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Exposing the Energy Myopia

A Report of the CIC Meeting on Energy Security

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"Based on scale, magnitude, and irreversibility, global climate change constitutes a critical security issue. There is a need for action by all and a need for action now. Delay in acting on climate change now will mean that the costs of addressing it later will be significantly greater. … To accommodate future population and economic growth, new methods are required for the development of alternative sources of energy supply to reduce global reliance on oil and conventional coal, including greater use of nuclear energy and hydroelectric power, even while promoting the use of non-fossil fuels and renewable sources of energy."

Ramesh Thakur and Colin Bradford
The Hindu, 10 February 2007

Introduction

Energy is the lifeblood of all economic activity. For this reason, disruptions in predictable supply and demand have far reaching impacts for all countries. Though a popular topic of discussion in the media, the catalogue of threats associated with energy instability has been slow to gain traction as a policy priority. Some practical questions arise from the welter of discussion and popular conjecture: Is there a looming global energy crisis? If so, how quickly is it happening, and how grave is the problem? What are the economic implications of coming energy shortages, and what are the geopolitical implications? What are the governance issues and what options exist for addressing them in a multilateral context?

These questions were posed to a group of thirty esteemed experts who assembled under the auspices of the Canadian International Council on 27 October 2007. The session, held at The Centre for International Governance Innovation (CIGI) in Waterloo, Ontario, was chaired by CIGI Distinguished Fellow Louise Fréchette, chair of CIGI's Nuclear Energy Futures project and former UN Deputy Secretary-General (1998-2006). Framing the discussion were three presenters: Ted Parson, professor of natural resources and environment at the University of Michigan;

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Ashok Parthasarathi, science advisor to the late prime minister of India, Indira Gandhi; and Jeff Sanford, alternative/renewable energy staff writer for Canadian Business magazine.

The ensuing discussion of energy issues highlighted the complex interconnection of the energy economy, climate change and security. While agreement was not possible on all issues due to time constraints, this eminent group did identify areas where policy initiatives and market-oriented solutions could be steps forward, and charted out a longer list of international energy issues. The aim of the session was to allow for honest and unrestricted dialogue among energy and international relations experts - for this reason, Chatham House rules of confidentiality were in effect. This report is structured along a number of thematic issues that came out of the discussion.

Defining the Problem

As a starting point for the discussion, the initial presentations described the troubling convergence under way between an increase in global energy demands and declining global energy supplies. From the long list of global energy challenges, they identified a set of pressing issues with strong implications for international governance. Among them were: the emergence of new economic powers; the peaking supply of traditional fossil fuels; the introduction of alternative energy sources; securitization of trading routes; growth in energy demand outpacing science and innovation; competition for access to natural resources among states and corporations; protection of critical infrastructure; and the location of remaining oil in conflict areas. Addressing these issues, they agreed, will require effective, long-term governance responses.

Energy Security

The group acknowledged that the term "energy security" evokes a variety of sentiments. The commonly accepted definition relates to the fundamental economic principle of insufficient supply to meet demand within a geographic space. When applied across states and great distances, between producers and consumers, this equation becomes quite complicated. The term "energy security" has become infused with classic perceptions of national sovereignty, borders and economic development. It has also come to connote a sense of entitlement on the part of industrialized economies, giving rise to an "us versus them" scenario. Using the word "security" polarizes the debate, putting net exporters on one side and net importers on the other, and creates a system of conflict that may not otherwise exist.

The term “energy security” is laden with classic perceptions of national sovereignty, borders and economic development.

The International Energy Agency (IEA) conceives of energy security from a national standpoint, looking at internal, external and temporal influences. In practice, transnational corporations in control of the extraction, refining, transportation and delivery of energy largely drive the energy sector. The concentration of power in private hands has handcuffed policy makers in many aspects of the global energy conundrum. In this light, one participant suggested that energy security considerations have been tainted by aggressive

politics, particularly in the United States, where well-funded oil lobbyists have constrained policy responses through their financing of amenable politicians. Others agreed, suggesting that energy security realities have become lost in the minefield of beltway politics and corporate interests.

