



Clean Energy Market Intelligence & Project Access

2012 Update

China Country Report Update 2012



ACRONYMS & ABBREVIATIONS



ADB	Asian Development Bank
B	billion
BAKOREN	National Energy Coordinating Board
BAPPENAS	National Development Planning Agency
BAU	Business as Usual
BEE	Bureau of Energy Efficiency
BPPT	Agency for Assessment and Application of Technology
CDM	Clean Development Mechanism
CECEP	China Energy
CECIC	China Energy Conservation Investment Corporation
CER	Certified Emission Reduction
CFL	Compact Fluorescent Lamps
CFO	Carbon Finance Operation
CSP	Concentrated Solar Power
CTF	Clean Technology Fund
DAE	Department of Atomic Energy
DBP	Development Bank of the Philippines
DENR	Department of Environment and Natural Resources
DNA	Designated National Authority for CDM
DOE	Department of Energy
DOST	Department of Science, Technology and Environment
DPL	Development Policy Loan
EE	Energy Efficiency
EE&C	Energy Efficiency and Conservation
ERAV	Electricity Regulatory Authority of Vietnam
ESCO	Energy Service Company
EVN	Vietnam Electricity
FI	Financial Institution
GCM	Generation Competitive Market
GHG	Green House Gas
GOI	Government of Indonesia
GoI	Government of India
GOP	Government of the Philippines
GW	Gigawatt
IFO	International Funding Organization
IGCC	Integrated Gasification Combined Cycle
IIFCL	India Infrastructure Finance Company Limited

Acronyms & Abbreviations

IPP	Independent Power Producers
IREDA	Indian Renewable Energy Development Agency
IRES	Indonesian Renewable Energy Society
IT	Information Technology
kWh	Kilowatt Hours
LBP	Land Bank of the Philippines
LFG	Landfill Gas
M	million
MARD	Ministry of Agriculture and Rural Development
MDB	Multilateral Development Banks
MEMR	Ministry of Energy and Mineral Resources
MHA	Ministry of Home Affairs
MNRE	Ministry of New and Renewable Energy
MOE	Ministry of Environment
MOF	Ministry of Finance
MOIT	Ministry of Industry and Trade
MONRE	Ministry of Natural Resources and Environment
MoP	Ministry of Power
MPI	Ministry of Planning and Investment
MW	Megawatt
NAPCC	National Action Plan on Climate Change
NAPOCOR	National Power Corporation
NDRC	National Development and Reform Commission
NEA	National Energy Administration
NEC	National Energy Commission
NEECP	National Energy Efficiency and Conservation Program
NEP	National Electrification Policy
NHPC	National Hydroelectric Power Corporation
NPCI	Nuclear Power Corporation of India
NTPC	National Thermal Power Corporation
ODA	Official Development Assistance
PD	Presidential Decree
PFC	Power Finance Corporation
PIU	Project Implementation Unit
PLN	Indonesian State Electricity Company
PPA	Power Purchase Agreement
PPC	Provincial Peoples Committees
PPP	Public Private Partnership
PRC	People's Republic of China
PSU	Power Sector Undertaking
PV	Photovoltaic
RA	Republic Act
RE	Renewable Energy
REAP	Renewable Energy Association of the Philippines
REMB	Renewable Energy Management Bureau
RPO	Renewable Purchase Obligations
RPS	Renewable Portfolio Standard
SBV	State Bank of Vietnam
SERC	State Energy Regulatory Commission
SOE	State-Owned Enterprises



Acronyms & Abbreviations

SPV	Solar Photovoltaic
TA	Technical Assistance
TCE	Ton Coal Equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value Added Tax
VIP	Vietnam, Indonesia, Philippines
VNEEP	Vietnam National Energy Efficiency Program
WB	World Bank
WBG	World Bank Group
WESM	Wholesale Electricity Spot Market

