



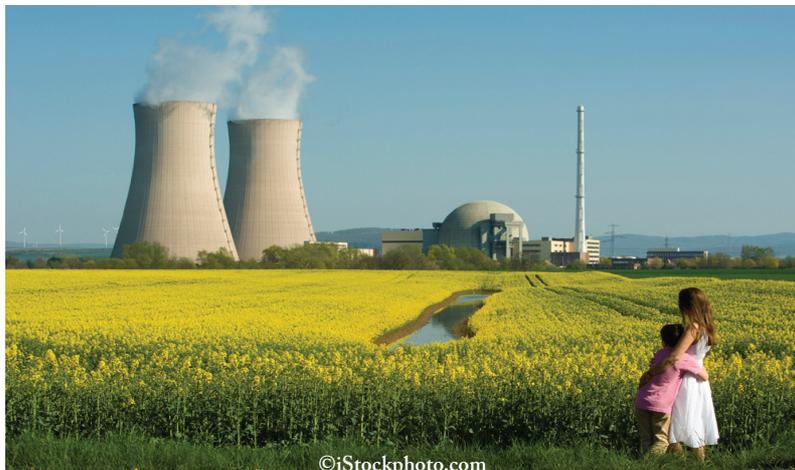
CENTRE FOR NON-TRADITIONAL SECURITY (NTS) STUDIES

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Energy and Non-Traditional Security: A Tripartite Approach



Energy supply and price volatility are no longer the only concerns that constitute contemporary energy security problems, which now comprise environmental and socioeconomic issues. Mitigating these non-traditional security concerns relating to energy use would necessitate a tripartite approach which revolves around harnessing technological solutions, implementing good market governance as well as complementing the role of the state with participation from civil societies.

by Collin Koh and Mely Caballero-Anthony

With a projected rise in future demand for energy and, in the face of energy price and supply volatility, energy security prospects look far from certain. When oil price struck a record US\$145 per barrel by the end of July 2008, its tremors could be felt almost everywhere, with vigorous popular calls for immediate government action to alleviate the plight of the average consumer on the streets.

According to the International Energy Agency (IEA), global energy usage increased by 23 percent between 1990 and 2005, with a corresponding 25 percent increase in GHG emission while the global electricity demand had increased by 54 percent, with oil products constituting the most important part of the total energy mix at 37 percent. In another IEA study, the global oil demand was expected to reach 87.7 million barrels per day (mb/d) in 2009, constituting an annual increment of one percent from the 86.9 mb/d in 2008.

Based on these past and present trends, an IEA Reference Scenario postulated that the world's primary energy demand is expected to grow by 55 percent between 2005 and 2030, in part driven by increased demands from rapidly-growing economies such as China and India. However, energy security is no longer merely concerned about the security of supply and demand when global warming caused by the release of greenhouse gas (GHG) emissions from the burning of fossil fuels has also emerged as a perennial concern for mankind. Indeed, the increasing share of coal projected in the Reference Scenario envisaged a corresponding increase in GHG emissions.

The interdependent nature of such non-traditional security problems as the environment and socioeconomic impacts due to energy usage requires a new energy security approach.

Two Faces of Energy and Non-Traditional Security

Although ensuring supply security dominates the energy security agendas of governments, non-traditional security aspects of energy use, such as the impact of climate change, have gained increasing recognition. The need to address energy-related environmental and socioeconomic problems does pose a major challenge for policymakers today.

Environmental Dimension

The most dominant issue about the environmental impact of energy usage is GHG emission, caused by the burning of fossil fuels, leading to ozone layer depletion and increased global warming, consequently resulting in the melting of ice glaciers, the rise in sea levels and coastal flooding. An estimated one million people in South and Southeast Asia have been placed at risk from flooding along the coastal regions, with negative impact on the infrastructure as well as the aquaculture. The enduring dominance of fossil fuels, such as the highly-polluting coal, in the total energy mix projected until 2030 would lead to increased GHG emissions. This continual 'addiction' to traditional energy, in part caused by insufficient demand-curbing measures as well as the slow induction of cleaner fuel sources, could have long-term and diverse environmental and health consequences.