Energy security is seen by some as a purely strategic objective, requiring the militarization of oil fields and shipping routes; others approach the term from a political-economic perspective as a statement on the inequality in the world economy, favouring the promulgation of affluence in industrialized economies. The rise of new global powers - China and India in particular - has complicated how energy security is perceived from the perspective of the dominant powers. As reported in the 2007 World Energy Outlook, these countries are experiencing staggering rates of economic growth and are demanding an increased share of world energy resources. Combined with economic slowdown in the United States and recent shifts in global currency values, the rise of these economies will stretch the world financial system in new ways and challenge the energy security status quo over the coming years.

North-South Divide

Ease of access to energy determines how energy security is perceived by states, corporations and individuals. As such, the set of issues raised by energy security in North America or Europe is quite different from prevailing concerns in Sub-Saharan Africa or East Asia. Reliable infrastructure, sustained investment and measurable influence are sine qua non in industrialized economies yet are constant challenges for developing nations. In the words of one participant, "five billion people are playing catch-up with the world's richest countries to develop sustainable energy systems." The majority of people in the global North has enjoyed a lifestyle of sustained affluence largely due to inexpensive energy resources. Conversely, many countries in the global South, lacking the capital to build and maintain an effective energy supply chain, continue to struggle to provide basic essentials. To counter or avert a global energy crisis, it is necessary to view the issues also from the perspective of the South rather than exclusively from how major industrialized economies could be disrupted by supply shortages.

Developing nations cannot compete as modern economies without competitive and reliable energy systems.

Energy systems are expensive. Although developing nations currently have relatively low-intensity energy use due to their lack of economic development, they cannot hope to survive as modern economies without comprehensive energy systems. Effective planning is crucial if they are to make the most of their limited budgets. Furthermore, one participant noted, developing nations must devise national energy schemes according to their own conditions rather than trying to replicate models established by the West. As such, local investment in, and promotion of, science and technology should help governments in the South to meet their long-range energy needs within reasonable cost levels. Both China and India, held as the champions of modernization in the global South, have used science and innovation to plan their own energy

futures. However, most participants pointed to these same countries as the main threats to the global energy (im)balance with their rapidly growing demands and aggressive pursuit of foreign energy deals.

The idea that the world has entered an era of Peak Oil was discussed; yet, if this were so, no consensus surfaced on what sort of response it would demand. Rather, there was a general recognition that Peak Oil must be taken quite seriously as a global policy challenge and deserves greater study. The potential implications of such an occurrence would require a massive effort by intergovernmental institutions to avoid widespread catastrophe. One participant passionately argued that if Peak Oil is indeed a reality it will be the global South that stands to lose the most in the global competition over resources. Although a $100 barrel of oil increases the commercial viability of alternatives, it greatly limits developing nations in their ability to run their existing oil-dependent economies or expand industry. World oil shortages could deprive the poorest countries of the resources needed to power their small economies if industrialized countries use additional market pressures to restrict access to supplies. Poorer nations have neither the wealth nor strategic capacity to enforce their will in the global energy market as the terms of trade are determined by the major economic powers. How will these nations respond to an energy crisis? What options do they have?

Security Implications

Increasingly, scholars and policy makers are accepting that energy and environmental issues will form the new set of security threats for the new century. On top of the possible risk of natural disasters, there are very real economic and geo-strategic dangers associated with the industry. The sharp increase in world energy prices (oil in particular) resulting from the explosion in demand from emerging economies has cultivated a climate of competition and unease in the global energy sector. Combined with the risk of global terrorist activity and the expansion of nuclear energy production in states that may not have peaceful intentions, energy has a very real security dimension.

China's energy deals with Iran, Sudan and Angola can be seen as a response to the US monopolization of "ethical oil."

