Annotated Reading List on
International Experiences with Climate Change Policy

By
William Feldman, Student Intern
Public Utility Research Center
University of Florida

October 2008

Baumert, Kevin A., Odile Blanchard, Silvia Llosa, and James F. Perkaus. 2002. *Building on the Kyoto Protocol: Options for Protecting the Climate*. Washington, D.C.: World Resources Institute/Library of Congress.

This book is a compilation of reports and papers by various authors addressing "a set of options for designing an international framework for climate protection...beyond the Kyoto Protocol's first commitment period." Each paper/chapter assesses advantages and disadvantages of particular approaches to climate protection including, but not limited to, the Argentine voluntary commitment, the Brazilian proposal for establishing limitations on greenhouse gas (GHG) emissions, and the full insertion of sustainable development policies and measures (SD-PAMs) into the international carbon market through an enhanced clean development mechanism (CDM).

Blackman, Allen, and Xun Wu. 1998. "Foreign Direct Investment in China's Power Sector: Trends, Benefits and Barriers." Resources for the Future Discussion Paper 98-50.[1]

This paper focuses on the positive impact on energy efficiency that Foreign Direct Investment (FDI) has had in China and assesses "the volume and characteristics of FDI in China's power sector, its impact on energy efficiency, and the factors that limit this impact."

Bohringer, Christopher, Michael Finus, and Carsten Vogt. 2002. *Controlling Global Warming.* Cheltenham: Edward Elgar Publishing, Inc.

This book reviews methods of comprehensive economic analysis of global pollution problems and addresses the problems involved in establishing international agreements for controlling climate change. The authors explain the pros and cons to three approaches for the economic assessment of global pollution problems: game theory, cost-effectiveness analysis, and public choice. The authors further explain and argue that even though Kyoto greenhouse gas (GHG) reduction objectives have already been agreed upon, a suitable method of implementation must be determined.

[1] Available at http://www.rff.org/documents/RFF-DP-98-50.pdf

Commission of the European Communities. 2008. "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions: Addressing the Challenge of Energy Efficiency through Information and Communication Technologies." EU Communication, May 13, 2008.[2]

This paper promotes the potential of Information and Communication Technology (ICT) in improving energy efficiency by way of improving the energy transformation sector, utilizing smart lighting and buildings, and increasing the efficiency of ICT itself. The communication presents three ways forward regarding improving the energy transformation sector: supporting awareness raising in new ICT-based business models for distributed generation (DG), reinforcing multidisciplinary research and technological development on ICT for power networks, and fostering the use of national and regional programs for the deployment of ICT-enabled monitoring. The majority of the other solutions to these issues involve increased awareness and the exchange of best practices between countries and businesses. The main aim of the communication, however, is to facilitate cooperation among all stakeholders with the goal of unlocking the potential of ICTs in improving energy efficiency.

Department for Business Enterprise & Regulatory Reform, UK Government. 2008. "EU Common Energy Policy."[3]

This article focuses on the recent implementation and discussion of the European Union's Strategic Energy Review (EU SER) that took place on January 10, 2007. The article also explains the SER's proposals and objectives, as well as the conclusions/findings on the SER at the Energy Council. The European Commission also published a new legislative package on the internal market in September 2007 which requires member states to adopt either ownership unbundling or independent system operation for transmission, which must meet strict criteria (e.g., greater independence and powers for national regulators and consistency in their duties). The article also reinforces the last finding in that, at the 2007 Spring Energy Council, the EU agreed to a package of energy measures including a commitment to source 20% of the EU's energy from renewables by 2020 and a 20% to 30% greenhouse gas (GHG) emissions reduction depending on wide international effort.

Douma, Wybe Th., Leonardo Massai, and Massimiliano Montini. 2007. *The Kyoto Protocol and Beyond: Legal and Policy Challenges of Climate Change*. The Hague: TMC Asser Press.

Comprised of a collection of papers addressing general international climate regime problems, this book touches on many different aspects of European Union (EU) climate policy, as well as the potential of large-scale, non-CO_2 clean development mechanism (CDM) projects and the more current experiences and perspectives of various countries with regards to the Kyoto Protocol. The book explains climate policy in the EU, Germany, the Russian Federation, and non-Annex I countries in southeastern Europe (countries that do not have binding emission reduction targets for the first period of the Kyoto Protocol), while also introducing the newly

[2] Available at http://ec.europa.eu/information_society/activities/sustainable_growth/docs/com_2008_241_1_en.pdf.
[3] Available at http://www.berr.gov.uk/whatwedo/energy/international/eu/page28034.html.

formulated Sao Paulo Proposal (a form of an amended Kyoto Protocol that aims to "present a coherent package that is politically acceptable to a wide range of parties as a substantive input to discussions on reducing greenhouse gas emissions after 2012").

