Energy and Global Security: towards a Cooperative Approach

A joint high-level seminar of the Gstaad Process and Monterey Nonproliferation Strategy Group

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Keynote address and the first Session: International Security, Energy, and Nonproliferation

During the keynote address and the first session it was noted that the value of cooperation was well-recognized in any field of international security, including energy security, because the world was interdependent and **all nations were in the same boat**. Energy resources are a core and a heart of our economy. **Energy market is the most volatile of all markets and fluctuations are more damaging** here. Interconnectedness and interdependence resulted in a situation when disruptions in fuel supply in one country may have devastating effects on other countries as well. However, states with different strategic and historical perceptions of the issue have recognized its importance and work together as never before. **Shared interest and cooperative efforts of the P5 + Germany in dealing with Iran is not only about nukes, but also about oil and sustainable development,** and this broader rationale ensures optimism.

As oil and gas producers are becoming fewer they enjoy increasing influence; however, they should be interested in cooperation with consumers because **energy dependence is reciprocal**. This energy interdependence becomes a pillar for energy security. In order to have cooperation, priorities of all countries, both developed and developing, must be recognized.

Energy security issues are not new on the international agenda, since they have caused concern from 1970s. However, **energy security concerns are aggravated by the fact that new issues have surfaced** since then:

- Over the last 30 years of the 20th century, global oil production has increased by 50%, production of natural gas – 2.3 times, and that of nuclear energy 25 times; and yet, fossil fuels account for 90% of global energy consumption. At the same time, high oil prices stimulate Nuclear Renaissance and it is possible to say that the great **battle for uranium resources has already started**. In this situation, nonproliferation concerns of the great powers are often becoming **a pretext for control over the market**.
- **Threat of terrorism has direct implications for energy supplies.** Vulnerability of energy infrastructure, not only for oil and gas, but also for electricity, puts prosperity and development at risk. NATO, a primarily

military organization, now views energy security as a major challenge for its members.

- New giant consumers such as **India and China contribute to deterioration of environment**. China builds one new coal power plant every week. It is essential to integrate these countries in the global system by finding **balance between their development goals and environmental concerns**.
- Issue of energy security and assurance of supply is directly related to those of **public health and climate change**. WHO projects that a two degree increase in mean temperature will skyrocket cancer rates.
- **New suppliers** that emerged in 1980s and 1990s may soon **stop exporting** energy resources because these will be needed for domestic development.
- Some oil producing countries **lack refining capacities**. In the case of Iran, it could be used as a major leverage during negotiations; however, this usage is unlikely because it may mean a **declaration of war**. To have international community agree on petroleum sanctions requires outstanding developments in the region, such as a **nuclear test**.
- **Military action in the Gulf region may destabilize energy supplies** and cripple world economy with serious repercussions for many countries because of the increased interdependence.
- Other **classical conflicts,** many of which are frozen in Europe, will **threaten energy security** once they are revived.

It was suggested that in order to escape tough ride in the upcoming years it is not just a cooperative approach but rather **a joint strategy that should be sought** to deal with the increased energy interdependence. Such organizations as the **WHO and the WMO should be given more credit in finding solutions for the "soft power paradigm"** which now has strong impact on state security.

Addressing the issue of nonproliferation, it was noted that the **threat of proliferation has increased due to the Nuclear Renaissance**:

- Many countries have bought into a nuclear power message and are enamored by it. However, **commercial push and premature deployment ignore the necessity for systematic assessment** of nuclear energy costs and benefits and disregard the alternative sources.
- **No nuclear resistant technology is available right now**. However, nuclear resistant technology logic is **useful to dissuade skeptics** of nuclear energy development. **Generation IV reactors are in the pilot phase everywhere** but in China, and won't be available for commercial deployment untill 2020. Now we depend on a 40-year old reactor technology and the stepped approach of GNEP and global nuclear energy infrastructure may be helpful here. Russian floating nuclear power plants are not proliferation-resistant either. Possibility of their export to countries with no experience in nuclear energy management further stimulates proliferation risks.
- **Multilateral initiatives**, including that of Angarsk facility, **have great potential** which should not however be exaggerated. In the case of Angarsk, it can even threaten nonproliferation regime, if it provides fuel supply, thus letting India escape possible repercussions after the resumption of nuclear testing.