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REGIONAL UPDATE

PEOPLE'S REPUBLIC OF CHINA



Renewable Energy & Energy Efficiency Highlights

- The People's Republic of China (PRC) is one of the leading countries in renewable energy (RE) and energy efficiency (EE). The PRC continues to support the green energy sector and aims to develop this industry further. By 2050, experts estimate, around 50-70% of the PRC's total energy consumption will come from RE.
- In 2011, the PRC accounted for 20% of total global investment in RE (\$257 billion), financing around \$52.2 billion in the year's projects—a 17% increase from 2010.
- The PRC government has fuelled the renewable energy industry with the government's 12th 5 Year Plan. The plan sets ambitious targets for 2015 and 2020. The government's top priority is to achieve 15% RE of total energy consumption.
- By 2020, the PRC hopes to have installed 150 Gigawatts (GW) of wind power, 300GW of hydropower, 30GW of biomass and 20GW of solar PV.
- The PRC has the largest wind generation capacity in the world, having invested \$28.2 billion in the industry last year. At present, the country installs 36 wind turbines daily. The National Development and Reform Commission (NDRC) recently published the "China Wind Energy Development Roadmap 2050," projecting an increase of wind installations over the next few decades.
- Hydropower dominates the RE sector in the PRC. At present, about 225GW of hydropower is installed, with targets to reach 300GW of hydropower by 2020.
- EE in the PRC is of utmost importance to the government. The government continues to work on its set target of a 40-45% reduction in CO2 levels by 2020, as well as a 16% reduction in energy intensity by 2015.

Energy Sector Background

The following report highlights the current stance of the People's Republic of China (PRC) on the domestic energy industry, specifically the renewable energy (RE) and energy efficiency (EE) developments, as well as the government's aggressive measures to take the lead in the clean energy sector.

In recent decades, the PRC has been one of the fastest growing industrial and power generating economies in the world. In 2011, the total generating capacity stood at about 1,073 Gigawatt (GW), doubling its capacity since 2005. In the near future, experts project that the PRC's energy demand and consumption increase by 75% from 2008 to 2035, contributing to just below 40% of total global energy demand. Due to this rapid rise, key environmental concerns have been raised such as the increase in CO₂ levels and greenhouse gas emissions. The PRC has thus focused its attention on the RE sector in order to accommodate the growing demand for power.

At the present, around 72% of the PRC's generating capacity comes from coal, natural gas, hydropower and oil-based sources. The rest of the energy comes from nuclear generation and non-hydro renewable sources, mainly wind power. In 2011, the PRC's RE capacity stood roughly around 280GW, or about 25% of total power generation.

The table below demonstrates the PRC's RE power generation capacity increase in the last few years.

Table 1.1 PRC's Power Generation Capacity (MW)

Source	2005 (Actual)	2010 (Actual)	2011 (Actual)
Wind	1,267	44,733	62,364
Solar PV	68	893	2,593
Hydro	117,388	214,826	225,483
Biomass	2,183	3,087	3,308

Source: Alternative Energy Database

Power Sector Structure and Regulation

The industry sector accounts for the largest share of power consumption, consuming about 70% of the total. Residential areas, both in urban and rural settings, account for about 10% of the aggregate. The industry sector's large consumption of energy explains the relationship between the PRC's industrialization and rapid energy demand.

Most of the investment in the PRC's power companies is in the Guangdong province, the Inner Mongolia Autonomous region and Shanghai.

The PRC government allows the energy sector to operate in a loosely regulated market and encourages private investment. However, State Owned Enterprises (SOE) largely own most of the energy sector. State Grid Corporation of China (SGCC) is the largest state owned energy utility company, owning about 50% of all power distribution. The assets of this company are divided under five major companies that are all directly administered under the State-owned Asset Supervision and

Administrative Commission. Each SOE contributes to about 10% of the national installed capacity, with an additional contribution of 5% by their respective subsidiary.

Below are the top 5 power companies:

- China Datang Corporation
- China Guodian Corporation
- China Huadian Group
- China Huaneng Group
- China Power Investment Corporation

Although the government prefers localization of enterprises, the PRC recently removed the 70% localization requirement, widening private and foreign ownership in addition to guaranteeing free and fair competition.

The main government agencies of the power sector are listed below.