Another concern stems from energy infrastructure development, which could potentially lead to environmental degradation. For instance, the World Bank-funded Laos-Thailand Nam Theun 2 hydroelectric power (HEP) project could have flooded approximately 450 km² of the Nakai Plateau which is home to a rich biodiversity, with entailing adverse impact on the livelihood of the inhabitants. Indeed, this project might have displaced about 4500 inhabitants and another 40,000 would be affected.

Even if alternative fuel sources are contemplated, there would also be concerns over their potential environmental impact. Nuclear power in particular has always been linked to environmental and safety risks posed by improper radioactive waste disposal and catastrophic breakdown, with serious transnational environmental repercussions reminiscent of Chernobyl in the 1980s.

Socioeconomic Dimension

Energy has been central to socioeconomic development, especially so for newly-industri-

alized nations. Governments in these countries are socio-politically vulnerable to energy price and supply volatility insofar government inaction might lead to social unrest. Fuel subsidies in some countries could only mitigate this problem in the short run but would provide consumer incentives to increase energy usage and also reduce incentives for industries to introduce energy efficiency measures or alternative fuels.

Indonesia for instance faces a dilemma despite having the lowest local fuel prices in Asia due to the energy price hikes in May 2008: an increasing inability to continue funding subsidies versus the political expediency due to an upcoming election. Cutting fuel subsidies, deemed a politically inexpedient move, could risk straining government financial resources and thus not only impede the ability to sustain or extend subsidies but also divert scarce resources from more tangible socioeconomic development programs. The impact of such would be even more adverse for financially less-endowed nations.

Energy-related socioeconomic impact could also be viewed from the perspective of governance deficit. For instance, in the absence of adequate central government purview, the implementation of local energy projects in China, in order to feed the rising demand, had been fraught with socioeconomic marginalization issues such as discrimination against migrants displaced by HEP development projects, reported abuse of workers' rights as well as work accidents in unsafe coal mines. A notable example had been the case of the Yumen City in China's Gansu Province, whose oil revenue-reliant local government had become increasingly indebted as production from the Yumen Oilfield declined, leading to the deterioration of economic conditions.

The Way Forward

In the face of volatile energy prices and supply, increasing demand, slow transition to alternative fuels as well as the anticipated climate change due to the persistent utilization of fossil fuels, there is a need in the short run to meet rising energy demands while in the long run, energy efficiency and cleaner, alternative fuel sources would be the imperative solutions. Nevertheless, from both standpoints, energy-related investments have to be bolstered. Therefore, a rethink along the tripartite approach – technology, civil societies and market governance – might be necessary in order to ensure energy security.

Harnessing Technology

Technology in the globalization era has become the solution towards improving our way of life and to facilitate socioeconomic development. In this respect, technology and energy security are tightly interwoven. To increase the acceptability of fossil fuels, which would continue to dominate the world energy mix for the foreseeable future, there has to be huge investments in areas such as the newly-conceived carbon capture and storage (CCS) techniques to allow for 'cleaner' use of coal. However, cleaner, alternative energy, not fossil fuels, would constitute the long term measure. Biofuels constitute one such promising field although existing first-generation technology was reportedly unable to significantly improve energy security.

Geographical limitations and security risks on the energy supply chain would also require technological solutions. For instance, technology could allow for easier transportation of

energy products, such as liquefying natural gas to reduce reliance on overland pipelines which are subject to geopolitical disruptions. Managing energy demand through technological solutions could aid energy conservation, thereby sustaining energy resources. The use of fuel cells, such as the Rolls Royce venture on aircraft fuel-cell engines, could constitute a significant energy-saving measure.

