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BOOK REVIEW ROUNDTABLE

Elizabeth C. Economy and Michael Levi's

By All Means Necessary:
How China's Resource Quest Is Changing the World

New York: Oxford University Press, 2014
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Llewelyn Hughes

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Don't Panic! China and the Second Energy Revolution

Llewelyn Hughes

Understanding the implications of China's rising demand for natural resources requires an appreciation of scale. If we focus on fossil fuels, Chinese oil consumption increased from 216,000 to over 10.7 million barrels per day in the almost five decades between 1965 and 2013, rising from less than 1% to more than 12% of aggregate global demand. Demand for natural gas, on the other hand, increased from 1.1 to almost 161 billion cubic meters. Most impressively, Chinese consumers' demand for coal grew from 114 to 1,925 million tonnes of oil equivalent (mtoe). By comparison, aggregate annual coal consumption in the next 50 countries—including the United States and India—stood at 1,802 mtoe.[1]

The rise of the United States, Europe, Japan, and Russia to current levels of wealth was matched by a similarly extraordinary growth in the use of natural resources, an increase that economic downturns, wars, and revolutions did little to halt. History thus suggests that while the rate of increase in China's demand may slow, it will not stop. BP's business-as-usual case for future growth in energy demand reflects this, projecting that China's demand for all energy sources will be double that of the United States by 2035 and almost four times that of India.[2] If the United States is a military superpower—investing more in military hardware than the next ten countries combined—then China is surely the emerging superconsumer in natural resource markets.

Elizabeth Economy and Michael Levi's *By All Means Necessary: How China's Resource Quest Is Changing the World* thus does us a service by examining an important aspect of the ongoing transformation of the structure of global resource demand: the implications of China's rising consumption of natural resources for its external behavior. The book is structured around chapters describing the emergence of China as a large

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1 BP, "Statistical Review of World Energy 2014" ~ http://www.bp.com/content/dam/bp/excel/Energy-Economics/statistical-review-2014/BP-Statistical_Review_of_world_energy_2014_workbook.xlsx.

2 BP, "Energy Outlook 2035," available at http://www.bp.com/en/global/corporate/about-bp/energy-economics/energy-outlook/energy-outlook-downloads.html.

resource consumer and those analyzing the implications of this change for developing countries, developed countries, and the U.S. military and its allies.

By All Means Necessary has many strengths. Most importantly, it avoids simple conclusions about the implications of the rise in Chinese consumer demand for energy products. The authors rightly note that the structure of markets governing supply and demand differs markedly across natural resources, with important implications for the external impact of growth in Chinese demand. While China imports the bulk of the oil consumed domestically, for example, the authors show that the oil supply chain is more resilient than it was in the prewar decades when U.S. and European firms and governments sparred for control over the right to manage reserves and production outside the United States. Economy and Levi convincingly argue that this difference makes the market better able to accommodate the emergence of new demand centers and the firms headquartered in them. In contrast, they note that natural gas markets are regionalized, which implies less flexibility, but they also suggest that China's influence on these markets is constrained by the limits of infrastructure and the continued dominance of coal.

Economy and Levi are also careful to note the areas where problems remain. Chief among these is in maritime transport. They argue that while pipelines meet some of China's demand for oil and gas, shipping makes up the bulk of Chinese supply. U.S. military dominance of the sea and airspace—something that will not change in the near to medium term—means that there will be continued tension with the United States as Chinese officials look to enhance security along the supply chain.

The authors also offer a nuanced account of Chinese firms' behavior. They note that the behavior of firms such as Sinopec and the China National Offshore Oil Corporation (CNOOC) often does not differ substantially from that of other international firms. Chinese firms seek to secure access to more lucrative acreage internationally and are willing to use the support of their home government to manage political risk and to help them compete. This is a description that fits almost every firm headquartered in a major energy-importing state.

Economy and Levi further argue that the implications of increased levels of outward FDI for economic development in Africa and elsewhere are more complicated than simple labels might suggest. While the use of Chinese labor is a pattern less commonly seen in firms based in other countries and may impede developmental goals, for example, Chinese firms also provide capital and infrastructure, which can support developmental goals.