- Not only is the U.S. inconsistent in its policy towards India, **South Africa and Australia are violating their legally binding obligations** not to engage into nuclear cooperation with countries lacking full-scope safeguards arising under their accidence to the NWFZ in their respective regions. Short-term economic considerations prevail over nonproliferation concerns.
- IAEA has produced a **special document outlining the issues that a country aspiring to develop nuclear energy** should consider before applying for assistance. It is **very controversial in the IAEA context,** because many developing countries view it as an additional obstacle. IAEA cannot verify intentions and has to balance between its obligation to assist in the nuclear power development and to verify nonproliferation.

Session 2. Renaissance of Nuclear Energy. What It Means for Global Economics, Security, and Nonproliferation.

- Increased demand for nuclear energy results in growing demand for uranium, enrichment services, spent fuel storage, fuel reprocessing, proliferation of tangible technologies, know-how etc. It brings forward the challenge of **dissemination of nuclear safety culture**.
- When the benefits of nuclear cooperation are offered to non-NPT parties without the disciplines that NPT adherence requires it is not only a **setback to the important goal of universalisation**, but it is also a betrayal of those NPT states who played by the rules and accepted the restrictions and demands of NPT membership.
- **Additional funding support for IAEA's monitoring activities and development of criteria-based versus country-based arrangement** for associating the three non-NPT states into a closer association with some key goals of the treaty may be among the measures to **repair NPT vulnerability**.
- There are 30 nuclear plants under construction. Of these, more than 65% are in developing countries and the majority of them in Asia. **India, with a total of six nuclear power plants under construction, holds the second place.**
- The nuclear industry has not been left untouched by the winds of globalization. **Major nuclear companies have established transnational commercial linkages of a global character**.
- The energy potential of **India's uranium resources**, **enhanced 60 times** through fast breeder reactors, can be **enhanced 600 times through the use of thorium reserves**. A 500 MW prototype fast breeder reactor will be commissioned in 2011. India intends to introduce metallic fuel to shorten doubling time. Four more fast breeder reactors are to be constructed by 2020.
- It was suggested that **if a state violates compliance with IAEA standards, all cooperation with that country could be stopped**. It is worth making it a global norm.
- **Ethanol is not a substitute for fuel production**. If used widely, it would skyrocket food prices.
- We have now entered an **era of tight global oil and gas supplies**. It is by now fairly clear that oil and gas **supply is unlikely to grow at the same pace as demand**, meaning that globally other sources of energy will need to play a larger role. The price of oil and gas on international markets is likely to remain high.

- In the Gulf countries, non-utilized capacity has now become scarce: all these countries are investing billions in increasing their crude oil production capacity, and under the new circumstances the marginal barrel of oil has a significant cost.
- The Gulf countries have the power of money, but they need **electricity generation to diversify their industry for the time when oil and gas resources run out**. It can be used for such electricity-intensive activities as water desalination and aluminum smelting. Nuclear power plants are the cheapest source of base load electricity, followed by coal burning plants.
- Intentions to develop nuclear energy in the Gulf region are not Iran-determined, but have economic rationale. **Development of nuclear energy in the Gulf region** may be viewed as contributing to **nuclear renaissance** even more than its development in Asia, which is more vulnerable to economic crises.
- **Regional uranium enrichment program under international control** (entity of experts not necessarily from the Gulf region) can be used to find **solution to Iranian crisis** by offering a way for Iran to save face. E.g., why not make Natanz enrichment facility an extraterritorial entity?
- The idea of nuclear fuel assurance of supply is gaining political momentum. It is viewed as an additional assurance to the market that has been operating quite sufficiently. **Assurance of supply represents risk reduction strategy**. These proposals formulate into an idea of a club with voluntary membership at no risk and cost, which does not require legally binding obligations but rather discourages development of indigenous nuclear capabilities. It also refers to Russian **Angarsk facility** where an **evolution from requirement to forego domestic program in favor of a more flexible approach** can be seen. It became the result of consultations with potential customers.
- **Nuclear power can be competitive** when nuclear power plants are placed at a distance from other energy resources (e.g., coal). Costs further decrease with standardization.