European Chemical Industry Council. 2007. "European Chemical Industry Supports More Coherent EU Energy Policy But Calls for More Effective Global Approach to Climate Change." News Release, January 10, 2007.[4]

This news release summarizes the proposal for a European Strategic Energy Technology Plan in 2007 that is intended to speed development of low-emission technologies including carbon capture/storage and second-generation biofuels. It also touches on how European Union energy policy is countering the European Commission's (EC) proposal for further unilateral CO_2 reduction targets by 2020 (The EC proposes 20% reduction of EU greenhouse gas (GHG) emissions by 2020 in case there is no international agreement and 30% in case of agreement with developed countries).

European Renewable Energy Council and Greenpeace International. 2007. "Energy [R]evolution: A Sustainable China Energy Outlook."[5]

This report outlines the "Energy [R]evolution Scenario" (characterized by various original efforts to fully exploit the large potential for energy efficiency including, but not limited to, the increased use of combined heat and power (CHP) generation and pioneering Renewable Energy Source (RES) utilization in the electricity sector) up to the year 2050 and compares it to the "reference scenario," which is based on the "business as usual" scenario (published by the International Energy Agency in World Energy Outlook 2004[6] and only takes existing policies into account).

Faure, Michael, Joyeeta Gupta, and Andries Nentjes. 2003. *Climate Change and the Kyoto Protocol: The Role of Institutions to Control Global Change*. Cheltenham: Edward Elgar Publishing, Inc.

This book presents essays discussing and analyzing the flexibility mechanisms of the Kyoto Protocol. It also addresses future issues such as the type of institutional change that is necessary for the transition into a carbonless society this century. More specifically, however, this book commits a chapter to address the issues of climate policy in the Netherlands and what could/should be done to fix these issues. The book also illustrates that the clean development mechanism (CDM) of the Kyoto Protocol is a promising option for climate policies in the Netherlands (with the potential to deliver a reduction of 25Mt (metric tons) CO_2-eq. per year).

[4] Available at http://www.cefic.be/Files/NewsReleases/PR%20Energy%20Policy%2010%2001%2007.pdf
[5] Available at http://www.greenpeace.org/raw/content/china/en/press/reports/energy-revolution.pdf.
[6] Available at http://www.iea.org/textbase/publications/free_new_Desc.asp?PUBS_ID=1266.

Gee, Robert W., Songbin Zhu, and Xiaolin Li. 2007. "China's Power Sector: Global Economic and Environmental Implications." *Energy Law Journal*, 28(1): 421-441.

This paper addresses the obstacles China faces in modernizing and reforming its power generation and delivery system while acquiring strong economic growth and environmental stewardship. The article also outlines China's power sector reforms from 1986 to the present and provides recommendations to advance the country's reform, including consolidating the existing fragmentation of responsibility between central and local governments over power plants, bolstering compliance with the rule of law and institute mechanisms for rule enforcement, and consolidating and supporting governmental institutions driving change.

Gielen, Dolf, and Chen Changhong. 2001. "The CO_2 Emission Reduction Benefits of Chinese Energy Policies and Environmental Policies: A Case Study for Shanghai, Period 1995–2020." *Ecological Economics*, 39(2): 257-270.

This article analyzes the optimal set of policies for reduction of SO_2, NO_2, and CO_2 in Shanghai for the period of 2000–2020. The analysis is based on a linear programming MARKAL model for the Shanghai energy system.

Grunstein, Miriam, Juan Francisco Pardini, Andrew B. Derman, Andrew Melsheimer, Schuyler B. Marshall, Maria Cecilia Andrade, Ilan Dunsky, Clarisse Kehler Siebert, Juan Francisco Mackenna, and Marcos Rios. 2007. "Energy and Natural Resources." *International Lawyer*, 41(2): 491-511.

This journal article covers energy cases in Brazil, Canada, Chile, Mexico, and Panama.