There are inevitably areas that cannot be given a full treatment in a book that seeks to cover this much ground. Three are worth highlighting. First, the authors note a number of levers through which governments seeks to influence the choices that firm managers make, but they do not convey a strong sense of how effective this control is and what the implications are for China's external behavior. The experiences of other countries that adopted interventionist approaches in natural resource markets suggest the ability of governments to make firms their agents is mixed and can lead to poor governance outcomes both at home and abroad. In the case of France, for example, Elf-Aquitaine's investments in North Africa led to multiple arrests for embezzlement and revealed a deeply problematic relationship between the firm and French foreign policy goals. Recent investigations into executives at PetroChina suggest similar dynamics may be at work in China. While less extreme, the Japanese government's intervention in domestic firms' investment strategies led to investments in an array of wasteful international projects.

Although the authors do give us some sense of how the balance between state and corporate power is changing in areas such as corporate social responsibility, I wanted to know more about how this is influencing behavior on the ground. To take the example of the French oil sector once again, the public listing of both Elf and the Compagnie Française des Pétroles (now Total) made managers simultaneously less dependent on the government and more unhappy about its inability to provide capital sufficient to retain state shareholding levels while allowing the company to grow. Eventually, this helped rebalance relations between firms and the government and led to real changes in the size and location of investments. Reforms of Chinese state-owned enterprises, including the public listings of firms in Hong Kong, New York, and elsewhere, are likely to have similar effects. *By All Means Necessary* left me wanting to know more about how this has changed Chinese firms' appetite for political risk, their willingness to overpay for assets internationally, and their incentives to cooperate with the government.

A second important issue relates to Chinese firms' entry into markets unrelated to fossil fuel–based resources. In addition to managing the rise of imports through diversification and improving firm competitiveness, states can promote a shift in the structure of energy demand. An HSBC Bank study from 2009 shows that China outspent all other governments in the amounts it allocated toward "green" spending in its fiscal stimulus package designed to respond to the global financial crisis.[3] Chinese manufacturers' ability to enhance their competitiveness in photovoltaics, nuclear power, electric vehicle technologies, and other sectors suggests that this is another important area of China's external behavior related to its growing demand for natural resources. While a comprehensive treatment of the efforts of both Chinese firms and the government in this area lies beyond the scope of a single volume, some discussion may have been warranted.

Finally, Economy and Levi begin the book by asking whether "China's quest for energy, minerals, land, and water…[is] fundamentally changing the world," (p. 7) but they note in the preface that they have chosen not to discuss the problem of climate change (p. vii). Both authors have written extensively elsewhere on the environmental implications of natural resource demand, and I can understand this choice: writing about natural resource markets inevitably means narrowing the focus to something manageable. Yet it is only a mild exaggeration to state that we can solve climate change by meeting U.S., Chinese, and Indian demand in a non–carbon intensive way. I thus finished the book wishing the authors had discussed how the rise in China's growing demand for natural resources, and the changing relations between firms and the government, interacts with the country's approach to climate change. Are the greater size and competitiveness of Chinese firms increasing their influence over the government's approach toward climate change? Are the risks of China's maritime supply vulnerabilities leading policymakers to reduce exposure to imports by favoring coal over natural gas in power generation? Or are firms, and the government, trying to manage the risks of resource security and climate change together through the decarbonization of China's energy system? I reached the end of the book wanting to know more.

Regardless, Economy and Levi have produced an excellent volume that sheds light on the domestic sources of Chinese firms' and policymakers' strategies toward China's rising demand for natural resources and offers insight into the implications for the country's external behavior. Their book deserves to be read by all with an interest in the subject.

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3 Nick Robins, Robert Clover, and Charanjit Singh, "A Climate for Recovery: The Colour of Stimulus Goes Green," HSBC, February 25, 2009.

How China's Resource Quest Is Changing China

Trevor Houser

China's economic emergence has been a defining event for global energy and commodity markets. Over the past decade, China has accounted for more than half of the growth in global energy demand and today consumes more than half of the iron ore, cement, copper, and a host of other commodities produced around the world. The stock of global direct investment by Chinese companies has grown from $53 billion in 2004 to $609 billion in 2013, a significant share of which is in natural resources.

