CHINA'S

GREENTECH DEVELOPMENT CHALLENGES

While China's greentech market opportunities are attractive, there are still hurdles that must be addressed in order to achieve the vision of an environmentally sustainable China.

THE CHINA GREENTECH INITIATIVE'S PARTNERS AND STRATEGIC ADVISORS believe that greentech markets in China represent attractive opportunities, and are optimistic that market conditions will become even more favorable over time. In the spirit of uncovering greentech solutions, the Initiative identified key market challenges, which if overcome, would enable and accelerate the vision of an environmentally sustainable China. Many of these are similar to those of other countries, while some are China specific. This chapter outlines what these challenges are, while the following chapter highlights opportunities stakeholders have to accelerate greentech markets in China.

In order for China to continue its rapid economic development while preserving the health of its citizens, conserving the natural environment for future generations and solidifying its status as an international leader, it has the opportunity to embrace new approaches to clean energy generation, pollution mitigation and the efficient use of resources. The Initiative identified 12 challenges that must be addressed, organized into four major categories – market, technology, financing and regulatory – as shown in Figure 1. Where specific challenges correspond to multiple categories, they have been placed in the category that most closely describes their impact on China's greentech market development.

A detailed analysis of the challenges facing individual greentech sectors is included in the full report.

Fig.1: CHINA'S KEY GREENTECH DEVELOPMENT CHALLENGES

MARKET	■ **Inadequate awareness about greentech solutions** ■ **Underdeveloped value chains** ■ **Highly-concentrated markets**
TECHNOLOGY	■ **More expensive than conventional alternatives** ■ **Lacks adaptation to China's specific market requirements** ■ **Intellectual property and technology transfer issues**
FINANCING	■ **Fewer financing options** ■ **Financing practices lack synergy with greentech requirements**
REGULATORY	■ **Complex regulatory environment** ■ **Developing policy incentives** ■ **Uneven compliance with existing policies** ■ **Limited policy visibility**

Market Challenges

MARKET CHALLENGES IN CHINA CONSTRAIN THE ABILITY OF SOLUTION PROVIDERS to deliver green products and services, and limit market demand for greentech solutions.

INADEQUATE AWARENESS ABOUT GREENTECH SOLUTIONS

Limited knowledge of the availability and benefits of greentech solutions causes adopters and end users in China to continue using conventional practices, largely due to misconceptions about greentech benefits. End users often still see greentech as an incremental cost rather than a potential benefit, and may not understand how their consumption of conventional alternatives impacts the environment. Electricity consumers, for example, do not realize the connection between their consumption and China's coal-based electricity generation, and the associated growing levels of air pollution, related illnesses and long-term climate change risks.

Potential adopters may also believe that green technologies cost more than they actually do, as perceptions are based upon historical rather than current prices. For example, costs to adopt solar power technologies have fallen significantly in recent years due to increased competition, manufacturing scale and process innovation; however, buyers still perceive prices as prohibitive. Some greentech solutions are even becoming cost-negative over their life cycles, particularly if the assumption of rising utility costs is included in the purchase analysis.

Another aspect of the awareness challenge is the limited knowledge adopters have of China's greentech distribution channels. For example, while potential adopters may be aware of and desire greentech solutions, they often do not know where to purchase them.

UNDERDEVELOPED VALUE CHAINS

Underdeveloped value chains across many of China's greentech markets result in disconnects between geographies and stakeholders, limiting the ability of solution providers and adopters to enter into mutually beneficial agreements, thus restricting greentech solution penetration.

One area of disconnect is due to many of China's energy resources being located geographically far away from the country's demand centers. For example, 70% of China's large natural gas reserves are located in western China or offshore fields, far removed from population centers. The lack of transmission lines from these reserves to the demand centers, along with China's relatively scarce natural gas resources, are among the main reasons why, in 2006, natural gas accounted for only 4% of the nation's total energy consumption versus the global average of 24%.[1,2] Similarly, coal is currently transported over long distances from where it is mined to coal-burning electricity plants located near major cities. Geographic disconnects also exist with renewable energy sources, such as wind and solar, which require significant grid upgrades to transmit electricity long distances.

The separation of costs and benefits across participants involved in different parts of greentech solution life cycles is another type of disconnect. As an example, property developers typically incur the upfront costs of outfitting buildings with green technologies, such as Integrated Heat, Power Generation and Greywater Systems. Tenants, on the other hand, receive the key benefits of these technologies through reduced heat, electricity or water costs while they occupy the buildings over time. Developers are more likely to be attracted to greentech solutions when they can benefit directly through higher property values and increased rents.

