

THE RISE OF CHINA ***AND ITS ENERGY IMPLICATIONS***



Friday, December 2, 2011

Doré Commons

James A. Baker III Hall
Rice University

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About the Conference

China will play a major role in shaping long-term global energy trends. Already, China's growing economy has been a driver of global commodity markets in recent years. Soaring Chinese oil and natural gas demand has become a major feature influencing global energy market trends, and emerging shifts in Chinese energy and economic policy could potentially alter the future geopolitical and economic landscape.

As the global recession hit in 2007-2008, China's national oil companies (NOCs) took advantage of depressed asset prices and tight credit in global financial markets to acquire more than \$40 billion in oil and gas acquisitions in the hopes of diversifying their portfolios and profiting from an appreciation in assets in the coming decade. These efforts by the Chinese NOCs to shore up their competitiveness by going abroad are supported by the Chinese government in the form of diplomacy, loans or packaged deals whereby oil deals are linked to other trade in minerals, military and agricultural goods. In addition to these substantial oil and gas acquisitions abroad, China also invested more than \$54 billion in clean energy projects in 2010, and the country is emerging as a leader in installed wind power capacity.

This conference investigates these trends and shifts by bringing together senior Chinese and U.S. officials, leading financial and energy analysts, academic scholars, and global oil industry leaders to address the emerging path of China's energy sector as a transforming energy landscape shapes China's economic role in relation to the United States. At the conference, findings from a major Baker Institute energy study will be publicly released. The study includes papers on Chinese energy policy and energy demand trends, Chinese oil and gas investment trends, and energy in the U.S.-China bilateral relationship.

About the Energy Forum

Located in Houston, Texas, the energy capital of the world, the James A. Baker III Institute for Public Policy has created a multifaceted program designed to promote original, forward-looking discussion and research on the energy-related challenges facing our society in the 21st century. The mission of the Energy Forum is to shed light on important trends — both regional and global — that shape the nature of global energy markets and influence the quantity and security of vital supplies needed to fuel world economic growth and prosperity. The choice of the word "forum" is deliberate. It reflects our goal to serve as a focal point for the exchange of ideas on how to improve understanding of the complex political, cultural, religious, economic and social forces that influence open access to energy resources and their equitable distribution.

Sponsors

The Baker Institute would like to thank Chevron Corporation and The Institute of Energy Economics, Japan, for their generous support of this event.



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Friday, December 2, 2011

Opening Session

9:00 am

Welcoming Remarks

The Honorable Edward P. Djerejian

Founding Director, James A. Baker III Institute for Public Policy

An Organizational Perspective on Long-term Economic Competitiveness in the United States vs. China

Edward Steinfeld, Ph.D.

Professor of Political Economy, Department of Political Science, Massachusetts Institute of Technology
Co-Director, China Energy Group, MIT Industrial Performance Center
Author, "Playing Our Game: Why China's Rise Doesn't Threaten the West"

China's Future Role as a Price Maker in Global Commodities Markets

Edward L. Morse, Ph.D.

Managing Director and Global Head of Commodities Research, Citigroup

China's Economic Outlook and Role in the Global Economy

Yan Wang

Managing Editor, China Investment Strategy, BCA Research

Financial Imbalances and the China Bubble

Mahmoud A. El-Gamal, Ph.D.

Will Clayton Fellow in International Economics, James A. Baker III Institute for Public Policy

10:45 am

Coffee Break

Panel I — U.S. and Chinese Energy Demand Trends to 2030

11:00 am

China's Oil Sector: Trends and Uncertainties

Alan Troner

President, Asia Pacific Energy Consulting

The Long-term Energy Outlook in the United States and China from the Present until 2030

Robert E. Gardner

Manager of the Economics and Energy Division, Strategic Planning Department,
Exxon Mobil Corporation

Vehicle Stocks in China: Consequences for Oil Demand

Ronald Soligo, Ph.D.