Table 1.2 Key Government Agencies Relevant to the Power Sector

Agency	Key Role relevant to Energy Sector
National Development and Reform Commission (NDRC)	NDRC is responsible for the preparation of the country's overall economic development plans, including investment plans for RE. NDRC ensures that RE is factored into long-term plans. It also has primary control on energy prices in the country.
National Energy Commission (NEC)	NEC supervises international coordination and cooperation on climate change, carbon reduction and EE. It's a high-level discussion and coordination body under the State Council that drafts the national energy development strategy and discusses major energy security and development issues.
National Energy Administration (NEA)	NEA is a branch under the NDRC, which oversees NECs daily operations. It has a broad mandate, which includes managing the country's energy industries, drafting energy plans and policies, negotiating with international energy agencies, and approving foreign energy investments.
New and Renewable Energy Department	This is the main RE related agency under the NEA that prepares and runs all government programs, projects and activities related to RE development, especially in the rural energy space.
State Electricity Regulatory Commission (SERC)	An independent regulator established under the State Council, which performs administrative and regulatory duties with regard to the national electric power sector in accordance with prevailing laws and regulations. It also proposes needed revisions in national energy pricing but NDRC still retains authority for approval.
China Energy Conservation Investment Corporation (CECEP)	CECEP is a state-owned evaluating and consulting institute designated by the Central Government for energy conservation projects. It acts as the center for monitoring the central enterprises' energy conservation and emission reduction programs.
China Energy Conservation Investment Corporation (CECIC)	CECIC is the sole state-owned enterprise operating at a national level with responsibility of design, financing, and operating of EE and RE projects. It has consolidated operations in wind power development, waste managements, biomass power generation, water supply and sanitation and energy

efficiency.	
Leading Group on Climate Change and Energy Conservation	This government-based group is mainly responsible for researching and coordinating implementation of national strategies and policies in the domain of climate change, energy conservation and emissions reduction.

Energy Sector Highlights and Challenges

- Over the last decade, the PRC's energy demand has grown at a rapid pace, as noted by the 7% increase in energy consumption last year. The PRC is now the biggest consumer of global energy, consuming 20.3% of the total energy.
- By the end of 2012, PRC's power generation is expected to have risen by 7.5% to 5.05 trillion kilowatt. This comes after 2011 saw an 11.7% increase in electricity generation.
- Coal production continues to fuel the PRC. This year alone, coal production will rise by 3.7% to 3.65 billion metric tons. Taking into account this rise, the PRC will limit domestic output and consumption of coal in the 12th 5 Year Plan. Thus, by 2015, the government hopes to restrict production to 3.9 billion metric tons a year.
- China's quest for oil and other energy resources from foreign players is expected to increase to over 60-70% of its total energy consumption in 2015.

Renewable Energy and Energy Efficiency

Renewable Energy

In recent years, the PRC has diverted its attention to the RE and EE sectors. In the last decade, the advances in the RE sector have been due to the PRC's increasing concern about meeting short and long-term energy demands. Accordingly, the government has made RE development a key focus. The 2006 11th Five Year Plan increased installation and capacity measures for all RE resources and set short-term and long-term targets.

- The short-term goal of the plan was to further develop RE and environmentally friendly technologies.
- The medium to long-term goal was to meet the target for primary RE energy consumption of 10% by 2010 and 15% by 2020.

The successful short-term implementation of these policies led the PRC to implement even stronger RE policies in their current 12th Five-Year Plan. The updated plan includes strong energy targets; for example, non-fossil fuel resources must reach 11.4% of the country's total primary energy consumption by 2015.

The PRC's key objective under the 12th Five-Year Plan is to guarantee the energy security and develop the RE and EE sector. During this period, expected investment in the RE industry will amount to around 284 billion USD. The government plans to achieve this by:

- Setting the target for RE based primary energy consumption to 11.4% for 2015 and 15% for 2020.

- Enhancing EE with the goal of a 16% reduction in energy intensity by 2015.
- Enhancing EE with the goal of a 40-45% reduction in CO2 emission by 2020.
- Adding 450-500GW or RE by 2020.

Overall, the plan is set to have renewable energy power account for 20% of the total electricity by 2015. During this period, 61 million kilowatts will come from hydroelectricity, 70 million KW from wind power, 20 million from solar PV electricity and 7.5 million KW from biomass.

The revised targets for the RE development for 2011-2015 are presented below. The PRC plans to add more than 300 GW from RE sources by 2020.

Table 1.3 Renewable Energy Development Plan

RE Source	2006 (actual)	2009 (actual)	2020 (Current Target)	2020 (Proposed Target)
Wind	2.6GW	25.8GW	30GW	150GW
Solar PV	.08GW	.4GW	1.8GW	20GW
Hydro	130GW	197GW	300GW	300GW
Ethanol	1 million tons	2 million tons	10 million tons	
Biomass	2GW	3.2GW	30GW	30GW
Biodiesel	.05 million tons	-	2 million tons	
Biogas	8 billion m3/year		44 billion m3/year	
Primary renewable energy share of final energy consumption		9%	15%	

Source: www.martinot.info/china.htm#targets

Framework and Policies

The development of the RE sector in the PRC comes largely from the framework and policies of the government. In the last decade, the government created policies such as the Renewable Energy Law, Feed-in-Tariff and the Medium to Long Term Renewable Energy Development Plan, which have all created short and long-term goals for the PRC's RE development.