HIGHLY-CONCENTRATED MARKETS

The high levels of concentration in some of China's greentech markets result in decreased competition, which can potentially decrease efficiency and innovation amongst companies. Greentech markets frequently identified as highly-concentrated or state-dominated include, for example, China's electrical power grids, some types of conventional and renewable power generation, and certain elements of the railroad transportation value chain.

[1] *National Bureau of Statistics of China, "China Energy Statistical Yearbook, 2007"*
[2] *BP, "BP Statistical Review of World Energy 2009"*

There are a few good reasons for maintaining centralized control over China's greentech markets. Since energy security is a key policy concern, policymakers would prefer to see less reliance on energy imports. Because China is already highly dependent on petroleum imports, the Chinese government is currently building up its reserves and diversifying the country's energy mix. Security is also a reason for China to be concerned about who has access to energy supply, generation and infrastructure. Market experts suggest that some policymakers also are beginning to question the security implications of widespread foreign involvement in the operation of China's water infrastructure.

Another frequently cited rationale for supporting highly concentrated markets, in China and elsewhere, is the idea that many greentech markets represent natural monopolies where high capital or interoperability requirements require strong firms operating at near-universal scales. Infrastructure markets have traditionally been identified as natural monopolies, and this rationale has been used in China with respect to transportation infrastructure, electrical power grids and large-scale water diversion projects.

Simplified regulatory compliance monitoring and enforcement is an argument for concentrated markets with strong ties to the government. For example, close relationships currently exist between the government and China's relatively small number of coal-based power generators. These relationships help the firms to understand China's increasingly-stringent nitrous-oxide emissions requirements and drive them to invest in solutions to meet upcoming standards. These relationships may also mean that firms are able to anticipate and prepare for regular and even 'random' emissions inspections. Meanwhile, in China's highly-fragmented real estate development market, as is the case in other countries, enforcing building energy efficiency standards is a difficult and costly endeavor due to the diversity of organizations involved.

The benefits of China's concentrated and state-dominated greentech markets are offset by poor incentives; lack of competition reduces efficiencies and innovation that come from open and competitive markets. The challenge for any nation, including China, is to know how and when to strike a balance between these two sides. China has utilized competitive pressures to achieve balance in its telecommunications and banking sectors in the past, and now has the opportunity to do the same in greentech.

Dominant market players, particularly state-controlled entities, have historically enjoyed relatively easy access to capital, which sometimes discouraged efficient economic practices. China's 'Big 4' commercial banks (Agricultural Bank of China, Bank of China, China Construction Bank and Industrial and Commercial Bank of China) have occasionally been subject to policy-directed lending. Even though they appear to have become more disciplined in recent years, with non-performing loan ratios dropping from nearly 16% in 2004 to under 3% in 2008, policy-directed lending continues, and several market analysts suggest that these non-performing loans are currently on the rise.[3]

There are circumstances under which policy lending may not in itself be bad for the development of markets. For example, China's directed lending strategy under its current economic stimulus plan is expected to be a considerable driver of local greentech markets. It is important however, for policy concerns not to override commercial risk considerations in order to channel funding to the most economically beneficial uses.

Since most greentech markets rely on relatively new and rapidly changing technologies, limiting competition can negatively impact the development of efficient and innovative solutions. For example, in China's early push to promote wind power, regulators used policies to direct China's existing conventional energy generating enterprises into the wind sector, yet excluded foreign wind farm developers from national concession projects and limited the extent to which foreign turbine manufacturers could supply national projects. While this approach may have enabled China to build up its infrastructure rapidly with a view towards

[3] *Stratfor, "China: Renewed Risk of China NPLs," January 19, 2009, http://www.stratfor.com/*

optimizing its operations in the future, it contributed to China's early wind farms being less efficient and requiring higher ongoing maintenance costs than those in other countries.

Technology Challenges

TECHNOLOGY CHALLENGES ARE SLOWING THE DEVELOPMENT AND APPLICATION of greentech solutions in China, hindering the widespread adoption of solutions that meet the cost and feature requirements of potential adopters.