Panel 1. Multilateral Approaches to Nonproliferation Implications to the Nuclear Fuel Cycle.

International uranium enrichment center (IUEC) in Angarsk

- IUEC potential s**hould not be overestimated** as a tool to solve "country-specific" nonproliferation issues.
- Russia and US in Iran: **depoliticize dealing with Iran** by technologically shifting Iran from enrichment to broad spectrum of nuclear energy activities. Cooperation in development of new technologies in nuclear fuel field, new reactors designs etc. could be a good start.
- If international uranium enrichment center were created on Iranian soil, it would increase Iran's influence in the region.
- Such countries as Argentina, Australia, Brazil, Kazakhstan, Canada and Ukraine stated that they **would not accept the condition to forego** domestic enrichment in the future as a precondition for participation in IUEC.
- The preamble of Russia-Kazakhstan agreement on IUEC has reference that Kazakhstan does not possess currently enrichment capabilities. **Russia-Kazakhstan agreement on IUEC was translated into English** is a template

agreement and it can be modified. The criteria for the IUEC membership should not be discriminative.

- IUEC in Angarsk can be supplemented by an **international educational center** with, for instance, Irkutsk State Technical University as a host.
- India is interested in providing Russia with reprocessed uranium for enrichment.
- **IAEA will not pay for "full scope" safeguards in Angarsk** because verification budget is limited and an increase in verification procedures in India and DPRK is expected.
- IAEA is examining functions of the IUEC Administrative Committee in order to decide whether it is worth joining it.
- It is necessary to evaluate capabilities in relation to intention. The IAEA's role is to **bring states to 'good' intentions**.

Panel 2. European Security and Natural Gas Supplies.

The issue of European energy security is directly related to the EU-Russia relations. **Gas is an alternative for Europe**; however, **Russian gas exports are indispensable**. Debate behind energy security issues in Europe is not about supplies, but **about investments**.

- Issue of energy security in Europe has been heightened by the **EU enlargement**. 8 new Eastern European members who are more dependent on gas supplies from Russia are suspicious and antagonistic towards Russia.
- **In the liberalized market there is still interruption of supplies**. It is reflected in the price increase during peak demand.
- **Market liberalization does not lead to the investments in the idle capacity** required by the supply security. Investors in the competitive market prefer to invest in productive capacity. Idle capacity **must either be imposed by regulations, or provided directly by the government**. In the case of the EU it is logical that it would be defined within the EU, but national governments are reluctant to this idea.
- International oil and gas companies have long recognized that once they have invested upstream their investments make them hostage to changes in host government policies. **Should not foreign downstream investors in the EU, once their investment are in place and immovable, likewise find themselves motivated to comply with EU policies and provide uninterrupted services to the EU customers?** E.g., Venezuela continues to supply crude oil to its own refineries in the U.S. despite continued hostilities between the two countries.
- Natural gas exporters who find themselves in direct contact with customers in the EU, as part of their marketing program, become highly familiar with the needs of their customers. Such direct contacts will render service interruptions not merely abstract, but highly personal events. The bad publicity and damage to the supplier's customer relations will be even more severe than it was the case as long as a purely European company was intermediary. **Downstream foreign investments will contribute to European energy security**.
- **Dual political and economic nature of Gazprom makes it vulnerable** on both sides. Gazprom cannot implement its advantages of being a monopoly: 1. It is **unable to raise domestic prices**. 2. **2008 makes Gazprom's future**

unclear because orders from Kremlin may change, thus it is difficult to make long-term planning.

- Energy relations between Gazprom and Europe can not be normalized until situation with major energy producing countries such as Iran and Iraq is not normalized.
- **Oil and gas prices are not really high**. It is reflected by the fact that people have changed little their energy habits.
- **Gas production in Russia falls 20 bcm every year**. Volume crisis is yet to come. Russian gas sector desperately needs investments. There is an available option to increase gas production by including gas produced by the oil companies, which is being burnt at the moment.
- **Russian companies** coming to European market will **enjoy benefits of the liberalized market**, while **European companies** coming to Russia will have to work in a **different environment**.
- It was suggested that **Gazprom would be more likely to meet energy demands from European customers** in case of peak demand than to satisfy demands from Russian customers; even at the expense of the latter, which winter of 2006-2007 had demonstrated.