Rice Scholar, James A. Baker III Institute for Public Policy, and Professor of Economics, Rice University

Outlook for China: LNG and Natural Gas

Kenneth B. Medlock III, Ph.D.

James A. Baker, III, and Susan G. Baker Fellow in Energy and Resource Economics,
James A. Baker III Institute for Public Policy

1:00 pm

Lunch

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Friday, December 2, 2011 (continued)

Baker Institute Study Overview

2:15 pm The Rise of China and Its Energy Implications — Key Findings

Amy Myers Jaffe

Wallace S. Wilson Fellow in Energy Studies and Director of the Energy Forum,
James A. Baker III Institute for Public Policy

Panel II — Chinese Energy Strategy and Environmental Policy

2:30 pm Carbon Management in China: The Effects of Decentralization and Privatization

Steven W. Lewis, Ph.D.

C.V. Starr Transnational China Fellow, James A. Baker III Institute for Public Policy

China and Energy Security

Hongtu Zhao, Ph.D.

Research Professor, Institute of World Economic Studies,
China Institutes of Contemporary International Relations (CICIR)

China and Latin America

David R. Mares, Ph.D.

Baker Institute Scholar for Latin American Energy Studies, James A. Baker III Institute for Public Policy

China and Asian Energy and Climate Policy

Yoshikazu Kobayashi

Leader, Oil Group, The Institute of Energy Economics, Japan

3:45 pm Coffee Break

Closing Session — Energy and U.S.–China Relations

4:00 pm

James A. Russell, Ph.D.

Associate Professor, Department of National Security Affairs, Naval Postgraduate School

Joe Barnes

Bonner Means Baker Fellow, James A. Baker III Institute for Public Policy

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Participant Biographies

Joe Barnes is the Bonner Means Baker Fellow at the Baker Institute. Since coming to Rice University in 1995, he has written extensively on international economics, with a focus on the geopolitics of energy. In addition to numerous institute studies, Barnes' work has also appeared in *The New York Times*, the *Houston Chronicle*, *Survival*, *Oil and Gas Journal*, *Energy Markets*, the Newsletter of the Royal United Services Institute, the SAIS Policy Forum Series and the *National Interest*. He is a contributor to three volumes: "Energy in the Caspian Region" (Palgrave Press), "United States Tax Reform in the 21st Century" (Cambridge University Press) and "Natural Gas and Geopolitics from 1970 to 2040" (Cambridge University Press). Barnes is also faculty adviser to the Baker Institute Student Forum. From 1979 to 1993, he was a career diplomat with the U.S. State Department, serving in Europe, Africa, the Middle East and South Asia. His last assignment in the State Department was with the Policy Planning Staff. Barnes is a graduate of Princeton University.

The Honorable Edward P. Djerejian served in the U.S. Foreign Service for eight presidents, from John F. Kennedy to William J. Clinton (1962–1994). Prior to his nomination by President Clinton as U.S. ambassador to Israel (1993–1994), he was assistant secretary of state for Near Eastern affairs in both the George H.W. Bush and Clinton administrations (1991–1993). He was the U.S. ambassador to the Syrian Arab Republic (1988–1991). He also served as special assistant to President Ronald Reagan and deputy press secretary for foreign affairs in the White House (1985–1986). After his retirement from government service in 1994, he became the founding director of the James A. Baker III Institute for Public Policy at Rice University. His book "Danger and Opportunity: An American Ambassador's Journey Through the Middle East" was published by Simon & Schuster Threshold Editions in September 2008. He has been awarded the Presidential Distinguished Service Award, the Department of State's Distinguished Honor Award and numerous other honors, including the Ellis Island Medal of Honor and the Anti-Defamation League's Moral Statesman Award. He is also a recipient of the Association of Rice Alumni's Gold Medal, the group's most prestigious award, for his service to Rice University. In 2011, Djerejian was elected a fellow of the American Academy of Arts and Sciences, and named to the board of trustees of the Carnegie Corporation of New York.