In *By All Means Necessary: How China's Resource Quest Is Changing the World*, Elizabeth Economy and Michael Levi help us make sense of Chinese natural resource trade and investment. While the title suggests the book might succumb to the alarmism and hyperbole that often dominates both public and academic discussions of China's rise, it is in fact an exceedingly nuanced, balanced, and well-researched assessment. The combination of Economy's deep China expertise and Levi's natural resource market and energy policy acumen provides an extremely valuable contribution.

The book's chief strength is its combination of compelling storytelling and in-depth analysis—a commodity rarer than any resource Chinese companies search for around the globe. The authors put recent Chinese natural resource trade and investment trends in context, discussing precedents from Chinese history as well as from the economic emergence of the United States and Japan. They debunk the view, widely held in the West, that Chinese companies work in lockstep with the government, seeking to improve the security of the Chinese state at the expense of companies and countries elsewhere in the world. The book shows instead that Chinese companies are primarily commercially driven and that their motivations and interests often differ from the government's, just as is the case in Europe, Japan, and the United States.

Economy and Levi rightly note that the most significant global impact of China's resource quest to date has been the country's rapid growth in energy and commodity consumption. This has put upward pressure on global prices and helped enrich resource-producing states. But what Chinese demand giveth, it can also taketh away. The growth of Chinese resource

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consumption has slowed dramatically over the past few years, leading to a sharp correction in the price of many commodities. Iron ore and copper prices fell by more than one-third between 2011 and 2013, and aluminum, steel, and coal prices have declined sharply as well. This development has been painful for resource exporters, from Australia to Chile and Brazil. And if the leadership is successful in "rebalancing" the Chinese economy from investment and industrial production toward services and domestic consumption, the resource-intensity of Chinese growth will likely continue to decline.

Economy and Levi judiciously evaluate the positive and negative impacts of global resource investment by Chinese companies, both for recipient countries and competing firms. As the authors point out, Chinese resource investment has had less impact than Chinese imports of foreign-produced goods, despite attracting equal if not greater attention by foreign policymakers, scholars, and the press. Chinese companies are late to the resource game and often must pick through the scraps that U.S., Japanese, and European companies do not want to touch. Diplomatic support from Beijing and low-cost capital from state-owned banks help Chinese companies compete for investment opportunities in many developing countries. The relationship between the companies and the government, however, is a liability when it comes to investing in developed countries. Politicians and regulators in most developed country markets give foreign investment by state-owned enterprises extra scrutiny. This is bad news for Chinese companies, as the U.S. shale boom and Canadian oil sands development have shifted the center of global energy investment to North America. Chinese companies have successfully invested in both countries but face political hurdles not shared by their Japanese, European, or Indian counterparts.

Finally, and most importantly, the authors discuss the ways in which China's quest for natural resources is changing China itself. The country's surge in resource demand alarmed policymakers in Beijing as much, if not more, than policymakers in Washington, Brussels, or Tokyo. While growing resource demand has likely increased Chinese assertiveness in territorial disputes in the South and East China Seas, it has had positive domestic impacts as well. Concerns over resource adequacy have helped catalyze policy initiatives aimed at improving energy efficiency and environmental protection. Chinese diplomats no longer offer blind support for commercially driven investment around the world and are increasingly seeking to ensure that the behavior of Chinese companies abroad reflects well on China as a whole. Greater demand for and investment in foreign resources have made China a more committed stakeholder in many of the international institutions established by the West and increased Chinese companies' familiarity with international business norms.

These positive effects will likely grow in the years ahead. My colleagues Daniel Rosen and Thilo Hanemann estimate that the stock of global direct investment by Chinese firms will grow to $1–$2.5 trillion by 2020.[1] While the first wave of Chinese foreign investment was directed at trade facilitation and resource extraction in developing countries, in recent years Chinese capital flows have gravitated toward developed economies and are increasingly motivated by the desire to gain access to technology and markets for higher-value-added products. As the Chinese economy is maturing and the growth model is changing, Chinese firms are increasingly targeting brands, technology, and consumer-related assets in advanced economies. Given that the business practices and government relationships Economy and Levi identify as most problematic in past resource investments are also Chinese companies' biggest liabilities as they look to compete in developed countries, including for non-resource assets, this shift in investment focus will likely continue to change Chinese practices in constructive ways. *By All Means Necessary* serves as an excellent and balanced assessment of the first chapter in Chinese overseas investment and as a perfect scene-setter for the chapter to come.