The table below illustrates the major law implementations of the PRC from 2006 to 2011. The major policies in this table are the Renewable Energy Law, the 11th Five Year Plan, the Medium to Long-term Renewable Energy Development Plan and the 12th Five Year Plan.

Table 1.4 PRC's Major Policy Implementation

Year	Organization	Law	Key Point
2006	National Development and Reform Commission	Administrative provisions for renewable power generation	Specifies the responsibility in their obligation of renewable energy between central and local governments and details the tasks of electric power generation companies
	National People's Congress	Renewable Energy Law	Serves as a stimulus for the growth of renewable energy sector in The PRC; increases domestic energy supply; ensures energy security; optimizes energy mix and ensures sustainable economic development
	Ministry of Finance	Special Fund for Renewable Energy Development	Details the support from the Renewable Energy Development Fund and the procedures for companies to gain financial support
	Ministry of Finance and Ministry of Construction	Provisional administrative measures on the fund for RE applications for buildings	Details how local governments should support and regulate projects to use renewable energy in buildings
2007	Ministry of Science and Technology, National Development and Reform Commission	Renewable energy and new energy international cooperation plan	Promotes international cooperation in research on renewable energy
	National Development and Reform Commission	Medium to Long-term Renewable Energy Development Plan	Details the renewable energy development goals for 2010 and 2020
2008	National People's Congress and National Development and Reform Commission	The 11 th Five-Year Development Plan for Renewable Energy	Sets specific renewable energy development goals for 2010

		Shandong Province Village Renewable Energy Regulations	Offers subsidies for renewable energy technologies in farming villages
2009	National People's Congress	Revision of the Renewable Energy Law	Passed on December 26, 2009; revisions to the renewable energy law
2011	National People's Congress and National Development and Reform Commission	The 12 th Five-year Plan for Renewable Energy	Incorporates specific deployment targets for renewable energy

Source: Alternative Energy Database

Specific Renewable Energies

Wind Power

Wind power generation in the PRC has grown rapidly over the last decade—nearly 20GW of wind capacity was added in 2011, up from 17GW in 2010. The PRC continues to be the dominant investor in domestic wind power projects. Its investments are expected to remain high in the upcoming years.

Nonetheless, 2011 saw a slowdown in the annual capacity growth rate of on-shore wind turbines. In 2010, the government announced that it would not extend to companies that produce wind turbine generators holding a capacity less than 2.5MW; it also cancelled the provincial approvals for wind power projects. As a result, the PRC has seen more activity offshore.

2010: Off-shore Wind Farm Bidding and Regulations: developers must be Chinese-funded or Sino-foreign joint ventures with at least 50% Chinese ownership

2010: Wind Equipment Market Entry Access Standards: market entry restrictions

New standards: more than 30% of funding for new wind equipment must be from project owners

Wind turbine manufactures must produce more than 1 GW annually

2010: Grid-Connection Standards: the PRC's first grid connection standards for wind power

2012: "China Wind Energy Development Roadmap 2050" projecting an increase of wind installation from 2012 to 2050.

Largest wind farms in the PRC:

- CGN Wind (2,142MW)
- Ningde Wind Farm (2,000MW)
- Pingtan Offshore Wind Farm (1,500MW)

Hydropower

The PRC is the largest hydroelectricity producer in the world and continues to strongly invest in this source. By the end of 2011, hydropower generation capacity was 230GW, with easily achievable goals of 300GW for 2020. Likewise, in 2011, the PRC was the top contributor in small hydropower, investing an estimated \$2.9 billion.

The government supports small and large hydropower plants and has initiated rural electrification policies for small hydropower plants over the last decade.