Mahmoud A. El-Gamal, Ph.D., is the Will Clayton Fellow in International Economics at the Baker Institute. He is a professor in the Department of Economics at Rice University, where he also holds the endowed Chair in Islamic Economics, Finance and Management. Before joining Rice in 1998, he was an associate professor of economics at the University of Wisconsin–Madison. He has also worked as an assistant professor at the University of Rochester and the California Institute of Technology; as an economist at the Middle East department of the International Monetary Fund (1995–1996); and as the first scholar-in-residence on Islamic finance at the U.S. Department of Treasury (2004). El-Gamal has published extensively on finance, econometrics, decision science, economics of the Middle East and Islamic transactions law. His recent books include "Islamic Finance: Law, Economics and Practice" (Cambridge University Press, 2006) and "Oil, Dollars, Debt and Crises: The Global Curse of Black Gold" with Amy Myers Jaffe (Cambridge University Press, 2010).

Robert E. Gardner is the manager of the Economics and Energy Division in the Strategic Planning Department at Exxon Mobil Corporation, where he has worked since 2009. He manages the group responsible for preparing Exxon Mobil's Energy Outlook. Gardner began his career working for Mobil Oil in a series of technical and supervisory engineering positions in gas plants along the U.S. Gulf Coast. From 1987 to 1990, he moved to Mobil Natural Gas and began working in the new and expanding natural gas marketing organization. There, he took part in the

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Participant Biographies (continued)

growing deregulation of U.S. gas markets. From 1990 to 2001, Gardner began a series of international assignments in the liquefied natural gas (LNG) marketing area. He held positions in Indonesia, Qatar, Japan and Singapore. During these assignments, he was involved in LNG market development and sales. At the end of 2001, he returned to the United States and began a series of management assignments in ExxonMobil Gas and Power Marketing's Houston organization, in both the domestic and international areas. Gardner graduated from Louisiana State University in 1978 with a Bachelor of Science in chemical engineering.

Amy Myers Jaffe is the Wallace S. Wilson Fellow in Energy Studies and director of the Energy Forum at the Baker Institute, as well as associate director of the Rice Energy Program. Jaffe's research focuses on oil geopolitics, strategic energy policy including energy science policy, and energy economics. Jaffe was formerly senior editor and Middle East analyst for Petroleum Intelligence Weekly. She is widely published and served as co-editor of "Energy in the Caspian Region: Present and Future" (Palgrave, 2002) and "Natural Gas and Geopolitics: From 1970 to 2040" (Cambridge University Press, 2006), and as co-author of "Oil, Dollars, Debt and Crises: The Global Curse of Black Gold" with Mahmoud A. El-Gamal (Cambridge University Press, 2010). Jaffe also contributed to Foreign Policy's "21 Solutions to Save the World" (May/June 2007). She served as a member of the reconstruction and economy working group of the Baker/Hamilton Iraq Study Group, as project director for the Baker Institute/Council on Foreign Relations Task Force on Strategic Energy Policy, and as a principal adviser to USAID's project on "Options for Developing a Long Term Sustainable Iraqi Oil Industry." She currently serves as a strategic adviser to the American Automobile Association (AAA) of the United States and is a member of the Council on Foreign Relations. Jaffe was among the Key Women in Energy–Americas honorees in the Pathfinders/Trailblazers category (2004), the honoree for Esquire's annual 100 Best and Brightest in the contribution to society category (2005), Elle magazine's Women for the Environment (2006), and was named to Who's Who in America (2008). Jaffe is a Princeton University graduate with a degree in Arabic studies.

Yoshikazu Kobayashi is the leader of the Oil Group at The Institute of Energy Economics, Japan (IEEJ). At IEEJ, he is responsible for the research on the world oil and gas market and energy security issues in Northeast Asia. Previously, he was an analyst at Tonen General Sekiyu, an ExxonMobil-affiliated company in Japan, covering crude oil acquisition, marine transportation and refining operation planning. Kobayashi received a B.A. in social sciences from Hitotsubashi University in Tokyo, as well as an M.A. in international economics and international relations from the School of Advanced International Studies at Johns Hopkins University.