MORE EXPENSIVE THAN CONVENTIONAL ALTERNATIVES

While greentech solution costs have decreased, and should continue to do so with ongoing technological development, learning curves and increasing economies of scale, they are often still more expensive than conventional alternatives. Most renewable energy solutions, (e.g. Concentrating Solar Installations and Offshore Wind Farms) are in relatively early stages of technological maturity, with relatively high adoption costs due to rapidly-evolving designs, suboptimal scale and incomplete manufacturing optimization.

In China as in many other countries, subsidized resource and utility costs may also limit the attractiveness of greentech solutions. An example of this is diesel fuel prices. While fuel prices constantly fluctuate, an October 2008 study found that one liter of diesel fuel cost 20 yuan per liter in Hong Kong but only five yuan in nearby Shenzhen due to differences in subsidization and taxes.[4] Regulators throughout China have realized that some cost controls, which make electricity, potable water, cooking gas and central heating more affordable for low-income citizens, also reduce incentives for efficiency. Aside from reducing demand-side conservation, subsidization also limits the appeal of efficiency-enabling greentech solutions. Recognizing this challenge, regulators around China are raising utility prices and beginning to develop new volumetric and income-related pricing systems.

One example of these new pricing approaches is simple block pricing for domestic water use. In Lijiang City, for instance, the base water price is 1.40 yuan per cubic meter but climbs to 2.10 yuan and then 2.80 yuan per cubic meter as a household uses more than 25 and then 35 cubic meters per month respectively.[5] While this volume-based pricing policy is moving in the right direction, the World Health Organization suggests that a family of four will only use about 4.8 cubic meters of water per month (40 liters per person per day), so the thresholds are likely still too high to encourage significant conservation.

The current low international market prices of natural resources and commodities also limit the attractiveness of some greentech solutions. As noted above, China has been relaxing its subsidization of commodity and utility prices; while this can make greentech solutions relatively more attractive, it also exposes China to changes in global commodity prices. Fluctuations in global oil prices, for example, have a direct impact on the profitability of greentech solutions like electric vehicles, biofuels and solar energy.

The China Greentech Initiative expects that prices for many greentech solutions will continue to decrease as technologies mature and solution providers exploit learning curve effects in manufacturing processes. At the same time, energy and other commodity prices are expected to appreciate as the world emerges from the current economic downturn. The cost of using fossil fuels is also expected to increase, due to regulatory mechanisms which cap or tax carbon emissions, both internationally and in China. While short-term fluctuations could still impact adoption, over the next ten years it seems likely that many of the 125 solutions investigated by the Initiative will achieve cost parity or better with conventional alternatives.

[4] 庞昌伟，”油价补贴： 肥水流向国际游资，” 清华大学中国与世界经济研究中心, *[Pang Chang Wei, "Oil subsidies: hot money flow to international speculation," Tsinghua University Center for China in the World Economy], October 3, 2008*

[5] *The World Bank, Addressing China's Water Scarcity: Recommendations for Selected Water Resource Management Issues, (Washington DC, U.S.: The World Bank Group, 2009), 91*

LACKS ADAPTATION TO CHINA'S SPECIFIC MARKET REQUIREMENTS

Many greentech solutions are not customized yet to meet China's environmental and market requirements, which in some cases differ from other countries. It is necessary to understand that while China bears the hallmarks of both developed and developing nations, factors such as a large population, limited natural resources, high pollution levels and a developing economy with cost-conscious adopters, present unique characteristics that need to be incorporated into greentech solutions. The companies that succeed in China's greentech markets will be those that most effectively understand these characteristics and their impact on requirements.

The ability to adapt technologies developed internationally to the unique conditions of China's market is very important. Such adaptation entails localizing product features for China-specific demands or minimizing solution production costs without sacrificing functionality. For example, enzymes that are used to aid water treatment processes must be suited to the pollution profiles of China's varying water resources, which differ across and within river basins. The greater the extent to which these customized enzymes can be commercialized at costs affordable to the operating budgets of Chinese municipal water and wastewater treatment plant operators, the more attractive they will become to this price-conscious market.

While Chinese companies across many sectors have strong track records in adapting, replicating and scaling solutions for large-scale manufacturing and distribution within China and throughout the world, they are less known for their ability to innovate new solutions. Companies, either local or foreign, who best understand the product features, functions and costs demanded by potential Chinese greentech adopters, will likely be the most successful in the Chinese market.