Between the global North and South, there is a long narrative of grievances around resource colonization. One participant proposed that this history of subordination has given rise to alternative forms of dissent by African, Middle Eastern and Asian states within the context of world energy flows. The prominence of the Organization of Petroleum Exporting Countries (OPEC) as a trading bloc for many formerly colonized nations has been one vehicle for them to enact retribution, where collectively they are able to force compliance on former colonial powers. By a matter of fate or design, many of the world's major oil reserves are located in troubled areas. Any causal link between wealth in natural resources and the rise of authoritarian regimes was not fully explored during this session, but some participants introduced the idea that the control over natural resources by centralized powers is a growing concern for the future of global energy trade.

Although discussion focused mainly on the security of traditional energy resources, concern was expressed over the proliferation risks associated with the expansion of nuclear energy programs around the world — India and Pakistan being the classic examples. How can the trade in materials for nuclear energy production (of both uranium/plutonium and technology) be limited to peaceful states? Can this trade be governed?

Participants also expressed concern regarding China's outward-focused strategy for energy security. To fuel its massive economic growth over the last two decades, China has made significant trade deals with Iran, Sudan, Venezuela, Angola and others in the fray of the international system. The methods used by the People's Republic and those it has chosen as partners may at first seem seditious, but some participants acknowledged that the United States' monopolization of "ethical oil" has left China with little choice. Yet, as several participants pointed out, the US and other Western countries have indirectly benefited from these arrangements via China's cheap mercantile exports. Interrupting this supply would then have an unintended impact on Western economies.

The August 2003 blackout in Ontario and the American Northeast demonstrated that a small fire at a key electricity distribution hub could spark a major power disruption affecting millions of people, bringing regional economic activity to a halt. One participant raised this issue as a red flag for security officials and policy makers. Our heavy dependence on vital energy nodes, and the ease with which they can be knocked out, is a sign to terrorists of how simple it could be to interrupt the Western way of life. For this and many other reasons, energy systems must have redundant back-ups in the event of any disruption, natural or intentional. Participants called for greater depth and diversity within energy schemes, moving away from dependency on central trading hubs and ports to reduce the risk of attack or catastrophe. Thus, protection of critical infrastructure has serious national and international security implications. Pipelines, for instance, are attractive targets for terrorists and are also vulnerable to damage in natural disasters due to their remote locations. Threats to these pivotal chock-points can never be fully mitigated without alternate, redundant supply routes. Participants questioned whether the security of this infrastructure is best achieved by government or by industry. Here, there is a convergence of interests between the two, yet huge capital costs would be involved to sustain the network of pipelines.

Changes in environmental patterns caused by greenhouse gas emissions pose serious threats to critical energy infrastructure.

Critical Infrastructure

Some participants warned that the age and design of energy systems in industrialized nations pose greater security threats than the risk of terrorism. Securing critical infrastructure from decay, let alone natural disaster, should be a priority for decision makers. Massive improvements are needed in the North American electricity grid, for example, both to upgrade the huge network of generators, cables and transformers to meet new demands, and to restore aging equipment. Similar demands for the rehabilitation of energy-related infrastructure can be

found in countries across the world. Decisions made today to improve these systems or increase their capacity, however, will have lasting and unforeseeable impacts. Choosing to build expensive coal-burning or nuclear plants to meet immediate needs may be short-sighted. The high cost of these traditional systems, which have lengthy life-spans - in some cases up to 60 years - will limit the availability of capital for more efficient or environmentally friendly alternatives that may come online within the next five or ten years, such as innovative wind generators, solar panels or other inventions.

Yet hundreds of new facilities using old, wasteful technologies are being built annually. Industrialized and emerging economies alike have shown scant willingness to wait for better processes. The meeting participants identified a two-fold risk: either we suffer long-term environmental effects of old technology, or we chance pushing existing outdated facilities into extra decades of service until better methods replace them. Different types of energy production present different challenges. A broken pipeline can be fixed, damaged solar panels can be replaced, and an oil spill can be cleaned up, but a nuclear disaster could have immeasurable effects for generations. What then are the acceptable risks?