Steven W. Lewis, Ph.D., is the C.V. Starr Transnational China Fellow and faculty adviser for the Jesse Jones Leadership Center Summer in D.C. Policy Research Internship Program. He is also a professor in the practice and associate director of the Chao Center for Asian Studies, which he helped found in 2008. His research explores the growth of a transnational Chinese middle class; the influence of advertisements in new public spaces in Chinese cities; the development of privatization experiments in China's localities; and the reform of China's energy policies, national oil companies and international energy relations. Through the Transnational China Project, Lewis has organized research conferences with the Shanghai Academy of Social Sciences. He also has worked with the Energy Forum as the organizing researcher for the Northeast Asia Energy Cooperation Workshops, the Coastal Cities Summit surveys and U.S.–China–Middle East energy relations conferences. Lewis has also been adviser to the Science Collaboration Across Borders initiative and served as the chief liaison between the Baker Institute, the Shanghai Institutes for International Studies and the China Institute for Contemporary International Relations. He is co-

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Participant Biographies (continued)

director of the Rice Ephemera Archive project of Fondren Library's Center for Digital Scholarship, supported by the Henry Luce Foundation. He has conducted research and given briefings for The National Bureau of Asian Research; Japan's Ministry of Economy, Trade and Industry; the Sichuan Petroleum Administration; and the Korean Economic Institute, among others. Lewis is an associate fellow of Asia Society International, an editorial board member of Asia Policy and an academic adviser to the U.S.-China Working Group of the U.S. House of Representatives. He received his doctorate in political science from Washington University in St. Louis.

David R. Mares, Ph.D., is the Baker Institute Scholar for Latin American Energy Studies and a professor of political science and adjunct professor at the Graduate School of International Relations and Pacific Studies at the University of California, San Diego. Mares was previously profesor-investigador at El Colegio de México (1980-1982), Fulbright Professor at the Universidad de Chile (1990) and visiting professor at the Diplomatic Academy in Ecuador (1995). He has been a visiting scholar at the Weatherhead Center for International Affairs, Harvard University; a fellow at the Japan External Trade Research Organization; a fellow at the Center for Advanced Study in the Behavioral Sciences, Stanford University; and held a Pew Faculty Fellowship in International Affairs. His research and teaching interests include Latin American energy politics, the political economy of drug policy, defense policy, civil-military relations and the use of photographic imagery in politics. Mares has published many books and articles in numerous journals in the Americas and Europe. He is editor of the series "Latin America: Social Sciences and the Law" (Routledge Press) and was a member of the international advisory board of the Instituto Latinoamericano de Relaciones Civiles-Militares (Peru), as well as of the editorial board of Latin American Research Review. He has prepared reports for a number of international research institutions, and he is an associate fellow of the Inter-American Dialogue (Washington, D.C.), a fellow of the academic forum of the Summit of the Americas (Montreal, Canada) and a member of the Tri-national Academic Group on Governance in North America (Monterrey, Mexico). He earned his Ph.D. from Harvard University in 1982.

Kenneth B. Medlock III, Ph.D., is the James A. Baker, III, and Susan G. Baker Fellow in Energy and Resource Economics at the Baker Institute and an adjunct professor and lecturer in the Department of Economics at Rice University. Currently, Medlock heads the Baker Institute Energy Forum's natural gas program and is a principal in the development of the Rice World Natural Gas Trade Model, which assesses the future of international natural gas trade. He also teaches energy economics courses and supervises students in the energy field. Medlock studies natural gas markets, gasoline markets, energy commodity price relationships, transportation, modeling national oil company behavior, economic development and energy demand, forecasting energy demand, and energy use and the environment. Medlock is a council member of the International Association for Energy Economics (IAEE), and a member of United States Association for Energy Economics (USAEE), The American Economic Association and the Association of Environmental and Resource Economists. In 2001, he won (with Ron Soligo) the IAEE Award for Best Paper of the Year in the Energy Journal. In 2011, he was given the USAEE's Senior Fellow Award. Medlock also served as an adviser to the U.S. Department of Energy and the California Energy Commission in their respective energy modeling efforts. He was the lead modeler of the Modeling Subgroup of the 2003 National Petroleum Council (NPC) study of long-term natural gas markets in North America, and is involved in the ongoing NPC study "North American Resource Development." Medlock received his Ph.D. in economics from Rice and held the MD Anderson Fellowship at the Baker Institute from 2000 to 2001.