1 Daniel H. Rosen and Thilo Hanemann, "An American Open Door: Maximizing the Benefits of Chinese Foreign Direct Investment," Asia Society, Special Report, May 2011.

Resources for Change

Elizabeth Wishnick

Three decades ago, China was an oil exporter—sales of its fossil fuels accounted for nearly one-quarter of the country's GDP and helped finance its economic reforms. After 30 years of rapid economic growth, China has now surpassed the United States as the world's largest net oil importer. The country's surging demand for energy, as well as for mineral resources and food products, has contributed to rising prices and raised fears about Chinese state-owned companies scouring the world for resources and locking up supplies.

Is China's global quest for resources a game changer? In *By All Means Necessary: How China's Resource Quest Is Changing the World*, a wide-ranging analysis of Chinese resource-acquisition strategies, Elizabeth Economy and Michael Levi debunk alarmist myths about China's growing footprint in global resource markets. They are uniquely placed to do so—Economy is an expert on China's environment, resources, and foreign policy, while Levi is an authority on energy policy, climate, and technology. Unlike many recent books that focus on China's demand for a particular resource, *By All Means Necessary* compares China's global quests for oil, gas, minerals, food, and water. The authors argue that it is necessary to examine the particular dynamics in each resource sector to assess the impact of Chinese demand and corporate practices. In particular, Economy and Levi caution against attributing recent increases in resource prices to China's pressure on markets.

Oil producers, for example, have revenue targets. Once met, if prices are high enough, there is little incentive to increase supply regardless of demand pressures from China and other countries (p. 26). Moreover, contrary to the oft-heard trope about Chinese state oil companies locking up supplies, their production activities actually bring more oil to world markets. Some economists further note that the oil used in China's production of goods for export—known as embodied oil—obviates the need by other countries for that oil in their own production process because they buy the finished

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products from China. Chinese demand for oil, in effect, reflects global demand for goods produced in China.[1]

In the case of iron ore, developments in the Chinese steel industry unintentionally made the dynamics of the global iron trade more market-oriented. Economy and Levi recount how the emergence of small steelmaking companies in China undercut efforts by major Chinese firms to demand lower prices from the three main global producers of iron ore, Vale, Rio Tinto, and BHP Billiton, which control 70% of the trade (p. 37). As a result of changes in the Chinese industry, the iron trade shifted radically from an emphasis on long-term contracts to a system where spot markets play a much greater role (p. 39).

According to Economy and Levi, it is in commercial relationships where China's impact is increasingly felt, as Chinese companies invest more extensively in a wide variety of countries and sectors (p. 45). Chinese firms are relatively new players and have to work harder to make friends, drawing on networks of informal and personal relationships. This can cause deals to unravel when the leadership changes in target countries. Chinese companies may also overbid or overpromise to win a deal, only to see their projects collapse or turn out to be less profitable than anticipated (p. 73).

The complex interconnections between Chinese political and economic elites present both opportunities and risks. Unlike in other countries, Chinese companies can depend on top political leaders to act as "diplomat deal makers" (p. 72). However, this means that political disputes have the potential to spill over into trade and investment, as was seen in 2010 when increased tensions between China and Japan disrupted the trade in rare earths between the two countries (p. 75).

China claims to follow the principle of "noninterference" in the domestic affairs of other states, and its companies enter into deals with none of the preconditions on human rights, governance, or environmental protection that Western countries demand. Authoritarian governments appreciate this no-strings policy, which enables Chinese companies to seek opportunities that Western companies have left aside in countries such as Sudan, North Korea, and Afghanistan. However, such investments complicate Chinese foreign policy when partner states are subject to international sanctions or are riddled with corruption, instability, and human rights abuses.

1 Xu Tang, Baosheng Zhang, Lianyong Feng, Simon Snowden, and Mikael Höök, "Net Oil Exports Embodied in China's International Trade: An Input-Output Analysis," *Energy* 48, no. 1 (2012): 471.