Largest hydropower dams in the PRC:

- Three Gorges Initial Plan (18,200MW)
- Longtan (6,300MW)
- Laxiwa (4,200MW)

Solar power

The PRC's solar sector is rapidly growing with large potential for development, especially in the domestic solar photovoltaic (PV) installations. About 3.1GW of solar energy contributes to the PRC's total power generation. Although solar power is developed on a much smaller scale than other RE sources, there continues to be strong interest in developing a domestic and foreign sector. For example, China invested \$11.4 billion in 2011 for the development of solar, up 273% since the year before.

Since 95% of PRC's cell manufacturing is exported, the PRC is accelerating its efforts to develop a strong domestic solar PV industry.

Largest solar PV power plants in the PRC:

- Ordos City Solar Park (2,000MW)
- Qaidam Basin Solar Park (1,000MW)
- Golmud City Solar Park (1,000MW)

Bio Energy

Bio energy is developed on a small scale in the PRC; however, it is increasing in force. Recently, the PRC has supported biogas projects by providing financial incentives and reducing the VAT.

Largest biomass power plants in the PRC:

1. Hunan Juntai Biomass Power Plant (70MW)
2. Shanxi Biomass Power Plant (60MW)
3. Laogang Waste-to-Energy Project (60MW)

Energy Efficiency

The 12th Five-Year Plan demonstrates the PRC's continued efforts to develop strong EE standards. The government aims to increase the proportion of non-fossil fuels in primary energy consumption to 11.4% by 2015 and expects the target to rise to 15% by 2020. Also, the objective for the reduction of energy intensity is set to 16% for 2015 and the target for the reduction of CO₂ is 17% by 2015.

Similarly, the government has also set a target reduction rate of 8% of sulfur dioxide and 10% nitrogen oxide.

The largest energy efficiency reduction goal remains a 40-45% reduction of CO₂ levels by 2020.

After effectively achieving a 20% reduction in energy intensity in 2010, the PRC is further reducing the new national level by 16% by 2015. Similarly, by 2010, provincial governments had met and surpassed their own regional EE targets, and have thus set new EE targets under the Energy Efficiency Action Plan. They are presented in the table below:

Table 1.5 Provincial Energy Intensity Reduction Targets

Province	2010 target	2010 actual	2015 target	Province	2010 target	2010 actual	2015 target
Anhui	20%	20.4%	16%	Jiangsu	20%	20.5%	18%
Beijing	20%	26.6%	17%	Jianxi	20%	20%	16%
Chongqin	20%	21%	16%	Liaoning	20%	20%	17%
Fujian	16%	16.5%	16%	Ningxia	20%	20.1%	15%
Gansu	20%	20.3%	15%	Qinghai	17%	17%	10%
Guandong	16%	16.4%	18%	Shaanxi	20%	20.3%	16%
Guanxi	15%	15.2%	15%	Shandong	22%	22.1%	17%
Guizhou	20%	20.1%	15%	Shanghai	20%	20%	18%
Hainan	12%	12.1%	10%	Shanxi	22%	22.7%	16%
Hebei	20%	20.1%	17%	Sichuan	20%	20.3%	16%
Heilongjian	20%	20.8%	16%	Tianjian	20%	21%	18%
Henan	20%	20.1%	16%	Xinjian	20%	8.9%	10%
Hubei	20%	21.7%	16%	Yunnan	17%	17.5%	15%
Hunan	20%	20.4%	16%	Zhejiang	20%	20%	18%

Source: Targets for the Provinces: Energy Intensity in the 12th Five-Year Plan from ChinaFAQs and <http://iepd.iipnetwork.org>

EE in the Industry Sector

The industry sector accounts for the largest proportion of energy consumption in the PRC. The government is thus focusing on introducing initiatives that would spur EE investment in the industry sector.

Instead of targeting 1,000 companies under the Top-1000 Energy-Consuming Enterprises program, the new plan now targets 10,000 companies. Under the Top-10,000 Energy-Consuming Enterprises program, 10,000 companies now have energy consumption targets for 2015 and will be inspected for EE improvements on a regular basis.

The government also listed new strategic industries for the PRC to focus on. The emerging industries include energy saving and environment protection, next generation information technology, new energy (including solar, wind, biomass and nuclear), and clean energy vehicles.

Building Sector

Energy efficient buildings and constructions are demanded by the PRC. The government set targets of having green buildings account for new construction projects to 30% by 2020. Also, green construction standards are to be applied to all government-funded public welfare projects and low-income housing projects by 2014. Also by 2015, the PRC plans to have constructed more than 1 billion square meters of energy-efficient floor space.

