cell vehicles.

In a longer-term perspective, particularly in the context of the tight oil markets, the economies of Northeast Asia should also consider gas-to-liquids (GTL) technologies, promoting an industry for synthetic fuels production. Indeed, the GTL industry is becoming a global enterprise and GTL would play a major part in the energy mix of the future, possibly advancing to its prominence faster than the LNG industry did in the last 30 years.

GTL technology has been around for decades. Various companies, large and small, have their own exclusive production techniques, but all have to reduce the costs. A consortium formed in Japan (JOGMEC, Nippon Steel and other companies) is making its own pilot-scale effort in producing GTL that, at some point, could open the way for a cooperative regional enterprise.

There is no question that the energy-importing economies of Northeast Asia will significantly expand their reliance on natural gas. By 2020, demand for natural gas in Europe is due to grow by 2.7% a year, while in the Asia-Pacific region the increase in gas demand is expected to reach 4.5% a year. In Japan, until recently, the power utilities were largely focusing on building new nuclear power plants. Official estimates for the future natural gas demand were quite conservative. However, from 2003, the government-set target for gas share in total primary energy supply (TPES) by 2020 is 20%, not 14% officially proposed until then.

Fourthly, large-scale cross-border gas pipeline projects require strong support of central governments. This was the case with pipelines build between the former Soviet Union and Europe and this is still the case in negotiating new pipeline projects from Russia to Germany and the United Kingdom. Needless to say that a gas pipeline from Sakhalin to Japan would also require firm political backing and support on the part of central governments.

The Sakhalin-Honshu gas pipeline can be considered as realistic and important bilateral project in the context of Japan-Russia energy links. ExxonMobil, the operator of the Sakhalin-1 project officially considers Niigata as one of the potential destinations. Niigata is already supplying natural gas via two pipelines to the gas consumption centers on the Pacific side of Honshu. If a trunk pipeline from Sakhalin is built, Niigata's role as a "natural gas hub" would become more prominent.

The company proposes to build a medium-sized pipeline of 8-10 billion cubic meters (Bcm) annual capacity. Gas can be delivered after about 5 years time from firm commitments on the part of the buyers and can provide long-term reliable supply for at least 40-50 years. Also, this project can be focused not only on Sakhalin-1, but also other ventures, including Sakhalin-2 that also could deliver gas to Japan via a pipeline.

Also, it is becoming increasingly evident that the future of natural gas trade in Northeast Asia requires a comprehensive approach, the one that integrates the issues of energy security, development, transportation infrastructure, market access and technologies for utilization. Above all, to become comprehensive this approach must start with government-level policy support measures aimed at promoting reliance on natural gas. This promises mutually beneficial opportunities for managing environmental problems, including emissions of carbon dioxide. In this context, specific regional projects could benefit, if integrated with dialogues and practical efforts aimed at reducing emissions.

Finally, the goal of building a subregional Energy Community cannot be advanced without addressing the problem of North Korea. The rehabilitation and development of its energy infrastructure must be studied and discussed in detail.

In conclusion, one has to admit that establishing a subregional Energy Community could be a distant goal. The current circumstances do not necessarily strongly favor this vision. However, even as an idealistic destination the notion of community could smooth the interaction among central bureaucracies, regional authorities and businesses, encouraging the inclusive and broader views that integrate specific energy projects, national plans and regional initiatives.

The level at which a person sets his significant goals; the level of performance to which he aspires. An individual's aspiration level has an important bearing on his personality and adjustment. It is a basic component of his self-image, the way he appears in his own eyes. Generally speaking, most normal individuals have been found to set their significant goals just a little higher than they are sure of attaining. There may be an element of self-flattery in this tendency, but it is considered healthy since it is a sign of self-acceptance and self-confidence. Cite this page: N., Pam M.S., "LEVEL OF ASPIRATION," in PsychologyDictionary.org, November 28, 2018, <https://psychologydictionary.org/level-of-aspiration/> (accessed July 1, 2021). SHARE. As you climb a ladder, your muscles work against gravity, and convert stored chemicals into motion and heat. Your potential energy from gravity goes up. Your potential energy from food goes down. You sweat to stay cooler. Specifically--you use... . In the process each molecule of ATP loses a phosphate and transfers energy in doing so. That is what actually drives the muscles. That much is amazing enough, but where that ATP c. Continue Reading.

RE: While climbing a ladder, what is the energy used by us? I won't attempt to answer this question here as the answer is quite lengthy. Instead I will suggest you read the write-up at Muscle - Wikipedia. It IS a rather amazing story, tho. A new solar-based energy ladder, with each rung in reach of the next, can enable families and communities to climb out of energy poverty to energy access, thereby supporting economic development and eventually halting coal's expansion. That's the current energy ladder. It's not only far too great a leap for the unelectrified to reach the other end, but the world can't afford for them to reach the other end by burning more fossil fuels. And although many people are forecast to gain electricity access in the next 20 years in the developing world, population growth in those regions will offset almost all of it.