<u>Brazil</u>
The authors first touch on the Brazilian/Bolivian gas supply crisis which involves Brazil expecting to pay at least US$100 million more each year for gas. ("Brazil is the largest purchaser of oil and gas from Bolivia, consuming half its annual output.") Because of Brazil's lack of private investment and regulatory framework for a new electrical supply system, anticipation of an energy shortage in the next two or three years is building. Regulatory and tax risks, as well as environmental licenses, also impede the development of new projects in the generation of energy in Brazil. "In September 2005, Petrobras announced an investment plan to be implemented through 2011 in the amount of US$52.4 billion (an average of US$17.4 billion per year), which includes investments in oil, petrochemicals, energy, biofuels, and renewable energy. Finally, in 2006 negotiations for the construction of a new refinery between Petrobras and PDVSA (Petróleos de Venezuela, S.A.), the Venezuelan oil company, were concluded. This refinery will be built in Pernam buco. Early production is expected to begin in late 2008, while full production will kick in 2011."

<u>Canada</u>
With an extremely significant energy sector (representing 6% of the GDP and a net export value of Cdn$54 billion in 2005), Canada's sources of energy range from fossil fuels (including natural

gas, oil, and coal comprising more than 75% of production) to hydroelectric power. (Canada has been competing with China to be the world's largest producer of hydroelectric power.) Canada's recent developments in energy, however, could be globally significant in the coming years considering the following sources: development of Alberta's oil sands (which are second only to those of Saudi Arabia and anticipated to be the largest contributor to new global supplies of oil); expansion of the Mackenzie and Alaska gas pipelines; two new liquefied natural gas terminals in Quebec; new wind power investments ("In 2006, Canada's wind energy capacity reached 1,341 megawatts (mw), a doubling from 2005."); and newly authorized construction of hydroelectric projects. The article continues to highlight two domestic policy decisions affecting Canadian energy developments, including a change in the taxation of income trusts. ("…intended to curb the conversion of some of Canada's largest non-energy corporations into trusts…the Coalition of Canadian Energy Trusts…believes that energy trusts should be exempted from the application of corporate income tax, arguing that the new tax will have distressing impacts on the Canadian energy sector.")

Chile

In Chile, recent amendments to various laws, including the electricity law and Chilean water code, have affected the country's power generation industry in good and bad ways. The largest effect, however, was due to the 2005 amendment to the Chilean water code, which provided a new annual license payable for unused water rights, and thus promoted the sale (or effective use) of such rights. This new amendment led to new investing into Chile's hydrogeneration market. Since then, Chile's government "has stressed its intention to create further incentives for investment and development of NCRE (Non-Conventional Resource Energy), including wind, mini-hydro, biomass, geothermal, and solar power generation projects. The government's energy program has set a goal of producing, in 2010, 15% of Chile's power based on NCRE (approximately 360 to 420mw), from only 2.4% (170mw biomass, 112mw mini-hydro, and 2mw wind) currently." The article also mentions facts about the country's oil and gas industry and the government's investment in Empresa Nacional del Petroleo (the Chilean fossil fuel monopoly).

Mexico

The authors just briefly touch on the status of Mexico's energy sector but focus on a few amendments that were made in 2006 to the country's mining and oil acts.

Panama

With regards to Panamanian law on hydrocarbons, a new action plan has been set forth by the Panamanian government. This action plan includes:

- Diversification of the Energy Balance (through the introduction of liquefied petroleum gas (LPG) for automobiles and the import of natural gas);
- Energy Sustainability and Independence (through the use of ethanol, support for the Kyoto Clean Development Mechanism Protocol, the promotion of oil exploration and the encouragement of the use of alternative energies);
- Preservation of the Environment (by changing the requirements and classifications of environmental impact studies, a project for improved kitchen appliances, and a change in fuel specifications);
- Introduction and Encouragement of New Technologies (through the promotion of hybrid vehicles and a national energy savings plan).

Ierland van, Ekko, Joyeeta Gupta, and Marcel Kok. 2003. *Issues in International Climate Policy*. Cheltenham: Edward Elgar Publishing, Inc.

This book presents an overview of the most important issues related to international climate change policies (e.g., long-term scenarios, adopting policies in developed and developing countries, international business strategies, future climate policy challenges, and the effects of globalization, political modernization, and legal innovation on climate policy formulation). This book also touches on Kyoto mechanisms (e.g., joint implementation, clean development mechanism, and international emissions trading) and future development of comprehensive approaches, an international climate regime that contains guiding principles, and criteria and rules for differentiating future commitments for all parties.