INTELLECTUAL PROPERTY AND TECHNOLOGY TRANSFER ISSUES

Legal, regulatory and cultural barriers complicate the transfer of technologies into and out of China. While China's government has taken notable steps in the past decade to support the legal protection of intellectual property (IP) rights, there remains a common perception among foreign firms that their IP assets cannot be suitably protected in China. This perception, in turn, limits their willingness to produce or sell IP-intensive products in China, creating a significant obstacle for China's greentech market development.

Although there are signs of improvement, there is still little question that China's enforcement of IP rights has yet to reach developed world standards. One main impediment is that judges outside top-tier cities may have limited experience with cases related to IP infringements. Moreover, when IP-related legal penalties are awarded in China's courts, collection of payments on these judgments can cause further complications. Some analysts find that the value of damages awarded in Chinese IP cases are generally below the economic value of the damages resulting from the IP infringement in the first place, further reducing incentives for the local innovation of new solutions.[6]

Cultural and policy barriers also limit the use of foreign technologies in China. A variety of ministries support the funding of greentech demonstration projects, for instance, but come under pressure if they significantly promote the use of foreign technologies in pilot projects. As in other countries, preferences towards locally-developed technologies are occasionally formal and policy-based, but more commonly operate through informal influence channels such as opaque bidding evaluation processes for public works infrastructure projects.

Finally, Chinese firms often have limited familiarity with both domestic and international IP regulations and limited capacity to manage their own IP assets effectively. This can result in Chinese IP being misappropriated by other Chinese firms, or limit the ambitions of Chinese firms to export greentech solutions to other countries.

[6] *NERA Economic Consulting, "Intellectual Property Rights Protection in China: Trends in Litigation and Economic Damages," (National Economic Research Associates, 2009), 2*

Financing Challenges

DESPITE STRONG POLICY SUPPORT AND GOVERNMENT FUNDING, greentech financing in China is limited by the relative immaturity of financial markets. More specifically, this includes fewer financing options than developed markets and often more basic financing practices that are not well-suited to greentech requirements.

FEWER FINANCING OPTIONS

Compared to developed markets, there are generally fewer options in China for raising debt or equity capital across the life cycle of greentech solutions.

China does not have a mature public bond system to finance public infrastructure projects, such as water treatment or municipal railway systems, like those that exist in many other countries. As a result, China's provincial and municipal governments must rely on tax income or transfers from the central government to fund the expansion or modernization of municipal systems.

Another aspect of the public funding gap relates to the fact that while environmental asset exchanges have been established in Beijing, Shanghai and Tianjin, there are no cap-and-trade systems currently in place to facilitate trading on those markets. This leaves companies that engage in pollution and greenhouse gas reduction with no domestic opportunities to monetize their emissions reductions.

At the moment, China's state-owned commercial banks and private financiers do not provide sufficient financing to small-scale greentech market participants. Commercial banks generally invest in large-scale projects and prefer fully-collateralized loans, creating key challenges for emerging providers that may want to participate in greentech projects like renewable power plants and smaller scale adopters of greentech solutions.

China's banks are commonly given targets for investments in certain sectors, which may result in a push to meet these markers, distorting the optimal risk-adjusted allocation of capital. While China's domestic venture capital and private equity markets have been growing rapidly in recent years, it is important to remember that they are still at an early stage of development, and therefore not as efficient in mobilizing capital.

Finally, foreign financing in China's greentech markets is often restricted. For example, many elements of electrical power, rail and municipal heating sectors are all relatively inaccessible to foreign investors. The global carbon market is often used as evidence that foreign capital is effectively being channeled to greentech investments via the emissions market. While China has generated the most emissions trading credits under the Kyoto protocol, the actual situation is much more complex.

China's current policy environment allows projects to apply for certification to be traded under the Kyoto Protocol if they are at least 51% controlled by Chinese entities.[7] While there are signs that this policy may be softening to allow Hong Kong companies a greater Clean Development Mechanism role in China, this restriction has nevertheless limited the willingness of foreign participants to make large-scale contributions to Chinese greentech projects that were hoping to use carbon market capital as a financing tool. Uncertainties about the post-Kyoto emissions trading regime have also increased risks and slowed foreign investment in China's carbon-market oriented greentech projects.