Smart Grids

As smart grid construction will be taking place from 2011-2015, the 12th Five-Year Plan has developed national standards for the development of the PRC's State Grid and Southern Grid. Around US\$45 billion will be invested with anticipation of additional foreign investors.

Opportunities for Singaporean firms in the PRC

The PRC offers several opportunities to Singaporean firms in the RE and EE sectors. The PRC is the largest consumer of energy and is poised to spend \$473.1 billion on clean energy investments in the next five years. In the midst of rapid industrialization and urbanization, the PRC desires to develop a green economy and promote RE and EE resources and industries.

The two factors at play that directly affect international players are the high demand for localization and the state-owned industry. Although the PRC removed its regulation requiring 70% local content for certain technologies and equipment and is trying to allow for more privatization, the competitive cost scenario requires companies to keep its local content high. Much of the power and energy sector is under the State-owned Asset Supervision and Administrative Commission, which make it hard for foreign companies to have a large presence.

Nevertheless, there are significant opportunities for Singaporean firms due to reasons below:

EE

- Target of 40% CO2 reduction by 2020 requires innovation and large-scale adoption of energy efficient technologies.
- Smart Grid and new technologies increasingly being considered to achieve ambitious EE goals.
- Building regulations to encourage investments in retrofits and green buildings.
- Targeted list of 10,000 enterprises that need to improve EE.
- On-going and upcoming projects from ADB and World Bank to promote EE in the industry sector.
- Overall, strong potential in the EE sector, especially in the industry sector and smart grids. There are many EE projects from IFOs.

Wind Energy

- High growth in generation capacity offers equipment supply opportunities to companies with local manufacturing operations.
- PRC encourages international investors to participate in projects in partnership with local IPPs and SOEs.

Hydropower

- Largest producers of hydro energy.
- The extensive and rapidly accelerating industry offers equipment supply opportunities to companies with local manufacturing operations.

Bioenergy

- Government set a target of 30GW for 2012.

Solar Energy

- Government set a target of 20GW for 2012.

Overall there are significant opportunities for Singaporean firms in the EE and RE sectors. The large projects and significant funding committed to both these sectors are testimony to the opportunities available. Although direct engagement with the private sector is possible, given the PRC's preference for localization, SEAS members interested in growing their business need to have offices, manufacturing facilities and partnerships in the PRC. The IFOs are keen to encourage firms with innovative and new technology. Singaporean firms should engage with the ADB, World Bank and the PRC agencies while projects are being designed and innovative models sought out for the next five years.

FUND MAPPING

Partnerships and Funds for Renewable Energy and Energy Efficiency Development

GLOBAL

- World Bank
- International Finance Corporation
- Asian Development Bank
- Climate Technology Initiative
- Global Environment Facility
- Seed Capital Assistance Facility
- Global Energy Efficiency and Renewable Energy Fund
- Renewable Energy and Energy Efficiency Partnership
- Global Climate Partnership Fund
- Sustainable Energy Market Development Program
- Asia Sustainability and Alternative Energy Program
- Global Energy Program
- Clinton Climate Initiative
- Clean Development Mechanism
- Clean Investment Funds
- Armstrong Asset Management (ASEACE)
- Deutsche Investitions (DEG)
- Norwegian Investment Fund for Developing Countries (Norfund)
- *No longer:* Asia-Pacific Partnership on Clean Development and Climate (APP)

PRC

- Joint US China Collaboration on Clean Energy
 - Dedicated to accelerating the use of clean energy in China
- Asia-Pacific Partnership on Clean Development & Climate
 - Accelerate development and deployment of clean energy technologies between partners
- Association For Sustainable & Responsible Investment in Asia

- Promoting corporate responsibility and sustainable investment practice
- China Greentech Initiative
 - Commercial collaboration of world's leading technology and services companies, entrepreneurs and investors
- Eco-Asia Clean Development and Climate Program
 - Helps and creates partnerships to put in place clean energy technologies and practices that would help address Asia's energy challenges
- DT Capital Partners
 - Specializes in growth capital and early expansion investments primarily in energy and clean energy sectors
- The Asia Foundation
 - Non-profit, nongovernmental organization that supports development of an open Asia-Pacific region
- China Association of Environmental Protection Industry
 - Promotes environmental business opportunities in mainland China and encourages overseas partnerships
- Guangdong Association of Environmental Protection
 - Promotes environment business opportunities in mainland China and encourages overseas partnerships
- China Renewable Energy Industries Association
 - Promotes the adoption of advanced technologies among RE enterprises in China

PROJECT MATRICES



CHINA

Description of Matrices:

Update of active projects from August 2010 in China region (projects still active are marked with **)

Addition of new active projects since August 2010 in China region. Only World Bank and ADB.