Inter-American Development Bank. 2008. "Sustainable Development: Environment, Climate Change and Energy - Opportunities for Dialogue and Cooperation between the European Union and Latin America and the Caribbean."[7]

This document provides an overview of issues related to sustainable development, energy, and climate change from the perspective of Latin America and the Caribbean (LAC). It also proposes how a greater cooperation between LAC and the European Union (EU) can benefit both regions. "All 32 countries [in LAC] have signed the major environmental conventions: Climate Change, Biodiversity, Ozone and Desertification, and the Montreal Protocol. All but one has signed the Kyoto Protocol, 30 out of 32 have signed the Cartagena Protocol, and a similar number have signed the Stockholm Convention." Although LAC's contribution to greenhouse gas (GHG) emissions, compared to other regions in the world is relatively small, LAC contributes approximately 25% of all carbon sink losses due to deforestation, which has received little or no attention with regards to clean development mechanism (CDM) projects. "Based on current records, 50% of CDM projects are related to energy and industry, and only one forestry project has been registered." According to this document, for the LAC region to contribute to GHG emission mitigation, the countries must focus more importantly on the sustainable use and conservation of forests.

Many LAC countries have begun to implement new plans and legislation to reinforce the use of alternative renewable energy sources. Argentina has implemented a national plan to promote the development of wind power plants and new legislation to promote other renewable energy sources has been proposed. Meanwhile, Brazil has created an incentive program for alternative energy sources and has become an international leader in ethanol production (making it the world's main producer of biofuels). Even Chile has made an effort by committing to increase the use of renewable sources in electricity generation to 15% by 2010. In regards to Central America, Mexico recently launched a regional climate change strategy, which, according to the document, would have been established in May 2008.

The document also touches on the Bali Action Plan and concludes with an extensive list of "dialogue on the effectiveness and orientation of development cooperation, as well as how EU

[7] Available at http://www.iadb.org/europe/files/pubs_and_working_papers/Sust-Dev-PUB-08-EN.pdf.

domestic policies impact the development objectives of their cooperation programs in the LAC region."

Kim, Margret J., and Robert E. Jones. 2008. "China: Climate Change Superpower and the Clean Technology Revolution." *Natural Resources & Environment,* 22(3): 9-13.

This paper examines how China's growing emission levels have been and will continue to be grossly underestimated. The study further examines the effects of China's emissions worldwide (especially since the country is primarily fueled by dirty coal-fired power, and two 500 megawatt coal-fired units are being installed each week). The authors also touch on China's National Climate Change Program (which can be found at the following URL: http://www.china.org.cn/english/environment/213624.htm) and criticizes China's "pessimism" and "suggested intent to take action." The authors quote Ma Kai, the Minister of the National Development Reform Commission from a June 4, 2007 press conference in saying, "China is committed to pursuing a more sustainable, lower-carbon future, but not at the expense of economic development…it is too early, too abrupt, and too blunt for the international community to impose emission caps on China." Apart from a strong argument and well-crafted criticism, this paper outlines China's plans in the coming years to address climate change.

Mauricio, Garrón Bozo. 2008. "Energy Policies in Latin America and the Caribbean and the Evolution of Sustainability." *International Journal of Energy Sector Management,* 2(1): 8-35.

This paper seeks to offer an evaluation of the energy sector's contribution to sustainable development in Latin America and the Caribbean (LAC) in the last 30 years. The author uses sustainable development indicators proposed by the Latin American Energy Organization/Economic Commission for Latin America and the Caribbean/German Technical Cooperation, in conjunction with indicators proposed by IAEA (International Atomic Energy Agency), United Nations Department of Economic and Social Affairs, IEA (International Energy Agency), EUROSTAT (The Statistical Office of the European Communities), and the EEA (European Environment Agency). These indicators are based on objectives, priorities, and available information; their values are analyzed in a period of significant changes in LAC energy policies. The author presents the state and evolution of sustainability in LAC at country and sub-regional levels and draws important conclusions about the contribution of energy policies to sustainable development. The author further identifies some key areas for improvement. This research intends to highlight implicit deficiencies in energy policies that could suggest new priority guidelines for future policy decisions in order to improve LAC contribution to sustainable development.

National Development and Reform Commission of the People's Republic of China. 2007. "China's National Climate Change Programme."[8]

This article outlines China's objectives, basic principles, key areas of actions, and policies/measures to address climate change for the period up to 2010.

Pamlin, Dennis, and Katalin Szomolányi. 2006. "Saving the Climate @ the Speed of Light: First Roadmap for Reduced CO_2 Emissions in the EU and Beyond." Brussels: Auspert Pauwels.[9]

This joint initiative of the European Telecommunications Network Operators' Association and World Wildlife Fund makes the case that a strategy to support the use of Information and Communication Technology (ICT) is necessary in reducing CO_2 emission levels in the European Union (EU). "The introduction of ICT as a part of the solution challenges many of the old objections against climate action. Not only can these measures reduce CO_2, they can do so almost as a side-effect while increasing innovation, welfare, equity, and competitiveness." The authors introduce a multitude of ways ICT can assist the EU in achieving CO_2 emission levels for 2010 and post-2010: travel replacement via video and teleconferencing, dematerialization through online billing, virtual answering machines, web-taxation, and implementation of combined measures such as flexi-work.