FINANCING PRACTICES LACK SYNERGY WITH GREENTECH REQUIREMENTS

Greentech investments often have unique characteristics that complicate financing, such as high front-end capital needs and long payback periods. Furthermore, solutions are not well developed or understood by China's markets, and present complex business models, as illustrated by renewable energy power-purchase agreements or energy procurement contracts for buildings. Lenders, who generally have limited experience with these new solutions and business models, find the evaluation of these investments challenging.

[7] *National Development and Reform Commission, "Measures for Operation and Management of Clean Development Mechanism Projects in China," November 21, 2005, http://www.cdm.ccchina.gov.cn/*

Investments required at different stages of product development and commercialization are complicated by the current state of China's financial markets. For instance, there are few instruments available for investing in the early stages of research and development. When greentech solutions are ready to be deployed, the range and sophistication of project financing involved is limited, compared to other countries. A significant understanding of the technical aspects of environmental issues is required for investments in a range of greentech sectors. The profitability of solar power generation, for example, partially depends on the ability to forecast and measure local solar resources, which are areas in which most financial investors in China have little experience to date. More broadly, China's investors are often limited in their ability to assess the environmental, health and safety risks of greentech investments, which in turn inhibit their ability to provide sound analysis for project valuations and cash flow projections.

Regulatory Challenges

BASED ON THE PACE OF REGULATORY CHANGES, China's regulatory environment is a clear and positive driver to the acceleration of the country's greentech markets. Certain challenges remain, however, including complexity of the regulatory environment, developing policy incentives, uneven compliance with existing policies and limited policy visibility.

■ COMPLEX REGULATORY ENVIRONMENT

Greentech markets, by their nature broad and emerging, are overseen by a wide range of Chinese regulatory entities, which are increasingly influenced by international governments and inter-governmental organizations. This creates a complex regulatory environment that is difficult to navigate. Energy issues, for example, are regulated by several agencies at the central level (e.g. National Energy Administration and the Ministry of Industry and Information Technology) as well as other bodies at local and provincial levels. In recent years, progress has been made to provide greater clarity. For example, the National Development and Reform Commission and National Energy Administration coordinate to provide cohesive planning of energy activities across related agencies. In other areas, such as water policy, numerous regulatory agencies are working to provide better management with increased coordination and cooperation.

Coordination between national and local departments and their respective policies is always challenging. China's central policies should be credited for providing clear targets, guidelines and direction for the development of the greentech market. When implementation occurs at the local level however, variations in local policies create non-uniform environments. For example, while Beijing should be applauded for adopting air pollution standards higher than national levels particularly during the Olympic Games, this policy variation creates operational challenges for industrial companies with operations in both Beijing and other provinces. [8]

Since many industries are regulated by industry-specific government agencies, this sometimes leads to conflicting treatments for common environmental issues. National initiatives such as the Top-1000 Energy-Consuming Enterprises Program, promotes change across multiple industries. However, many greentech opportunity areas, such as rail transportation and electric power infrastructure, are regulated independently and are permitted to have differing targets with respect to air, water and other emissions compared to other industries.

Finally, international conventions and treaties, such as those governing international shipping and air travel, impact standards and other greentech issues within China, even when no explicit domestic policies exist. For example, the Standards and Recommended Practices of the International Civil Aviation Organization (which are incorporated as Annexes to the Convention on International Civil Aviation) contain provisions on aircraft operations that impact emissions from China's air transportation. As China becomes further integrated into the world economy, it is expected that international entities will exercise even more influence on China's greentech markets.

[8] 中国环境科学研究院，"中国区域大气污染控制，" 2008年11月6日［*Chinese Research Academy of Environment and Science, "For Regional Air Pollution Control in China," November 6, 2008]*

DEVELOPING POLICY INCENTIVES

Most market participants acknowledge that the overall direction of China's subsidies for greentech solutions development and adoption is extremely positive. China's government has committed significant funds to the commercialization of greentech solutions across a range of areas. The four trillion yuan (US$586 billion) stimulus package puts in place notable support for electric power infrastructure, cleaner conventional energy, cleaner roads and cleaner rail transportation.[9]

While this trend is encouraging, there is limited published evidence that subsidies take into account detailed analyses of cost trends for greentech solutions. Subsidies that are created without an understanding of a solution's costs risk not being sizeable enough to stimulate significant demand or being too large and discouraging innovation. Some industry experts have pointed to the 2009 Building-Integrated Solar Photovoltaic subsidy as one that lacked transparency in its development.

