

# Report

Energy and Climate Program

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## Financing Energy Efficiency in China

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### Introduction

Removing barriers to clean energy investment in China may contribute more to climate protection than any global climate treaty. The incentives and rules of such a treaty will be blunted and frustrated by distortions of the world's largest potential clean energy marketplace unless policy makers recognize and deal with the realities of that market.

This paper describes problem areas and suggests policy adjustments for domestic and international cooperation to reduce the growth of greenhouse gas emissions in China.

China fortunately has made energy efficiency and sustainable energy development top policy priorities. Only Europe has set automobile fuel economy targets higher than China. No nation has a more exacting goal than China's plan to cut energy intensity by 20 percent by 2010.

But unintended consequences of regulatory policies—red tape—obstruct clean energy development in China. Lending controls, foreign investment laws, company formation regulations, and even the Clean Development Mechanism (CDM), a kind of emissions trading system between rich and poor countries created by the Kyoto Protocol of the United Nations Framework Convention on Climate Change, increase financial risks and costs for project developers through unnecessary expenses and lengthy wrangles for approvals. These poorly understood barriers to clean energy investment frustrate China's admirable commitment to ambitious clean energy goals.

Although customers for clean energy are motivated by high energy prices and energy shortages, the Chinese marketplace lacks certain basic mechanisms to implement clean energy measures. A gap separates objectives set by the national government and implementation of them by provincial and local government leaders.

## **Clean Energy Finance in China**

The problems with energy efficiency finance in China are not the usual complaints: an overabundance of cheap coal or a reckless disregard for the environment. Coal is, after all, an expensive and difficult-to-deliver energy source in China. And clean energy is a stated priority at the highest levels of the Chinese government. Chinese leaders have even begun discussing a goal for cutting greenhouse gas emissions by 2050, albeit from 2025 levels, which are expected to be higher than they are now.<sup>1</sup>

China has enacted impressive, well-intentioned national policies to promote clean and renewable energy that reflect a seriousness of intent lacking in many countries, including the United States. The Cleaner Production Promotion Law (2002) directs enterprises to “recover and utilize their own wastes or wasted heat.” It also requires that “... environmental impact assessments ... shall accord priority to adopting cleaner production technologies ....” The Renewable Energy Law (2005) supports the use of financial incentives. Article 25 of the law authorizes financial institutions to offer preferential loans with subsidized interest rates to projects involving renewable energy development and utilization.

Chinese leaders frequently reassert their support for these pathbreaking policies. President Hu Jintao has been quite visible and articulate in expressing strong support for clean energy goals, stating recently, for example, that “China attaches great importance to energy conservation. We ... give top priority to conservation.”<sup>2</sup> This strong political support has helped to create a modest market for clean energy. But the size of this market will continue to be limited due to impediments to financing of efficiency and other forms of clean energy.

There are at least four major barriers to clean energy finance in China that the government has not addressed:

- Restrictions on debt financing
- Restrictions on foreign equity investments
- Asymmetric policies at the central and local levels
- Confiscatory tax policy

This report describes these barriers, as well as investment risks and regulatory delays inadvertently created by Kyoto’s Clean Development Mechanism, and suggests policy changes that could accelerate the development of clean energy in China.

## **Restrictions on Debt Financing**

It seems absurd that China would have difficulty financing clean energy investments on its own. Yet, China’s capital markets—both equity and commercial paper—rank among the smallest financial markets in the world. Debt finance in China lacks flexibility. Corporate bonds provide \$5 trillion per year in financing in the United States,<sup>3</sup> but this type of financing barely exists in China.<sup>4</sup>

Chinese equity markets provide only about 25 percent of the capital provided by comparable markets in other developing economies, and commercial debt provides only 2 percent. Moreover, China uses its investment capital far less efficiently than South Korea or Japan did at comparable stages of development. China's financial system channels only about one-quarter of new investment into private companies. This number is striking because private firms account for more than half of gross domestic product (GDP), and the state-owned enterprises that gain use of much of the nation's credit produce only about a quarter of GDP. This situation has led to the declining productivity of capital. More importantly for the subject at hand, clean energy investing would most effectively be developed by the private sector. The financial system thus is inherently biased against clean energy investing.

