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Responding to Emerging Threats to Energy Security and Stability by A. Konoplianik

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Emerging Threats to Energy Security and Stability

NATO Advanced Research Workshop

January 23 to January 25, 2004 - St. George's House, Windsor Castle, UK



Presentation by Dr. Andrei Konoplyanik

Deputy Secretary General
The Energy Charter Secretariat

“Responding to Emerging Threats to Energy Security and Stability”

(Luncheon Speech, January 24th)

Ladies and Gentlemen,

First of all, I would like to draw your attention to diamonds. Just like a diamond, energy security has many facets. And just like a diamond, energy security is best appreciated when its facets come neatly in balance.

The difference, however, is that diamonds, as we all know, are forever, and energy security has to be maintained on a daily basis and once the energy is consumed it is gone forever. You may also be aware of the fact that *diamonds are a girl's best friends*. I will return to this interesting topic briefly as well later in my speech.

Energy security is often understood as the ability to assure adequate, sustainable supply of energy at a reasonable cost, including externalities (Fig.1). One might also think about energy security as a process, an ebbing and rising flow:

- The flow of primary energy from its varied sources and the shifts from one source to another over time;
- The flow of energy products across energy infrastructure and the shifts in the patterns of flows in this infrastructure;
- The flow of energy across private and government channels and the shifting balance between these flows;
- The flow of energy across international borders and the shifting balance of regional and national power and control over these flows,

And so on.

Energy security is never a diamond. Energy security is not forever. It has to be maintained: It is the desired outcome of a series of actions, the right allocation of resources, the desired outcome of choices to be made.

Obviously, such an interpretation of energy security is one that an economist like myself might suggest. At this point, I would like to ask a question: If there were to be a common denominator of the various processes that result in the assurance of energy security, what would that denominator be? For example, this research workshop has tasked itself (or at least that's what is stated in the 'Purpose' section of its program), with the discussion of current energy production trends and the impact of capacity shortfalls on energy security. "Capacity shortfall" is a way to say "underinvestment in capacity". Capacity shortfalls could be the result of any unforeseen event including the act of terrorism. I would like to take this as the starting point and try to demonstrate that energy security is best understood as the continuous assurance, the maintenance, the persistence, if you will, of adequate, reliable supply of energy at a reasonable cost and at any given moment of time (in the short, medium and long run), and that this persistence of adequate and reliable supply can only be assured in the context of the **right investment decisions**.

There are many facets to energy security – that's the common thing it has with diamonds, after all. Since it is the outcome of a continuous process and since choices have to be made all the time how to assure it, there are many perspectives, or preferences, on how exactly it can be assured. Just a few examples on the multifaceted nature of energy security from the consumer / importer perspective (say that of the U.S.) and the producer / exporter perspective (say that of Russia).

- A consumer / importer perspective would be charmed by the shine on the facets of:
 - Higher domestic productive capacity;
 - Less dependence on imports;
 - Lower degree of import concentration;
 - Higher domestic inventories relative to imports; or
 - Better ability to second-source energy in case one or more suppliers interrupt deliveries, i.e. availability of alternative sources.

I am sure you all recognize the cornerstones of the energy security policies of the major importers.

- A producer /exporter perspective would be fascinated by the facets of:
 - Lower potential shortfall in one or more domestic "exportable" energy resources;
 - Lower depletion of non-renewable resources;
 - Reducing the inefficient domestic use of non-renewable resources, thus providing an alternative for increasing its export potential;
 - Lowering the uncontrollable growth in domestic energy demand, for the same reason;
 - Mitigating the potential loss of competitiveness on international markets; or
 - Reducing real or imagined environmental disasters.

At this moment, I will point out that, differing as they may be, there are certain common aspects of the perspectives of a consumer and a producer. The supply of energy requires the deployment of a system that relies heavily on large-scale infrastructure with much vulnerability. The interruption of the flow of energy in many instances will negatively affect both the consumer and the producer. It is therefore in the best interests of both the consumer and the

producer to develop energy supply systems that are least vulnerable to both short- and long-term disruptions. Let me dwell for a moment on each of these two issues.