To realize these technological dreams towards ensuring energy security, however, tremendous amounts of investments would be required for research and development (R&D), which requires long gestation periods and considerable costs, yet beset by uncertain outcomes. The increased investments had been blunted by rising costs; investments in 2005 were reportedly lower than that in 2000 and capacity additions due to planned upstream investment out to 2010 would boost global spare crude production only slightly – one of the reasons being regulatory delay. As such, good market governance would be necessary to facilitate efficient and effective energy investments.

Instituting Good Market Governance

Riding on the wave of globalization, the provision of energy-related public goods has shifted from the state responsibility increasingly towards the private sector, drawing benefits from free market principles. However, the drawbacks of doing so could be seen through antecedents, one of which being the Chad-Cameroon oil pipeline project in 2000 that allegedly only benefited foreign investors, in the absence of local government regulations, at the expense of citizens' rights and the environment. Solely relying on government has its pitfalls too. Exercising governance in the name of energy security could risk potential abuse by the political leadership for parochial ends, taking for instance the exploitation of energy revenues by the military junta in Myanmar to purportedly fund grandiose projects and weapon acquisitions while the population at large remains in abject poverty.

Therefore, relying on market or governance mechanism alone could not ensure energy security. The market governance approach, embracing such basic tenets as transparency, accountability, flexibility and respect for competition principles could provide an environment conducive for investors, in particular the increasingly important small- and medium-sized enterprises which occupy specialist niches on innovative energy solutions.

Notwithstanding the failure to agree on numerical carbon emissions limits during the recent G-8 Summit, there has been growing recognition and interest in the exercise of market governance towards addressing energy security issues. For instance in 2006, there were calls for an independent power regulator prior to privatizing the Electrical Generating Authority of Thailand. In 2007, the United States Federal Energy Regulatory Commission adopted new guidelines to enhance accountability among market operators and hence promote competition.

Engaging Civil Societies

The concept of governance has since evolved into a broader concept encompassing all actors – state and non-state – towards achieving sustainable human development objectives at the corporate, national, regional and global levels. In the area of energy security, civil societies have served as advocates for environmental protection, 'watchdogs' over

government policies as well as raising public awareness in supporting or rejecting government initiatives. For instance, there had been increased space for civil society involvement in Indonesia, in particular occasional invitations to ad-hoc government and public consultations.

Aided by the advent of sophisticated information and technological technology (ICT), which has become increasingly proliferated throughout the societies, many civil societies have been able to conduct their own researches and released reliable information that could serve as an alternative to official government publications. Backed by sufficient data, they had become increasingly successful in pushing through their agenda with respect to energy security issues. A notable instance could be seen in the permission granted by the federal court for environmentalist groupings Friends of the Earth and Greenpeace to proceed with a global warming lawsuit against two US government agencies that fund oil and gas projects.

In the case of East Asia for instance, where civil society involvement has been nascent, there is room for improvement. This could take the form of creating comprehensive agendas among civil societies in order to gain greater bargaining power with the government, continuing to work through formal processes and demand for more access and transparency from governments, as well as strengthening civil society networks at both domestic and regional levels which could help in expanding the knowledge base and advocacy power.

Final Thoughts

Contemporary energy security no longer concerns only the security of supply, but also other non-traditional security issues such as environmental and socioeconomic impacts. Faced with the rising energy demand, continued heavy reliance on fossil fuels as well as the dire consequences of global warming, the long-term solution remains the development of energy efficiency and alternative fuel technologies. This is easier said than to be done; energy R&D investments entail long gestation periods and immense costs, often with uncertain outcomes. Engendering support for such investments requires more effort in exercising proper market governance. Civil societies would become increasingly important especially in helping to ensure public accountability of governance. Thus, a tripartite approach amalgamating technology, state and non-state actors in the form of market governance and civil societies could help to ensure sustainable human development through adequate energy access and environmental protection.

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