

# Discussion FORUM

## Energy Security

*Washington-area professionals gathered on May 19th for the twenty-first IRG Discussion Forum to explore energy security issues related to the dramatic recent surge in China's energy consumption. Participants included Dr. James P. Dorian, an expert on energy and economic development strategies in China, the former Soviet Union, and Asia; Jeffery Logan, who leads International Energy Agency projects in China on oil security, electric power reform, energy efficiency, and climate change; and Duncan Marsh, who manages United Nation Foundation projects on energy efficiency, renewable energy, and clean energy financing in developing nations. The discussion was moderated by IRG's Senior Energy Advisor, Dr. Charles Ebinger, who has worked on worldwide energy policy issues for over 30 years.*

Given today's skyrocketing energy prices, it is easy to forget that, as recently as 1998, energy experts were concerned about low oil prices. It wasn't until 2004 that the extent and worldwide consequences of China's increasing energy demands became apparent, and China is expected to continue to exert a major influence on world energy markets over the next two decades.

China accounted for approximately one-third of the growth of global oil demand over the past five years, and, by 2020, its total energy consumption is expected to be second only to that of the U.S. This unprecedented increase in demand results primarily from the country's rapid economic development, changing patterns of consumption from traditional to modern fuels, and increasing urbanization and the consequent rise in demand for electricity.

### Global Implications of China's Energy Demand

By 2004, robust economic growth in China—the result of

both rapid domestic growth and integration into the global supply chain—was putting an

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enormous strain on energy resources, particularly coal and electric power supplies. As oil consumption increased, so did the nation's oil imports, which grew by 34 percent in 2004, while domestic production remained flat. As a result, Beijing is now encouraging domestic oil companies to invest in overseas oil projects, expanding its search for overseas oil and gas resources,



Pictured, left to right: Duncan Marsh, Senior Program Officer, United Nations Foundation; Jeffery Logan, China Program Manager and Senior Energy Analyst at the International Energy Agency; Dr. James Dorian, International Energy Specialist; and Dr. Charles Ebinger, Senior Energy Advisor, IRG.

## For More Information

International Energy Agency:

<http://www.iea.org/>

Energy Future Coalition:

<http://www.energyfuturecoalition.org/>

Energy Information Administration:

<http://eia.doe.gov/>

EIA China Environmental Issues:

<http://www.eia.doe.gov/emeu/cabs/chinaenv.html>

Stabilization Wedges:

[http://www.princeton.edu/~cmi/resources/CMI\\_Resources\\_new\\_files/Wedges%20ppr%20in%20Science.pdf](http://www.princeton.edu/~cmi/resources/CMI_Resources_new_files/Wedges%20ppr%20in%20Science.pdf)

PCAST Report, *Powerful Partnerships*:

<http://www.ostp.gov/html/p2esyntesis.pdf>

*Intergovernmental Panel on Climate Change*:

<http://www.ipcc.ch/>

More links can be found at

[www.irglttd.com](http://www.irglttd.com) under:

Resources ► Discussion Forum

## Coal Remains Critical

Today, two-thirds of China's power supply is coal fired, and coal will remain the backbone of the economy for the next two decades or more. At present, the sector is seriously stressed as it works to meet growing power demands and sustain ongoing economic growth. The inadequacy of the nation's rail system is a major constraint to the sector. The current shortage of rail cars and tracks causes delays in the delivery of coal and other needed commodities. Already, coal shortages

have led to

power outages and price increases. Even if all of the 30 nuclear power plants currently planned are on line by 2020, they will increase power supplies by only 4 percent.

The extensive use of coal also contributes to air pollution,

which is considerable in many areas, and could cause China to surpass the United States in carbon emissions by 2020.

## Future Prospects

While it is certain that China's oil demand will continue to grow into the foreseeable future, current rates of demand growth are not likely to continue. In particular, the recent spike in demand has been attributed to the widespread use of diesel in power generation and fuel oil as feedstock in small refineries. With the commissioning of new power plants and improvements

and increasing its energy dialogue with the United States and Russia in an effort to ensure its ability to meet a demand that could reach anywhere from 9 to 15 million barrels a day by 2020. By 2030, China is expected to import close to 10 million barrels a day, almost 75 percent of domestic demand.

One factor that will determine the exact level of future demand is transportation and vehicle use. At present, transportation accounts for half of the oil consumed worldwide. China's transport sector currently uses 40 percent of the country's oil and demand is expected to increase dramatically. Sales of passenger cars grew by 20 percent in 2004; by 2020, China will have from 120- to 170-million vehicles on its roads.