Short-term, the notorious short run, is usually understood as a period of time during which no radical change occurs in the quality of the factors deployed: pipelines would be pipelines, tankers would be tankers, GM engines would be V-8 gas-guzzlers, and terrorists would be terrorists. A major concern related to short-run disruptions is terrorist activity, especially targeting large-scale, centralized, vulnerable systems. In the short run, an existing vulnerable energy supply system, or key elements thereof, can be destroyed. On the other hand, since it takes time between making an investment decision and implementing it, it may be difficult to promptly find a substitute for such vulnerable systems and interrupted supplies.

There are, of course, symptomatic cures for this pestilence, for example the “hardening” of the vulnerable elements of such systems, the maintenance of back-up supplies of fuels and capacity, etc. But even under the best of circumstances, and even if all nations were to cooperate in good faith in the reduction of risks of this nature, symptomatic cure is just that: with vulnerable energy systems, there will inevitably be short-run interruptions of increasing magnitude and cost due to terrorist activities. Suffice to mention that there have been over 50 incidents (sabotage and accidental) on the Trans-Alaska oil pipeline alone. Terrorist attacks result in quite frequent disruption of the Oxy pipe in Colombia. But in cases like this, it is a matter more of extra cost associated with fighting and preventing blockage of flow, rather than the total blocking of the flow. While investing in the improvement of the security of vulnerable energy systems will have its rewards, there will inevitably be a point where the law of diminishing returns sets in.

In the long-run, many factors can change. New technologies emerge, new types of energy come in use - or do they? James Woolsey, former CIA Director (a person from “security” part of the “energy security” formula), and Amory Lovins, well-known energy expert (a person from “energy” part of the same equation), write that “energy security starts with using less energy far more efficiently to do the same tasks. The next step is to obtain more energy from sources that are inherently invulnerable because they are dispersed, diverse, and increasingly renewable”.¹ This beneficial long-run shift to better energy security will, however, not occur without making the right choices at the right time, that is, without the **relevant investment**.

It seems to me that two major conclusions may be drawn from this:

- Producer and consumer countries may cooperate in reducing the vulnerability of *existing energy supply systems*, and thus avoid some of the cost of the failure or the damage of such systems. This type of investment, while useful in the short run, is likely to have limited returns in the long run.
- The major long-run risk to security of energy supply lies in making the wrong investment choices, in being unable to improve efficiency, diversify energy supply sources and build invulnerable, diversified and distributed *future energy supply systems* that can handle local disruptions with ease and therefore offer little return to terrorism.

Energy consumers and producers are thus interdependent, linked together not only by energy flows (the flows of energy already produced), but also by investment flows which are needed to produce this energy, i.e. to develop energy projects.

¹ R. James Woolsey, Amory B. Lovins, and L. Hunter Lovins: Energy Security: It Takes More Than Drilling. Web publication accessed on January 19, 2004.

Thus energy and investment flows are closely related in shaping energy security from an economic perspective. Investment at each stage in the energy cycle has particular energy security dimensions. For example, in the case of upstream projects this means:

- (a) The security of up-front project expenditures aiming at obtaining access to energy resources (so-called pre-investment stage);
- (b) Subsequent project development and operational activity, including the transportation of the energy produced to markets;
- (c) The environmental aspects, including the abandonment of the depleted fields or mines, or sites, and the decommissioning of the project infrastructure.

From this perspective, the energy cycle, whether at the level of an individual country, a region or at the global level, includes a chain of investment projects, of making investment decisions, with their inherent risks and rewards. The security interests of both producers and consumers of energy are vested in this process.