Economy and Levi note that Chinese "firms and officials behave abroad in very much the same way they behave at home" (p. 71). These practices include a lack of transparency, substandard labor practices, inattention to environmental consequences, and an overriding interest in using investments to generate employment for Chinese citizens, either in resource extraction overseas or in processing at home. According to Economy and Levi, Chinese companies, like many other multinationals, argue that it is up to the host country to enforce governance standards (p. 191). They also observe that corruption is a two-way street, involving corrupt investors as well as host-country partners. Nonetheless, Economy and Levi see some recent efforts by Chinese NGOs and banks to demand improvement in corporate social responsibility. Fearing harm to China's reputation, for example, the China Development Bank and Export-Import Bank of China have had some success in using their leverage to make concessionary loans to Chinese firms in exchange for adherence to environmental and social guidelines (p. 103).

Although there are many books about China's growing footprint on the world's resources, *By All Means Necessary* makes an important contribution by presenting the other side of the story—the impact of overseas investments on China itself. Economy and Levi write that "it is not only the world that is being changed. China is changing as well" (p. 191). In response to higher commodity prices (in part caused by greater Chinese demand), the Chinese government has endeavored to improve energy efficiency and increase domestic production, particularly of grains. To gain a foothold in new markets and acquire new skills, Chinese firms increasingly are partnering with foreign companies. Where corporate social responsibility is taken more seriously, Chinese companies are obliged to adapt (p. 192). Economy and Levi show that China's investments face the most scrutiny in developed countries like Australia, Canada, and the United States or in developing countries facing a transition to democracy, such as Burma.

What the authors leave unsaid is which transformative force they think will prevail: will China change the world more or will China's own transformation be the more profound one? Economy and Levi admit that the scale of China's resource demand is unprecedented. For this reason, the comparison they establish with Japan's quest for resources in the 1960s and 1970s (see pp. 3–5) seems misplaced. Although the surge in Japanese resource demand and expansion of state-supported investments may have been controversial at the time, the scope of these pressures on global markets was different because Japan has one-tenth of the Chinese population. Moreover, pressures from Japanese companies soon abated in the 1990s once the Japanese economy began to stagnate, while China's sustained economic growth and expanding middle class portend increasing demand for resources. As a democracy and a U.S. ally, the Japanese government and the firms it supported were also more accountable to domestic and international publics.

Another reason this question is difficult to answer is that China's development path involves many unknowns. Despite calls by Chinese leaders and influential experts for the country to pursue a more sustainable development policy, the authors acknowledge that "China has not managed to follow a resource-efficient, environmentally friendly developmental path; by most measures, it ranks as one of the most energy-inefficient and polluted countries in the world" (p. 78).

Even as China exports its model to the developing world, Economy and Levi find the prospect of resource wars in the Middle East or Africa unlikely, due to China's limited power-projection capability (p. 139). The authors note, however, that China's resource quest comes at a time of rising nationalism and military capacity (p. 163). Even if we assume that the expansion of naval capacity and efforts to diversify sources of resource supply, particularly oil and gas, are driven by China's concerns about its own perceived vulnerabilities, other states may nonetheless view some of these activities as threatening their own interests, creating security dilemmas that are difficult to resolve. The focus of *By All Means Necessary* is primarily on China's commercial relationships, and it would have been interesting for the book to explore the foreign policy implications of these relationships further.

Economy and Levi see changes in Chinese corporate governance as the primary vehicle for reducing tensions with host countries, although they optimistically leave open the possibility that new cooperative mechanisms may emerge to address conflicts between China and its resource partners—on water issues, for example (p. 163). Yet China's lack of multilateral engagement to date on resource issues and its preference for bilateral mechanisms will leave smaller, weaker states without much recourse. Is better corporate governance an adequate solution to allegations in the developing world that China is acting like a colonial power? The authors raise this intriguing question in chapter five but do not answer it fully. According to Economy and Levi, countries like the United States will need to play the leading role in ensuring that China's engagement in resource-producing regions remains benign.

By All Means Necessary weaves a complex tale in explaining the myriad consequences of China's global quest for resources. What emerges most strongly is that China's overseas involvement is not a one-way extraction; rather, it is a learning process that will change China as well as the world. Australia and Canada have already sought to restrict Chinese investments in their resource sectors, and Economy and Levi foresee similar policy changes in the United States in the event of attempts by Chinese firms to acquire a major U.S. resource producer. The authors argue, however, that thus far "China and its companies have had to change most" (p. 137).