All interest payments are assessed a 10 percent withholding tax—another disincentive for debt finance. The tax basically requires any company that borrows money for implementing an energy efficiency project or renewable energy project to pay the central government an amount equal to 10 percent of the interest payments it makes on the loan. While frustrating, barriers such as this pale in comparison with indiscriminate constraints on lending to energy-intensive industrial sectors and the absence of risk-based lending.

The big regulated utilities—which are building on average two large, coal-fired power plants per week—do not suffer the same constraints as clean energy developers. The utilities have invested at least \$50 billion per year for the past several years. Annual investment in coal-fired electric power in China outstrips clean energy investment by a ratio of perhaps 10-to-1.<sup>5</sup> This disappointing comparison stems only in part from the kinds of barriers to new energy development seen all over the world—lack of familiarity with the clean energy business on the part of lenders and lack of experience in dealing with investors on the part of developers. China has its own special set of barriers: investment controls, incorporation rules, usury laws, and lending rules, as well as unclear and changing CDM regulations. These problems, in combination with a lack of coordination of overarching central government policy with the regulations required of and implemented by provincial and municipal authorities, discourages—frightens is not too strong a word—foreign investors. The upshot is that despite China's \$1.4 trillion in foreign currency reserves and the \$3.6 trillion in Chinese currency deposited in Chinese banks, financing for clean energy is difficult to arrange.

A key problem is an inadvertent ban on loans for efficiency in the energy-intensive sectors. In its effort to rein in unbridled expansion of heavy industry, the Chinese government has barred lending to steel and cement companies. This crude industrial policy is a substitute for monetary policy, but it effectively blocks a vital pathway for clean energy finance. Cautious bankers fear running afoul of the heavy-handed regulations, and efficiency projects are looked on with great suspicion as a work-around to investment controls. This type of control creates high transaction costs for energy productivity investments.

But the new, modern, and efficient factories are exactly what one would want to be making energy-intensive materials. Greater efficiency in industrial energy use would

result from shutting down old plants, which are often owned and operated by local governments and are inefficient due to poor management and outmoded technology. These companies lack what economists call “hard budget constraints,” the requirement that they shut down rather than lose money. But because the operations are state-owned, there is a high political barrier to closing them.

Worse, a cap on interest rates unintentionally discourages “risk-based” lending to industrial energy efficiency projects. Returns on energy efficiency investments in China often exceed 50 percent per year (simple payback periods of less than two years are common for many measures), but a bank is generally not permitted to lend money at an interest rate of, say, more than roughly 8 percent. The cap on interest rates heightens the tendency of domestic Chinese banks to be risk-averse. This inability to capture a “risk premium” is particularly troublesome in fields such as energy efficiency that often share risk characteristics, including:

- Customers lacking credit history
- Banks having no experience with energy-efficiency measures
- Companies providing energy services are often start-ups without financial security

Shareholder loans cannot pick up the slack because a foreign investor would look at the risk-return ratio of a loan to a start-up energy service company in China as it would a “junk bond.” Investors in junk bonds expect a yield of no less than 4 to 10 percent over the yield on secure U.S. government bonds, and they often receive returns exceeding 20 percent per year. Adding a risk premium for investing in a country with as much uncertainty as China in its economy and legal system would simply increase the required yield to stimulate a loan or investment. Yet, China limits interest rates to less than 10 percent on foreign shareholder loans to a Chinese joint venture partner. That kind of yield is generally inadequate to justify the risk.

The International Finance Corporation (IFC) stands out because the IFC “gets it” when it comes to shaping financial solutions to energy efficiency investment in China. The IFC attacks two key aspects of the problem—the need for technical assistance in financial engineering and the need for loan guarantees for risk-averse financial institutions, particularly private Chinese banks (see box 1 for more detail). The IFC was so successful in designing and implementing its program that within six months of gaining Chinese government approval to provide guarantees with foreign currency, the IFC developed an energy efficiency pipeline of projects worth a total of over \$650 million.<sup>6</sup>

### **Restrictions on Foreign Equity Investments**

Structuring a foreign equity investment in China remains a difficult task. In part, this is due to difficulty in leveraging equity with debt, for the reasons explained above. But other fundamental constraints apply to how foreign investors can bring money to China, including funds for clean energy investment, and the conditions under which profits can be repatriated. These problems remain big headaches for clean energy investors.