From an economic viewpoint, stable and affordable energy supply means supply with manageable volume and price risks. Since the 70's, the concept of affordable and secure energy supply also implies environmentally sustainable supply, with environmental costs internalized. Today this means that in order to provide competitive energy supplies, not only must technical and financial costs be taken into consideration, but also the environmental costs. These are facets of energy security that have evolved over time, at the various stages of the development of the energy markets.

And here we come to a message that I believe important in the modern context of the global energy industry. If – and I tried to demonstrate that it is so – if energy security and the security of investment are interrelated, and, indeed, if the right choices have to be made at the right time by investors to assure energy security in the long run, then the right policy is the policy in support of **competitive global energy markets**.

Over time, the instruments used to provide energy security have evolved, reflecting different stages of market development and the need to manage volume and price risks (Fig.2). What we see now is quite a departure from the once-existing direct control of supplies “at the wellhead” that was typical for the traditional concessions, including direct state participation of the concessionaire’s home state, or, at an even earlier moment, the establishment of colonies. Right now, a major instrument of diminishing volume risks is the diversification of energy supply. The latter means, for example, “multiple suppliers” (“multiple pipelines”), or similar tools that give opportunities to consumers to switch between suppliers and, I underline this, *vice versa*. This is obviously an investment well made, and we at the Energy Charter support policies that remove barriers to the flow of such investment and promote fair access to markets.

What is disturbing, however, is that even with diversification of supply and markets, key components needed for the assurance of long-run security of supply have yet to materialize. For example, diversification in oil supplies does not mean diversification in energy supplies: consumers will still be hooked on imported oil. Multiple pipelines will still carry the same kind of energy: oil or gas. There seems to be need for a departure from dependency on oil and gas, on few suppliers, from state monopolies, all of which prevent competition and the establishment of free markets. Or, in broader terms, there seems to be need for a departure from monopoly dependence - to exclude an abuse of dominant position - in all senses.

Functioning market structures and competition are a *sine qua non* for providing to investors the right signals, to assure that investment goes where it is needed, and thus to assure long-run energy security. Let's step back in time again: Prior to 1970, the price risk in the oil market was addressed by the so-called "posted prices" advised by vertically integrated oil companies, and a cost-plus mechanism of pricing related to a particular project. Now we have a market based on the "paper" and the "wet" barrel - spot, futures, options and a host of other derivatives. Increased price volatility if any, is shared between market participants as a function of their individual appetite for such risks. But that is to say that the financial markets, in addition to the diversified technical infrastructure, are now instrumental in handling price risks, in mitigating energy security risks.

Today we have an advanced financial market serving energy markets, along with a diversified technical infrastructure, and that is the result of how competition works. Shall we say: "Markets will find a way"?

There seem to be two dimensions of international energy security that go beyond the problem of reducing the vulnerability of the existing supply system by military means, including the "protection" of unstable energy exporting regions. These two dimensions are (i) defense against short-term shocks by the use of strategic stockpiling (Fig.3); and (ii) investment in energy resource development (in underdeveloped areas and new sources), energy efficiency, energy technology and generally all the means needed for a transition from the current state of the industry to the desired future, more secure and efficient, state. That state would involve more diversified, open, transparent, competitive energy markets.

It seems, indeed, that the second dimension is the most worrying. It was recommended recently that the G-8 should consider ways to strengthen the legal regime for international energy investments.² This recommendation should be addressed not only to G-8, but also to the broader international community. It underscores the major theme of this presentation: **International energy security in the long run depends on international energy investment, and on the management and minimization of risks to such investment.**

According to the "shadow G-8":

[A] great deal has been done in this area over last 15 years. More is needed, however, as most of the energy-rich regions are plagued with defective governance and especially defective security for investments, which especially hinders the flow of foreign investments. The United States favors bilateral approaches as well as a region scheme that would be part of the Free Trade Area of Americas (FTAA). The Energy Charter Treaty (ECT), the only multilateral energy-specific international law instrument, already has [52] parties and perhaps more in the near future. The United States, by far the largest "exporter of energy capital" has not signed it. The G-8 should endorse the Energy Charter Treaty process and encourage its enlargement to both new capital-importing and capital-exporting countries.³

To this "perspective from the West", let me add a "perspective from the East". If we look at a map of the Eastern hemisphere in energy terms, we see a major market dependent on external supplies: Asia. The European market is a mature one, the Asian markets are still growing. It is

² Restoring G-8 leadership of the world economy. Recommendations for the Evian Summit from the "Shadow G-8", May 2003. - "Russia in the Foreign Policy", Vol. 1, No. 2, April-June 2003, p. 148-174.