Panel 3. Geopolitics of Oil.

Russia is the world's largest producer of gas and oil (21% and 12% respectively). It is still unknown how much fossil reserves Russia owns. Investments in Russian oil sector have been mainly directed at old oil fields resulting in "brown fields renaissance". In order to keep up with demand, new investments in "green fields" are required. So far, crude oil exports from Russia have demonstrated decline: 1. Russia consumes more 2. Russia intends to export value added refinery products. In addition, oil production in **Russia is not keeping up with growing demand**, production rate is almost flat. **It is a global phenomenon**.

- **Eastern Siberia is not well-explored**. It causes delays with construction of oil pipeline to China because it is **hard to justify construction** when reserves are not proved. No realistic gas pipeline is intended for China. Russia is interested in having access not only to China's energy market but also to South Korea and Japan. Japan and South Korea may be interested in the development of the Russian Far East because this way it could provide them with additional energy resources. **Russia may give priority to Japan and South Korea rather than China when choosing the consumer**, which is reflected by the fact that the more ambitious "Eastern Siberia-Pacific Ocean" pipeline was given priority over an exclusive pipeline to China. However, it was also argued that Russia is missing the opportunity to make a profit by engaging into a more active energy trade with China.
- There are lots of opportunities for both private and state companies in Russian oil sector. In this field, **Russia is well integrated into international economy**.
- It was suggested that **Russia wanted to have China dependent on its oil supply** or even use the possibility of the supply in order to get concessions from China. At the same time, **Russia pays high price for its strategic partnership with China** since it supplies oil at the price 4 times lower than current market prices.

- **Russia is eager to be a transit country for oil and gas exports to Europe** but does not want to have the same kind of intermediaries in its energy relations with China. Now Russia is **limited in its exports choices,** but, once it builds up more flexible export infrastructure, **it will be more assertive** to use oil and gas re-direction as a tool to extract concessions.
- **Security of energy infrastructure in Russia is guaranteed by the Russian state**. Far more serious problem is the **aging infrastructure,** which results in an enormous number of leaks and industrial accidents even without a terrorist attack. If a **terrorist attack** occurred in **the Bosporus Straight, 2.4 mln barrels would be taken off the marke**t. Oil prices could easily skyrocket to **US $100 per barrel**.
- **More than half of Russia's oil is produced by private companies**. It explains why oil sector is a much calmer sector than that of gas. The future of Russian oil industry is consolidation as is the case everywhere else in the world.
- **Russian tax regime is one of the most confiscatory regimes in the world**. When price for barrel of oil exceeds $25, all revenues above that figure go to the state.

During the panel a question was raised about the **YUKOS case.** In the opinion of one of the panelists, the conflict between state and business in Russia was provoked by a bright and talented person from the top of the Soviet establishment. Khodorkovsky decided that since he was richer than the first political figures he could be the boss. But the times of anarchy when government could be bought and sold were already over. **Khodorkovsky's attempts had repercussions for all businessmen in Russia, putting business and even democracy in Russia in danger**.

Session 3. Energy and Global Security: Are Cooperative Approaches at All Possible?

Depending on which end of the supply chain you stand, you are not going to find the same things cooperative. No wonder that ideas to create a gas cartel were viewed by consumer-countries as an aggressive move of producer-countries.

U.S.-Russian Cooperation: Despite the cool-down in U.S.-Russia relations, cooperation in nuclear energy is developing. There are opportunities for joint ventures both in Russia and third countries. Cooperation can also evolve in innovative technologies and reactors. Any such projects should envision **equal participation,** including an equal cost splitting. Cooperation should have **financial but not political basis**. The U.S. market is very lucrative for Russia. Educational projects can also be organized in a more multilateral framework in order to meet demands mandated by the nuclear renaissance and find solution to the aging of scientists in nuclear design and research and development.