Political considerations influence subsidies by affecting their size, but also the timing of their announcement. In greentech sectors where multiple regulators have potentially overlapping authority, some market participants have spoken of incentive competition, where multiple government agencies compete with each other to subsidize growth industries either first or more effectively. It is important to note that influences exerted behind the scenes are not always not visible to the market, as some market observers noted before the NDRC solar subsidy in 2009. Subsidies for specific technologies available from multiple agencies also are not usually coordinated. Subsidy applicants need to understand and fulfill the obligations of different agencies to qualify for funding under separate programs.

Finally, even when subsidies have been announced, it is not always clear what conditions applicants must meet to qualify for and receive them. For example, in a survey of 100 China-based building designers and engineers conducted jointly by the China Greentech Initiative with the construction market research firm RCC China, 41% of respondents indicated they had participated in green building projects that targeted government subsidies, but nearly 80% of this group claimed to have not received eventual benefit. While the reasons for this failure were not quantified in the survey, these respondents indicated they were often unclear on the conditions they were required to meet to qualify for funding subsidies.

UNEVEN COMPLIANCE WITH EXISTING POLICIES

In many cases, even when China has the appropriate environmental policies in place at the national level, monitoring and enforcing compliance at local levels remains a significant challenge, exacerbated by China's size, regional variations and dynamically changing economy. One aspect of this challenge is identifying the appropriate level of supervision for each policy. For example, local governments may experience a conflict of interest if they are responsible both for the growth of local state-owned companies and for compliance with national environmental regulations. This creates a plausible incentive for allowing lax compliance, due to the benefits these companies bring to the local economy. China has not traditionally relied on independent, third-party compliance monitoring of the type used in other countries, so finding the right balance between national, local, civic and third party compliance monitoring is a challenge that affects almost all greentech sectors. At the same time, it may not be efficient for national agencies to create large compliance monitoring bureaucracies for environmental issues. Developing an approach for environmental policy compliance of the magnitude and scope required by a country the size of China has never been attempted before. This creates an opportunity for China to define a new model of environmentally sustainable development.

Mixed incentives for local compliance monitoring may also lead to differing degrees of policy enforcement across regions. First-tier cities like Beijing and Shanghai are commonly recognized as having more effective policy enforcement capabilities than smaller cities. There may also be regional differences. For

[9] *International Civil Aviation Organization, "Making an ICAO standard," http://www.icao.int/ (accessed on May 10, 2009)*
[10] *Hinge, Adam, "Compliance with Building Energy Standards: One Perspective from the U.S." (presentation given at the Workshop on Energy Efficiency Compliance, Monitoring & Evaluation, Paris, France, February 9-28, 2009)*

example, a design review of over 3,000 buildings the Ministry of Construction (now the Ministry of Housing and Urban-Rural Development) carried out in 2005, revealed only 10% of projects in Southern China were found to have designs compliant with energy efficiency building codes, compared to 80% in Northern China.[10]

LIMITED POLICY VISIBILITY

Greentech market participants often have limited knowledge of medium and long-term policy plans. This lack of understanding of pace, specifics and timing complicates business decision making. Although market participants are relatively well informed of the broad direction of China's greentech policies, knowledge of the specific timing and detail of individual policy measures remains limited. Companies and investors in China's greentech markets are sometimes surprised by specific greentech-related policy announcements.

One example of these uncertainties are policies related to the construction and operation of local infrastructure projects, which are highly dependent on local administrations. Private companies entering into long-term concessions with local governments for construction or operation of infrastructure assets may find that while some public servants are willing to grant assurances or protections at the early stage, their replacements may not respect agreements entered into by former administrations. For example, water treatment plant concessions in China can be in excess of 15 or even 30 years. While the administration staff granting concessions to private market participants may make commitments to future water price increases, subsequent staff may not abide by these commitments.

Overcoming challenges will accelerate China's greentech market growth

THE FOUR CATEGORIES OF CHALLENGES discussed – market, technology, financing and regulatory – presently constrain the speed at which China's greentech markets are developing. However, the China Greentech Initiative believes that all of these challenges can be largely overcome by the range of stakeholders committed to helping China achieve its goal of environmental sustainability. Successfully addressing these challenges will greatly accelerate the development of China's greentech markets, helping the country tap renewable energy sources, clean the air, curtail growth in greenhouse gas emissions, decrease water consumption and pollution and address solid waste problems – all the while supporting continued economic growth. Specific opportunities to address these challenges are discussed in the next chapter.