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in grid-connected power systems, this demand can be expected to wane.

Further, China's economy continues to become more energy efficient. The extent to

## IRG Speaks Out

**Charles Ebinger**, Senior Energy Advisor, spoke at the United States Energy Association's Executive Seminar for Afghanistan, Electric Power Sector: Organization & Reform, held in Kabul, Afghanistan, on April 11–14, 2005.

**Tom Wheelock**, Vice President, Infrastructure, served as a panelist for a session titled, "Construction Brave New World—Security Issues, Risks of Fraud and Corruption and Prospects for Resolving Disputes," at the Contractor and Construction Manager Issues International Superconference, which took place on May 19–20, 2005, in London. Mr. Wheelock also discussed the "USAID Experience in Iraq Infrastructure Reconstruction 2003–2004" at the Heritage Foundation, in Washington, DC, on May 3, 2005, and at the U.S. Army War College, Carlisle, PA, on May 11, 2005.

**Pradeep Tharakan**, Manager, made a presentation on the impacts of high oil prices on developing countries at the Fourth International Workshop on Oil & Gas Depletion, hosted by The Oil Depletion Analysis Centre on May 19–20, 2005 in Lisbon, Portugal.

which increased efficiency might affect China's energy consumption is in debate. While some argue that the easiest, least expensive efficiency measures have already been implemented, others maintain that continuing efforts to improve efficiency, including demand side reductions, are necessary and will be beneficial precisely because of the extent of expected increases in demand.

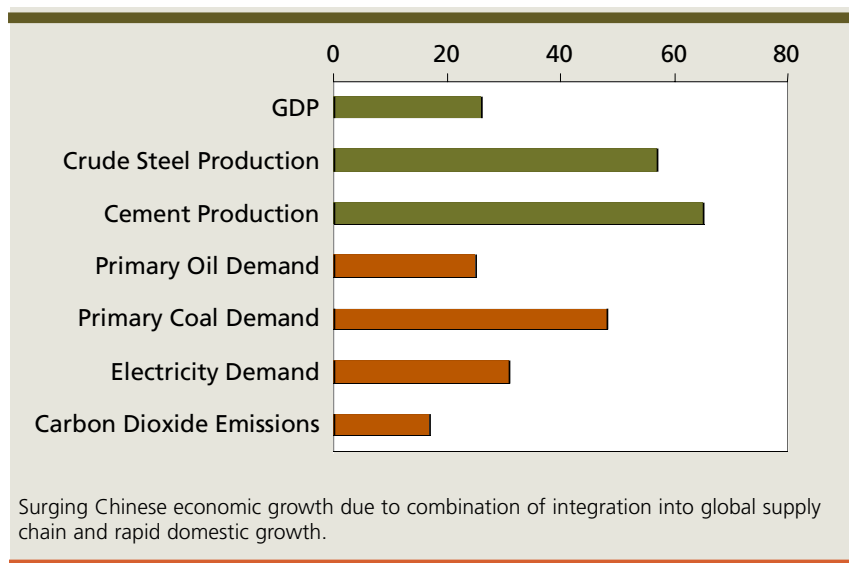
Stockpiling oil and petroleum resources and the use of natural gas in place of coal would serve China well in the management of its energy resources. The Chinese government will also need to determine how best to balance energy management issues with other important concerns, such as water, health care, and banking.

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### Energy and Climate Change

Another topic discussed at the Forum dealt with energy security from the perspective of climate change. The concern with energy security and China's current and future energy demands coincides with the wider issue of climate change, which has been receiving more attention in recent months, not only from

**Figure 1: China's Share (%) of Incremental World Growth 1998–2003**



the media, but from business interests and investors. This interest results from the confluence of several factors, including evidence of increasing incidents of severe weather events and high energy prices resulting in greater usage of coal resources. It is significant that the attention now being given to the present and future energy

demands of developing nations is causing more government energy ministers, in both developed and developing nations, to take greater interest in climate change issues, because these individuals typically exert more influence over government policymaking than do environment ministers. The nonpartisan Energy Future Coalition is working to bridge differences among business, labor, and environmental

groups and to identify energy policy options that have broad political support. Three recent studies (the President's Council of Advisors on Science and Technology's 1999 report, *Powerful Partnerships*; "Stabilization Wedges," an article in the August 2004 issue of *Science* magazine; and the Intergovernmental Panel on Climate Change report on technology transfer) suggest a number of ways to stabilize greenhouse gas emissions over the next 50 years using current technology. The United States can contribute to the success of these efforts by making domestic and international policy decisions to address climate and energy concerns, urban planning, transportation, and financing for cleaner technologies; by taking action domestically; and by actively demonstrating our ongoing commitment and support to multilateral efforts to address climate issues worldwide.