During the discussion on energy infrastructure, the interplay of the triangle of interests - energy economy, climate change, and security - became quite evident. Participants pointed to the character of energy and environmental systems, from extraction to emissions, as being predominantly cyclical. Environmental impacts from greenhouse gas emissions or pollution are changing the operations of energy production. In the North Atlantic, flows of icebergs are interrupting oil rigs and shipping routes. Hurricanes have demolished refineries and ripped out wind generators along the Gulf coast. Rising waves and cyclonic winds have broken the derricks and pipelines of many offshore operations. In Saudi Arabia, the infiltration of salt water from the Red Sea and the Persian Gulf has disrupted water-infused pumping in major oil fields. The melting of permafrost in Northern Canada has dislodged pipelines and sunken trucking routes. Climate change, then, induced in part by the burning of fossil fuels, is interrupting the established energy extraction processes and driving up the cost of doing business.

Energy policy is often interrupted by environmental policy, while good energy policy could address the root causes of climate change.

One alternative explored was the localization of energy production. It was suggested that in the developing world, this could be as easy as putting solar panels on huts to power stoves, fans or medical equipment. Here, the benefits of technology can be enjoyed with little cost or waste. In the industrialized world, localization could be achieved by encouraging wind-power in urban areas, or by building generating plants closer to cities so as to cut down on energy transmission losses. One participant suggested that this would also move the traditional energy system away from a "scale-free" network, which depends on a core set of hubs for refining and distribution. These systems have created a series of vulnerabilities and chock-points that threaten the steady flow of energy to major markets. It was suggested that an effort to localize energy production could alleviate the need for massive upgrading of aging systems, and could reduce security risks associated with centralized energy networks.

Governance and Leadership

Conspicuously absent in the international system are real mechanisms for global energy governance. There are two institutions that exist at the inter-governmental level, each with a constrained mandate focused on the interests of their selected member-states. In both organizations, energy security is strongly perceived through a nationalistic lens. On the one hand there is OPEC, a group of major oil-producing nations that acts as a bloc to maintain pressure on the world price through collective supply quotas. On the other there is the IEA, a department within the Organization for Economic Co-operation and Development (OECD), which provides detailed statistics and policy advice to the world's wealthiest and highest oil-consuming nations, most of which depend on substantial imports from OPEC members. The opposing interests of these two bodies have not fostered effective governance solutions among the key stakeholders. Moved by this dynamic, the group questioned why no institutional framework had been established to address energy security as a serious global project. Such an organization or institution would need to step outside the myopic production-consumption dilemma and seek effective management of energy flows across borders, monitor remaining fossil fuel supplies, and encourage adoption of alternatives. In order to prepare for a global energy crisis, or respond to one when it occurs, strong institutions will be needed to generate common standards among producers and consumers, and, more critically, arbitrate and force compliance to international energy policies.

The process of translating energy wealth into energy power is not linear. As seen in Canada, its influence in the global energy market is constrained by North American integration.

The group expressed its concern that energy policy, nationally and internationally, is often interrupted by environmental policy, or even seen as a sub-set of climate change issues. Rather, the group advanced the notion that energy should be the issue of policy primacy in all related discussions. Environmental issues should be treated as symptoms, with energy policy being used to address the root causes of climate change. On the question of the practical application of energy solutions, the group was split on whether market-based or policy-based approaches would have the most influence. There was skepticism expressed that governments could set limits on industrial emissions or fund massive infrastructure upgrades without incurring serious economic repercussions. At the same time, it was doubted that industry would champion these causes if it did not serve their immediate economic interests. Attempting to bridge these perspectives, one participant advocated a double-ended approach. In this proposed framework, the market would address the macro-level challenges of effective delivery systems and the introduction of alternatives for long-term market-share, while local-level policy initiatives would be directed at changing individuals' consumption habits.