³ Restoring G-8 leadership of the world economy. Recommendations for the Evian Summit from the "Shadow G-8", May 2003. - "Russia in the Foreign Policy", Vol. 1, No. 2, April-June 2003, p. 148-174.

the Asian markets that offer greater opportunity for energy trade and investment. What principles will be used to regulate integrated pipelines and electricity grids in Asia? What investment rules will be implemented in the countries of the broader Eurasian energy market? Will China evolve along the same historic path as the U.S.? If yes, will we live in a sustainable energy future?

The ECT is the only international instrument containing a set of common rules for energy-related trade and investment (Fig.4-5). It is not surprising that governments in Asia are approaching the ECT, initially as observers. China became an observer in 2001, Iran and South Korea in 2002, ASEAN as a group in 2003 (Fig.6).

Energy markets have generally been evolving from monopoly to competition. The driving force in this development is the need to assure incentives to investments. Both producer and consumer nations are looking at investment protection and stimulation measures, as instruments in improving their energy security. The process also involves the development, commercialization and transfer of energy efficient and environmentally friendly technology, the adoption of coherent labor and environmental standards, but, most important, the establishment of competitive markets that help minimizing investment-related risks.

Diversification of supplies within the existing energy supply system (multiple suppliers, multiple pipelines, interconnections, etc.), maintaining stocks of various energy material and excess capacity are adequate tools to handle potential threats to energy security in the existing context of the industry. They are not very helpful in the long run.

The “hardening” of the vulnerable centralized systems, the proactive handling of various sources of threats and instability on a global scale are also beneficial in the short- to medium run. However, in the long run these energy security instruments, while useful, will probably not be sufficient. There is a need to use tools to minimize risks related to energy investments (thus minimizing financial cost), to provide the right signals at the right time to investors. Times change: once upon a time, such signals used to be provided via the concessionary system, i.e. individual project-related agreements between the investor and the host state. Ninety years ago the British government supported and directly participated in the D’Arcy concession in Persia on the urge of Lord Churchill, to assure Britain’s energy security, and indeed its national security, when the Royal Navy gave up coal and switched to oil. Nowadays, we witness a variety of bilateral and multilateral intergovernmental undertakings. International law instruments are one of the most efficient ways in providing the basics of energy security.

At the Seminar on «Global security and natural resources» held in September 2002 in Moscow⁴, former UK Foreign Minister Lord Owen mentioned, “transparency is the best chance for stability”. Stability, proper public and corporate governance, and transparency are nowadays key components of energy security. The creation of common rules of the game adds to transparency of investments and trade and helps minimize investors’ risks related to energy projects. The development of open and competitive markets in our global economy is key to the stability of international energy flows, and indeed to the assurance of adequate supplies of energy at reasonable cost, i.e. energy security.

These were the thoughts of an economist on the question of energy supply security within its various facets (Fig.7). As Marilyn Monroe so beautifully put it in her song, “There may come a

⁴ Seminar «Global security and natural resources», London School of Economics – Institute of world economy and international relations, Russian Academy of Science, 26 September 2002, Moscow

time when a lass needs a lawyer but diamonds are a girl's best friend”.

We may not have found a diamond here at Windsor Castle, at least not right now during this lunch, but if we know how to make energy supplies secure, we may enjoy the brilliance of diamonds forever.

Thank you for your attention.

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