Far-flung investments by Chinese companies have required China to develop the capability to remove Chinese workers in an emergency, as was the case in Libya in 2011. Similarly, oil investments in Africa have provided China with an incentive to participate in a series of extensive antipiracy missions in the Gulf of Aden since 2008. Nonetheless, changes in China's approach to corporate responsibility will depend on progress in human rights, environmental protection, and anti-corruption measures at home, all of which face major political hurdles.

Moreover, although China's growing demand for resources reflects its dependence on other countries, major investments by Chinese companies compound security dilemmas in China's relations with other states, as the steps China takes to reduce its resource vulnerabilities are viewed as threats to the interests of others. As Minxin Pei has noted, China is "the loneliest superpower," with many business partners but few real friends.[2]

2 Minxin Pei, "The Loneliest Superpower," *Foreign Policy*, March 20, 2012 ~ http://www.foreignpolicy.com/articles/2012/03/20/the_loneliest_superpower.

Shedding Light on the Study of Energy Security

Wojtek M. Wolfe

Combining their expertise on the politics of China and energy policy, Elizabeth Economy and Michael Levi have produced an excellent book that gives China security and energy policy analysts an up-to-date perspective on the growing body of literature in these fields. *By All Means Necessary: How China's Resource Quest Is Changing the World* is a genuinely rare book for two reasons: First, it provides outstanding depth while examining wide-ranging topics on China's energy trade, mineral acquisition, cross-border water issues, and acquisition strategies. Second, the book is a welcome contribution to the field because its analysis of complex issues maintains a high level of objectivity on policy topics easily politicized. Economy and Levi's high standard of research and analysis is evident throughout each of the book's distinct focus areas examining China's energy-seeking activities.

China's quest for resources has become difficult to ignore as it has increased in intensity over the past two decades, drawing greater international attention to the country's questionable choices of energy trading partners and escalation of tensions in the South China Sea. In keeping with the objective and balanced nature of the book, Economy and Levi argue that while China's actions are not entirely benign, many "pundits, scholars, and policy makers have too often blown China's resource quest and its consequences out of proportion with reality" (p. 8). The authors find that China's tactics do not differ greatly from previous attempts by other states to satisfy growing energy demand, though they do concede that Beijing's strategy has and continues to create political challenges for its neighbors and the United States. The future of these strategies rests in Beijing's guidance and in the institutions tasked with carrying out energy-seeking activities. Throughout *By All Means Necessary*, Economy and Levi ask how China's natural resource quest is changing the world and if China itself is being changed as it seeks various forms of energy security. These are important questions, and the book examines each area of resource exploration with an in-depth understanding of the industries and politics involved in China's resource-acquisition process.

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The book places China's resource quest in a historical context that helps observers better understand Beijing's unwillingness to fully embrace international energy markets, commodity exchanges, and resource interdependence with the West. The authors' historical narrative provides insights on China's contemporary energy security strategy. China's past international trade experience and the "unequal treaties" of the 1800s made the country inherently biased against global markets, which helps explain the recent leadership's cautious attitude about increasing market dependence. *By All Means Necessary* makes note of the divide between Beijing's early hopes for energy independence and the geoeconomic realities facing rising powers. Fortunately, China's leadership has been coming to grips with those realities, evidenced by its steadily rising dependence on Western-backed international energy markets and sea lanes.

Economy and Levi point out that China's nationally owned energy companies have been increasing their knowledge of corporate social responsibility norms and practices, which may help them seek more profitable and less risky investments in the future. As the authors observe, such practices must begin at home, because they influence the quality of governance that China exports to resource-rich states. In her work on this issue, Erica Downs has also noted that China's national oil companies have been slowly gaining the necessary international experience and attracting business talent with the skills needed to avoid the politically and economically risky investments that have led to significant financial losses while damaging these companies' reputations among future trading partners.

Energy trade typically consumes a small percentage of a country's trade balance, and China is no exception to this rule. Despite this economic reality, energy and resource trading strikes a strong chord among pundits and politicians alike. Some of the early literature in this field focused on China's potential impact on the oil markets and accused the country of seeking to lock up global oil supplies. Some of those arguments were based on intuitive rather than empirical assessments. *By All Means Necessary* does a great service to the field by providing empirical evidence that crude oil markets have held up rather well over the past two decades. Compared with other tradable energy and mineral products, global oil commodity exchanges are highly transparent and regulated markets, leaving little institutional opportunity for long-term manipulation of futures contracts. The authors' findings add to and support already existing information about energy markets. The fears that China would lock up oil supplies thus never came to fruition. Even at maximum import rates, China's equity-oil deals account for less than 5% of the country's total oil imports, and that figure has increased by only 4% from six years ago.