With this appetite for renewal, energy companies have the opportunity to re-invent themselves. British Petroleum, for example, has attempted to re-brand itself as environmentally conscious. BP's former CEO John Browne was an example of how corporate leaders should be in the

trenches on these issues. Participants pointed out that it is in the best interests of energy companies to build goodwill with the public (their customers), as energy prices will soar.

Focusing on opportunities for Canada, the group largely disagreed with the current government's assertion that Canada is an "energy superpower." Canada is certainly endowed with great wealth in energy resources, from conventional and non-conventional fossil fuels to uranium deposits as well as forestry and hydro-electricity. Yet it was argued that despite these vast reserves, Canada has not translated energy wealth into energy power. Summing up much of the discussion in this area, one participant argued that Canada should only be considered an energy power when there are supply shortages in the United States - the near-exclusive market for Canadian energy goods. Although Canada's heavy integration with, and reliance on, the US energy sector has brought great wealth to energy hubs like Alberta, this relationship has constrained Canada's ability to diversify export markets and influence global policy.

In this sense, a distinction must be made between energy wealth and energy power. Turkey has shown it can be an energy power by controlling supply routes to Europe. The United States remains a significant energy power due to its supply shortfall and resulting huge imports, which allow it to dictate the terms of trade within the sector. Russia is perhaps the best example of how energy wealth can be translated into energy power, by concentrating state authority within the sector and being selective about those nations it is willing to supply. Lessons need to be learned from these examples. In this context, the group considered that perhaps Canada would not want to be an energy power.

Conclusions

A consensus emerged that action is needed both at macro and micro levels. Responsibility must be shared among all stakeholders, and practical solutions must originate from governments, corporations, as well as individuals - each plays a critical role in shifting the mindset on the complex issues raised by energy. System-wide solutions to tax bad behaviour and to encourage good practices can be introduced by both states and businesses. Additionally, long-range planning for an energy-efficient future combined with large investments in science and technology can lead to the development of innovative solutions to complex systems, avoiding the continuation of wasteful practices. New models of interaction across the system, from production to end-use, are needed.

New models of interaction between governments, energy companies and consumers are needed to address the growing energy myopia.

Science can help in developing greater efficiency in resource extraction and in reducing harmful emissions, but a change in the demand side of the equation requires the efforts of everyday people. While there should be a system-wide approach to a new energy future, one participant suggested that the largest impact on energy and environmental issues could come from a change in the pattern of energy consumption by individuals. The example of recycling was given,

wherein an innovative system that reduces unnecessary waste has been ingrained into the operations of many cities across the world in the short space of several decades.

The group concluded that there is a great need to secure critical infrastructure as well as trading routes. This, however, must be matched by investments in alternative solutions, such as localized production and the introduction of new fuels or new forms of electricity generation. Government and commercial sectors alike share the responsibility to offer viable solutions to all stakeholders around the world. Perhaps now more than ever, as competition sharpens and prices skyrocket, institutions matter. Intergovernmental organizations must go beyond their classic adversarial precepts and search for common ground. Energy need not be completely securitized. With clearer thinking and investment in alternative solutions, a balance between the interests of industrialized and emerging economies can be reached.

About CIC

The Canadian International Council (CIC) is a non-partisan, nationwide council established to strengthen Canada's role in international affairs. It seeks to advance research and dialogue on international issues by supporting a Canadian foreign policy network that crosses academic disciplines, policy areas, and economic sectors. The CIC will feature a privately funded fellowship program, which will be supported by a network of issue-specific working groups. Carefully selected CIC fellows will focus on important foreign policy issues, working out of universities and research institutions across the country.

Operating on the premise that the application of expert and evidence-based research on complex issues provides the cornerstone for effective policy, the CIC will take its place on the international stage in a role analogous to that of the Council on Foreign Relations in the United States, Chatham House in the United Kingdom, and the European Council on Foreign Relations.

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