## FORUM FEEDBACK

- ◆ While energy needs and trends in other developing nations will naturally differ from those experienced by China, lessons learned from observing the recent rapid growth of China's energy demand should enable experts to better evaluate future developments in India, Brazil, and Pakistan.
- ◆ China is not likely to contest control of the Spratly Islands, both because oil resources there are not marketable under current conditions and because maintaining cordial relations with its Asian neighbors is of greater importance.

### About the Speakers

**Dr. James P. Dorian** is an international energy economist specializing in Eurasian oil, gas, and coal issues, renewable energy, and alternative fuels. He has analyzed energy markets and policies for more than 20 years, particularly energy and economic development strategies in China, the former Soviet Union, and Asia; oil and gas development and investment trends; renewable energy technologies and policies; and the geopolitical forces affecting the global energy industry. He has served as Energy and Resources Economist for the Hawaii state government; as a research fellow at the East-West Center in Honolulu, where he coordinated the Center's China Energy Project and Central Asia and Caucasus Energy and Minerals Project; and as Chief Energy Sector Specialist for an Asian Development Bank study of economic cooperation prospects in Central Asia and Xinjiang, China.

As China program manager and senior energy analyst at the International Energy Agency in Paris, **Jeffrey Logan** collaborates with Chinese officials on projects focusing on oil security, electric power reform, energy efficiency, natural gas development, and climate change analysis. Previously, he served as staff scientist with Pacific Northwest National Laboratory's Advanced International Studies Unit in Washington, DC, where he directed energy and environmental projects for Asia and the Americas, led the U.S. Environmental Protection Agency's effort to build capacity for energy and environmental modeling in developing countries, and conducted studies on energy issues in China and other developing nations that have influenced domestic policy and international assistance.

**Duncan Marsh** is senior program officer for climate change and sustainable energy at the United Nations Foundation, where he manages a diverse portfolio of energy efficiency, renewable energy, and clean energy finance projects in developing countries and advises on UNF's contributions to climate change and energy policy development at national and international levels. Previously, he worked for an emissions trading brokerage and consultancy on greenhouse gas markets and international climate change policy issues. From 1997 to 2001, Mr. Marsh worked with the U.S. Department of State's climate change team, serving as lead negotiator for technology transfer and emissions aspects of the international climate change negotiations.

**Dr. Charles Ebinger**, IRG's senior energy advisor, has more than 30 years of experience with energy policy issues nationally and internationally. He has been involved with energy sector restructuring projects with international organizations and advised foreign governments and oil, gas, and electric utility companies in both developed and developing nations. Dr. Ebinger has particular expertise in the South Asian energy sector, having served as an advisor to the governments of Pakistan, India, Nepal, Bangladesh, and Sri Lanka.

### About the IRG Discussion Forum

The IRG Discussion Forum, a monthly event hosted by Henri-Claude Bailly (chairman of IRG's Board of Advisors), addresses issues affecting international development. Each session is informal, with guest speakers and attendees participating in a personal capacity. For comments, questions, or information on the Discussion Forum, contact [discussionforum@irgltd.com](mailto:discussionforum@irgltd.com) or call IRG at 202-289-0100.

#### Upcoming Forums

The next discussion forum will be held on Thursday, June 16th, and will feature the topic "Competition for Water in Developing Countries: Public and Private Sector Perspectives."

International Resources Group (IRG) is an international professional services firm that helps governments, the private sector, communities, and households manage critical resources to build a cleaner, safer, and more prosperous world. Since 1978, IRG has completed over 650 contracts in more than 135 countries, delivering high-quality, cost-effective services that promote positive economic growth, institutional and social change, and intelligent use of resources—human, physical, environmental, and financial. IRG's international development staff

include world-renowned specialists who have pioneered many of the analytical techniques employed in their fields. IRG's ability to provide management, economic, and technical advice is further enhanced by the diversity, cross-cultural experience, foreign language skills, and management capabilities of staff based in the Washington, DC, headquarters, corporate offices in India and the Philippines, and 20 project-dedicated offices around the world.



INTERNATIONAL RESOURCES GROUP

1211 CONNECTICUT AVENUE, NW ♦ SUITE 700 ♦ WASHINGTON, DC 20036 ♦ UNITED STATES

TEL: 202.289.0100 ♦ FAX: 202.289.7601 ♦ WEB: WWW.IRGLTD.COM