Since three-quarters of the world's oil reserves are off limits to direct equity-oil investments, the pursuit of equity oil as a long-term energy security strategy may have limited growth potential. Consequently, China's energy-acquisition strategy has increased its dependence on traditional oil markets and recently heightened its focus on natural gas imports. Both conventional and unconventional natural gas are rapidly growing commodities, especially in North America, where they are increasing in availability and fungibility.

Economy and Levi's extensive fieldwork provides a solid grounding for their description of the impact of these multifaceted resource-acquisition activities on relevant industries. The book's even greater contribution, however, is in its analysis of the interplay between state political actors, national oil companies, and the financial institutions involved in China's energy trade. The simple equity-oil explanation cannot explain the many drivers of institutional and political actors. All these activities occur inside the complex realm of China's domestic politics, while interacting with global markets, regional commodity exchanges, and occasionally opaque bilateral contracts. The outcomes from these transactions have the potential to change the status quo, though in ways that may not necessarily advance Beijing's preferences.

Economy and Levi have performed an outstanding service for China energy policy analysts and scholars. The book's analytical depth and breadth is impressive, and it establishes an appropriate balance between historical narrative, empirical description, and contemporary analysis. The authors' examination of the interplay in China between market forces, political preferences, and geoeconomic realities will undoubtedly inform both scholars and practitioners alike, as these dynamic variables continue to shape U.S.-China relations and each country's resource-acquisition strategies.

Authors' Response: The Continuing Evolution of China's Resource Quest

Elizabeth C. Economy and Michael Levi

We wrote *By All Means Necessary: How China's Resource Quest Is Changing the World* to illuminate one of the most discussed but least understood dimensions of China's rise, and we are grateful for the four kind and thoughtful review essays. Indeed, the months since the book was published have only made the importance of the subject clearer. The China National Offshore Oil Corporation (CNOOC) has begun drilling for oil near the Paracel Islands, sparking a heated confrontation with Vietnam that the United States and regional powers are struggling to respond to.[1] The China National Petroleum Corporation (CNPC) has signed a 30-year gas supply deal with the Russian company Gazprom, reflecting a mix of confidence on China's part in its ability to manage imports, a strong desire to increase the use of natural gas, and, critically, a continuing motivation to diversify its sources of supply.[2] Meanwhile, countries around the world are shifting their policies partly in response to Chinese investment. Chinese investment in Myanmar, for example, continues to fall precipitously—in just three short years, China is estimated to have moved from first to tenth place in overall FDI in Myanmar—reinforcing the importance of host-country politics in shaping opportunities for Chinese business.[3] As analysts and policymakers struggle to understand and respond to these and other developments, we are heartened that the reviewers see *By All Means Necessary* as a valuable guide.

Nonetheless, they have some concerns. Llewelyn Hughes writes that we "do not convey a strong sense of how effective [state control over Chinese

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1 Jane Perlez, "In Push to Assert Rights, China Plans to Send 2nd Oil Rig to Waters Near Vietnam," *New York Times*, June 19, 2014.

2 Lucy Hornby, Jamil Anderlini, and Guy Chazan, "China and Russia Sign $400 bn Gas Deal," *Financial Times,* May 21, 2014.

3 Motokazu Matsui, "Myanmar Sheds Dependence on Chinese Investment," *Nikkei Asian Review*, March 27, 2014.

firms] is and what the implications are for China's external behavior." Elizabeth Wishnick similarly comments that "the focus of *By All Means Necessary* is primarily on China's commercial relationships, and it would have been interesting for the book to explore the foreign policy implications of these relationships further." These issues are a central thread running through chapters four through six, though many of our findings are dispersed. We summarize some of those findings here.