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Participant Biographies (continued)

Edward L. Morse, Ph.D., is the managing director and global head of commodities research at Citigroup. He is chairman of the New York Energy Forum and serves on the academic advisory boards at Columbia University's School of International and Public Affairs and Johns Hopkins University's School of Advanced International Studies. In January 2010, Morse joined Credit Suisse as head of commodities research. In 2006, he joined Lehman Brothers as a managing director and chief energy economist. Upon its bankruptcy in 2008, he moved to Louis Capital Markets. He was a co-founder and managing director at PFC Energy from 1984 to 1996. Previously, Morse worked at the U.S. Department of State, where he was initially executive assistant to the undersecretary for economic affairs. He also served as deputy assistant secretary of state for international energy policy and was the U.S. representative at the International Energy Agency under the Carter and Reagan administrations. In 2001, Morse chaired a task force on energy security, sponsored jointly by the Council on Foreign Relations and the Baker Institute. He was president of the Petroleum Intelligence Weekly and joined Hess Energy Trading Co. as a senior executive. He has also taught international relations at Princeton University's Woodrow Wilson School of Public and International Affairs and was a senior research fellow at the Council on Foreign Relations. Morse earned his Ph.D. from Princeton University.

James A. Russell, Ph.D., is an associate professor in the Department of National Security Affairs at the Naval Postgraduate School, where he teaches courses on Middle East security affairs, terrorism and national security strategy. His articles and commentaries have appeared in a wide variety of media and scholarly outlets around the world, including the Philadelphia Inquirer and the San Jose Mercury News. He has been interviewed as a subject matter expert on NPR's "All Things Considered" and Newsweek on Air. Russell's latest articles discuss "Strategic Stability Reconsidered: Prospects for Escalation and Nuclear War in the Middle East" and "Illicit Procurement Networks and Nuclear Proliferation: Challenges for Intelligence, Detection and Interdiction" (with Jack Boureston). He has also edited (with Daniel Moran) a book titled "Energy Security and Global Politics: The Militarization of Resource Management." From 1988 to 2001, Russell held a variety of positions in the Office of the Assistant Secretary for International Security Affairs, Near East and South Asia, at the Department of Defense. During this period, he traveled extensively in the Persian Gulf and Middle East working on U.S. security policy. He holds a master's degree in public and international affairs from the University of Pittsburgh and a Ph.D. in war studies from the University of London.

Ronald Soligo, Ph.D., is a professor of economics at Rice University and a Rice scholar at the Baker Institute. His research focuses on economic growth and development and energy economics. Soligo was awarded the 2001 Best Paper Prize from the International Association for Energy Economics for his co-authored paper with Kenneth B. Medlock III, "Economic Development and End-Use Energy Demand" (Energy Journal, April 2001). Other recently published articles include "State-Backed Financing in Oil and Gas Projects," with Amy Myers Jaffe in "Global Energy Governance: The New Rules of the Game," eds. Andreas Goldthau and Jan Martin Witte (Brookings Press, 2010); "The United States, Cuba Sanctions and the Potential for Energy Trade," with Amy Myers Jaffe in "9 Ways To Talk To Cuba & For Cuba To Talk To US" (The Center for Democracy in the Americas, 2009); "The Militarization of Energy—The Russian Connection," with Amy Myers Jaffe in "Energy Security and Global Politics: The Militarization of Resource Management," eds. Daniel Moran and James Russell (Routledge 2008); "Market Structure in the New Gas Economy: Is Cartelization Possible?" with Amy Myers Jaffe in "Natural Gas and Geopolitics: From 1970 to 2040" (Oxford University Press, 2006); "The Role of Inventories in Oil Market Stability," with Amy Myers Jaffe (Quarterly Review of Economics and Finance, 2002); "Automobile Ownership and Economic Development: Forecasting Passenger Vehicle Demand to the Year 2015," with Kenneth B. Medlock III (Journal of Transport Economics and