- Russia can play a positive role as it did in the case of North Korean money transfer. It could be more active while negotiating with Iran. However, Russia is unlikely to provide free assistance. In the case of North Korea, it would rather construct nuclear power plant in the Far East than supply reactors to DPRK.

Assurance of Supply: Nuclear autarky in a globalized world is a phantom. New division in nuclear classes is represented by haves and have-nots in terms of technology. Should fuel assurances be viewed as another way to limit the club of haves? It was suggested that **consensus should be established that assurance of supply is a good thing while proliferation of enrichment technologies is a bad thing**. It was argued that consensus on the later point is impossible to get as it will be regarded as infringement of the article IV: **additional limitations may further destabilize nonproliferation regime**.

- There's a chance that NTI proposal on nuclear fuel reserve would be met with an equal **money contribution on the U.S. side and material contribution on the Russian side** because Russian export laws allow entrusting the IAEA to decide on who receives the material (in Australia, Canada and the U.S. governments have final decision on who receives the material).
- Fuel bank proposal is unlikely to solve Iranian problem, but it can help to mitigate such problem in future by providing a backup plan. In this respect, **fuel reserve can be a "diagnostic regime"**.
- Fuel bank under **international control is a safeguard against a cartel-like behavior** of fuel suppliers. It can be a contributive element to the security of supply. Fuel bank allows a win-win situation for the U.S. and Iran.
- Imposition of **additional conditionality** to get access to fuel reserve may **negatively influence nonproliferation regime** because countries that joined the NPT as non-nuclear parties have already accepted strict limitations. In this respect, a requirement for **adoption of the Additional Protocol might also have negative consequences**.
- From the nuclear industry perspective, assurance of supply should be an **addition to traditionally effective market** and not violate it. Idea to have fuel reserves in **many locations** (a number of fuel banks or too large reserve) may **interfere with market**. Original **NTI proposal** envisioned a reserve of one core load meaning 50-60 metric tons with 4.9% LEU, but it could not be enough for a country that has multiple nuclear reactors.
- A potential customer state for **fuel reserve** must have **trusted nonproliferation record**. How would the determination of whether a potential customer state is "in good standing" in meeting its nonproliferation obligations be made? Would this be a Board of Governors decision, the Director General's decision, or might a special panel made up of representative member states' designated arbitrators make the determination? Some states may require that the release mechanism be established and that preapproved drawing rights be considered and guaranteed before they are willing to rely on such provisions as a back up to fuel imports.
- **Pricing**: One approach that would guarantee market stability and predictability for customers would be **to fix the price for the reserve's LEU** at the price contained in the existing contract that is not being fulfilled. If the contract price is significantly below market value, it might create challenges for the Agency to replenish the reserve and member states may be called on to make up the differences between contract price and real time market prices, but it would prevent states from manufacturing a commercial supply dispute in hopes of obtaining a more favorable price from the Agency's reserve.
- **Fabrication**: If a state has a fuel import contract in place, **fabrication will typically be included in that contract**, likely at a different facility than the

enrichment facility and, in some cases, in a different country. There may be value in developing **prelicensed alternative fabricators** that can be turned to should the Agency's LEU reserve be called on by a customer state. This complex issue will require further consideration by member states and industry experts.

The idea of a fuel bank stems from the idea of multilateral approaches, which in turn come from the idea to control sensitive technologies by offering an alternative to the development of domestic capability. In this aspect, **we should not look to accommodate either all consumers or all suppliers**. Moreover, the **inclusion of Iran** into consideration can **discredit the idea** because the country is under investigation for undeclared nuclear activities.

Location of Fuel Reserve: It was suggested that **fuel reserve could not be placed in either one of the six countries** providing enrichment services, because it may compromise the very idea. Instead, it may be a country with robust nuclear capability, well-established regulatory structure, export controls and mature nuclear community. One of the countries matching the criteria is **Kazakhstan**. Its linkages with Angarsk facility (which is also suggested as a possible location) also contribute to this notion. However, are we ready for Kazakhstan in this respect? After President Nazarbaev leaves power, **the political future of Kazakhstan is unclear**. The reserve could also be stored in a **European country** with a nuclear power reactor. But such important issues as the means of delivering fuel from the reserve to its recipient should also be considered.