By All Means Necessary does not provide a single "strong" bottom line, but that is because there is none—the answers to these questions, as Wojtek Wolfe observes in his essay, vary with circumstances. We show, for example, that state control is weaker over private firms than over state-owned ones; that state influence varies depending on market structure; that the government is only inconsistently able to direct even state-owned firms toward its political ends; and that these limitations are not unique to Chinese firms operating abroad, but rather reflect relationships between the state and firms that play out at home too. To the extent that the Chinese government can harness individual firms toward its political ends, this is primarily by influencing them through general conditions, such as the availability of financing for overseas projects or leadership incentives related to party promotion, rather than through specific directives. The most immediate consequence for Chinese external behavior is simple: China cannot use its firms to fulfill its foreign policy goals nearly as effectively as many assume. Indeed, as we show in *By All Means Necessary*, the Chinese experience fits with what Hughes describes as a more general one, with "poor governance outcomes at home and abroad" often the result. For example, we document China's repeated but failed efforts to raise the standards of its extractives firms operating abroad, and note that firms operating abroad but outside Chinese state control can create foreign policy headaches for Beijing.

Hughes also writes that "a second important issue given insufficient attention relates to Chinese firms' entry into markets unrelated to fossil fuel–based resources." In particular, he is concerned with our neglect of Chinese firms' activities in "green" technologies, which he claims are related to "growing [Chinese] demand for natural resources." We agree with Hughes that there is some relationship here—in particular, without strong Chinese demand for resources contributing to high resource prices, green technologies would be less commercially attractive, and hence success in them would be less appealing to the Chinese state. But many other sectors (construction stands out) could be drawn in under a similar relationship, and this would have led to an unwieldy book. One might argue that green technologies are special, in that Chinese firms pursue them as part of a strategy to increase supply security. As we showed in a previous study, though, support from the Chinese government for firms' low-carbon technology efforts is driven primarily (though not entirely) by a desire to establish commercial competitiveness rather than by an intent to change the patterns of Chinese resource use.[4]

A third concern in Hughes's review is that we exclude climate change from our analysis except at the margin. We avoided analyzing the direct impact of Chinese resource use on climate change to keep the book focused on international implications of China's external resource-related activities. But Hughes is correct that, within those limits, we could have usefully gone further. We asked, for example, how the pursuit of resources affects China's diplomacy toward Iran and Sudan in the UN Security Council. One could also profitably ask how it affects the country's diplomacy in international climate negotiations, and how the relationship between the state and firms enters into that process. We did not address the ways that climate mitigation might shape Chinese resource demand, but that is because that connection is weak.[5] Environmental concerns are certainly influencing Chinese government decisions on how vulnerable to be to resource imports; in particular, worries about air pollution are arguably making China more willing to depend on imported natural gas. But while these decisions affect Chinese carbon dioxide emissions, they are not driven by climate-related concerns.

Wishnick is also concerned that, since "the scale of China's resource demand is unprecedented…the comparison [we] establish with Japan's quest for resources in the 1960s and 1970s (see pp. 3–5) seems misplaced." It would certainly be wrong to argue, based only on the Japanese experience, that the impact of China's resource quest will be largely benign. What the historical perspective offers instead (as Trevor Houser notes in his essay) is a warning against superficial reasoning and against assuming that the international economy will be static in the face of a major new entrant. It can also help us identify biases that arise when U.S. analysts (among others) study the relationship between the state and firms in countries with different

4 Michael A. Levi, Elizabeth C. Economy, Shannon K. O'Neil, and Adam Segal, "Energy Innovation: Driving Technology Competition and Cooperation Among the U.S., China, India, and Brazil," Council on Foreign Relations, November 2010.

5 Ksenia Chmutina, Jie Zhu, and Saffa Riffat, "An Analysis of Climate Change Policy-Making and Implementation in China," *International Journal of Climate Change Strategies and Management* 4, no. 2 (2012): 138–51.

political economies. Our intention in offering the precedent was simply to open readers' minds, not to prove anything.

China's resource quest continues to evolve, shaped in some cases by Chinese actors' own changing priorities and in others by the opportunities and constraints posed by the international community. We appreciate the acknowledgement by all four reviewers of our effort to capture the dynamism, nuance, and elements of uncertainty inherent in this story. Ultimately, as Wishnick notes, China's development path involves many unknowns. We hope that as China's economic and political transition evolves, *By All Means Necessary* will continue to provide a valuable roadmap for understanding the choices that China will confront, as well as how the rest of the world might best adapt its own strategies and policies in navigating an ever-changing resource landscape. ◈