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Policy, May 2002); “The Economics of Pipeline Routes: The Conundrum of Oil Exports from the Caspian Basin,” with Amy Myers Jaffe in “Energy in the Caspian Region: Present and Future,” eds. Amy Myers Jaffe, Yelena Kalyuzhnova, Dov Lynch and Robin Sickles (Palgrave Macmillan, 2002); and “Potential Growth for U.S. Energy in Cuba,” with Amy Myers Jaffe (ASCE Volume 12 Proceedings, Cuba in Transition website). Soligo is currently working on issues regarding energy security and the politicization of energy supplies. He holds a Ph.D. from Yale University.

Edward Steinfeld, Ph.D., is a professor of political economy in the Department of Political Science at Massachusetts Institute of Technology (MIT), as well as the co-director of the China Energy Group in the MIT Industrial Performance Center. In addition to a variety of academic articles, Steinfeld is the author of the books “Playing Our Game: Why China’s Rise Doesn’t Threaten the West” (Oxford, 2010) and “Forging Reform in China: The Fate of State-Owned Industry” (Cambridge, 1998). His work has appeared in both academic and nonacademic journals, including the Journal of Comparative Politics, Political Studies, World Development, Far Eastern Economic Review, The Washington Post, The Wall Street Journal and The South China Morning Post. Steinfeld is a member of the board of directors of the National Committee on United States–China Relations, as well as a member of the academic committee of the Center for Industrial Development and Environmental Governance at Tsinghua University. He received his B.A., M.A. and Ph.D. in political science from Harvard University.

Alan Troner is president of Asia Pacific Energy Consulting (APEC), a Houston-based tactical consulting company focusing on commercial oil and natural gas issues for the Asia Pacific and the Mideast Gulf since 1995. Troner has been a contributor to the Baker Institute Energy Forum since 1997. He is author of numerous commercial and academic studies on Asia Pacific/Mideast energy issues, such as the future of liquefied natural gas and gas-to-liquids, oil and oil products trade in Asia, Asian oil refining, and Mideast Gulf energy export trends. Troner was a joint recipient, with Amy Myers Jaffe, of the 1994 International Association of Energy Economics award for energy journalism; he was also a fellow of the East–West Center in Honolulu from 1987 to 1988. Troner received a B.A. in history from Stony Brook University in 1977 and an M.A. in economic geography from the University of Hawaii in 1988.

Yan Wang is the managing editor of the China Investment Strategy bulletin for BCA Research, which he joined in 2002. He plays a major role in formulating BCA’s view on the Greater China region and emerging Asia. Prior to joining BCA, Wang spent six years in the brokerage industry as an equity analyst in China and Hong Kong. He holds the CFA designation. He holds a B.A. in finance from Nankai University, an M.A. in economics from Tianjin Institute of Finance and an MBA in finance from McGill University. He also holds a chartered financial analyst designation.

Hongtu Zhao, Ph.D., is a research professor at the Institute of World Economic Studies of the China Institutes of Contemporary International Relations (CICIR). Zhao was previously in the Division for West Asian and African Studies. His research interests include energy security, international energy politics and climate change. He has had visiting fellowships at the Energy Charter Secretariat in Brussels and at the University of Wisconsin–Madison. Zhao received his Ph.D. in international relations from East China Normal University.