Presidency of the Republic of Mexico. May 28, 2008. "President Calderón at Climate Change and Environment Summit, Central America and the Caribbean." News Release, May 28, 2008.[10]

This news release summarizes the National Strategy of Climate Change created by the System of Central American Integration (SICA) and the Caribbean Community (CARICOM). There are two agendas to the strategy: a Gray Agenda and a Green Agenda. The Gray Agenda is focused on efficient energy use and the reduction of greenhouse gas (GHG) emissions through "technological innovation, energy efficiency in industrial processes, changes in consumers' energy consumption patterns, energy saving programs for households and the productive apparatus, and of course, promoting energy production through alternative source such as wind and solar energy." The Green Agenda is focused on "preventing deforestation or on promoting reforestation and productive forestation through programs such as Pro-Tree, a program oriented towards the payment of environmental services."

[8] Available at http://en.ndrc.gov.cn/newsrelease/P020070604561191006823.pdf.
[9] Available at http://www.etno.be/Portals/34/ETNO%20Documents/Sustainability/Climate%20Change%20Road%20Map.pdf.
[10] Available at http://www.presidencia.gob.mx/en/press/?contenido=35890

Raufer, Roger K. 2007. "The New Power Generation: Environmental Law and Electricity Innovation: Colloquium Article: Sustainable Urban Energy Systems in China." *New York University Environmental Law Journal*, 15(1): 161-204.

This paper focuses on the acceleration of urbanization in China and its current and anticipated affects on the country's power generation requirements in the coming years. The author makes the point that sustainable urban energy systems (SUES) will be required to address these energy needs. The paper addresses these issues in three parts: China's urban energy situation and how it is changing, differences in the viewpoints of economists and engineers in addressing these changes (and how this might affect urban energy policy in China), and an outline of steps toward the development of SUES for Chinese cities.

Republic of Turkey Ministry of Foreign Affairs. 2008. "United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol."[11]

This article provides a general overview of the Kyoto Protocol and Turkey's strategy in combating climate change. Since Turkey did not become party to the Kyoto Protocol and was not listed in the Annex-B of the protocol, the country was still listed in Annex-I of the UN Framework Convention on Climate Change (UNFCCC). "Turkey is expected to become party to the Kyoto Protocol which belongs to the aquis communitaire in the framework of European Union (EU) full membership negotiations. As a result, the progress report, released on 6 November 2007, states that Turkey is not party to the Kyoto Protocol, has not yet established its emission trading scheme, and is yet to transpose the Emission Trading directive." Since Turkey lies in the heart of the Mediterranean Basin, it could be one of many countries in the area that will be the most seriously affected by climate change, with the most serious affect being desertification over the next 30 years. According to the article, Turkey has implemented and adopted new, and unspecified, legislations and laws, including a new environment law that "has defined strict emission limitations in the energy and industry sectors and brought new dimensions to solid waste and air quality management" and new legislations on "renewable energy, energy efficiency, and energy conservation, while trying to increase the energy supply to meet the increasing demand." Turkey is also in the process of increasing funds for clean energy research.

[11] Available at http://www.mfa.gov.tr/united-nations-framework-convention-on-climate-change-_unfccc_-and-the-kyoto-protocol.en.mfa

State Council Information Office of the People's Republic of China. "China's Energy Conditions and Policies." White Paper, December 26, 2007.[12]

This paper addresses the various aspects and measures within the 11th Five-Year Plan for National Economic and Social Development of the People's Republic of China. This paper also expands on the Chinese government's Outline of the National Plan for Medium- and Long-Term Scientific and Technological Development (2006-2010) in 2005, which stresses accelerating progress of energy technologies and strives to provide technological support for the development of sustainable energy.

Veno, Janelle. 2007. "Flying the Unfriendly Skies: The European Union's New Proposal to Include Aviation in Their Emissions Trading Scheme." *Journal of Air Law & Commerce*, 72(3): 659-687.

This paper focuses on the European Union's Emission Trading Scheme (EU ETS) and the proposal of the airline industry's implementation into it (along with the obstacles that must be overcome for this to happen). The author also analyzes the effect of the airline industry's implementation into the EU ETS on competition in the industry itself, as well as third parties, including consumers and foreign countries.

[12] Available at http://www.china.org.cn/english/environment/236955.htm.