Project	Project Cost (million)	Executing Agency	Background	Date Approved	Closing Date
**Eco-Farming Project (World Bank)	\$439.75	The Department of Science, Education, and Rural Environment Ministry of Agriculture	<p><i>Sector of Interest:</i> Biomass; The project aims to reduce GHG emissions by supplying biogas digesters to rural households to utilizing pig waste and other biogas sources.</p> <p><i>SEAS-Relevant Opportunities:</i> Opportunities for SEAS members include the supply of biogas digesters to local farmers and the implementation of workshops for training farmers on best practices.</p>	02/12/08	30/06/14
**Thermal Power Efficiency (World Bank)	\$108.96	Ministry of Finance	<p><i>Sector of Interest:</i> Energy Efficiency; The objective of the project is to promote EE in the energy sector and reduce coal consumption and GHG emission per unit of electricity</p>	05/05/09	31/12/12

produced in Shanxi Province, Shandong Province, and Guangdong Province.

SEAS-Relevant Opportunities: SEAS opportunity to introduce EE improvements to thermal power plants and work with the government of China on pilot studies for improved regulation and improvements to the power generation and dispatch sector.

**China Energy Efficiency Financing (World Bank)	\$571	Project Management Office National Development and Reform Commission (NDRC)	<i>Sector of Interest:</i> Energy Efficiency; The project development objective is to improve the energy efficiency (EE) of medium and large-sized industrial enterprises in China.	27/05/08	31/12/16
			<i>SEAS-Relevant Opportunities:</i> The opportunity for SEAS is to approach the PFIs and private industries in China to leverage project funding to fund specific EE projects.		
**Shandong Minhe Poultry Manure Biogas (World Bank)	\$4.5	Institute of Agriculture, Environment and Sustainable Development	<i>Sector of Interest:</i> Biomass and Energy Efficiency; The project development objectives are to reduce methane emissions from improved livestock waste management practices through a Carbon Finance transaction between	21/03/08	31/12/15

the World Bank and the project sponsor.

SEAS-Relevant Opportunities: The project offers opportunity for the construction of livestock waste management facilities and electricity generation units. Carbon Finance consulting for the purchase of CERs are also available for the 3rd component of the project.

**Henan Ecological Livestock Project (World Bank)	\$160	Government of Henan	<i>Sector of Interest:</i> Biomass; The aim of the project is to improve environmental health management practices on the targeted livestock farms in the Yellow River Belt in Henan province. The project has two components. The first focuses on capacity-building. The second focuses on the construction of small to medium scale equipment and facilities to minimize waste.	27/05/12	31/12/15
			<i>SEAS-Relevant Opportunities:</i> Opportunity for SEAS is for the supply of waste minimization equipment and consulting for the capacity building component.		
**Ningbo New Countryside Development	\$157.9	Ningbo Municipality	<i>Sector of Interest:</i> Carbon Mitigation, BioEnergy; The project aims to	25/02/10	31/03/16

<i>Project (World Bank)</i>			improved rural wastewater management in selected villages and enhance infrastructure and township management.		
			<i>SEAS-Relevant Opportunities:</i> Opportunities under the project include the supply of rural waste management equipment in 150 selected villages in six districts in Ningbo.		
**CN-CF-Yingkou Economic Dev Zone Heating (World Bank)	\$8.4	Yingkou EDZ Huayuan Heating Company	<i>Sector of Interest:</i> Yingkou EDZ Huayuan Heating Company; The project aims to improve the energy efficiency and environmental performance of heating services in the Yingkou Economic Development Zone.	10/02/10	30/06/15
			<i>SEAS-Relevant Opportunities:</i> Opportunities under the project include consulting for the sale of the first 600,000 emission reductions (ERs) resulting from the replacement of an estimated 79 boiler plants that operate with 132 boiler units throughout the Yingkou Economic Development Zone with a more efficient central heating system.		
**Shanxi Coal Bed	\$204.3	Shanxi Energy Enterprise	<i>Sector of Interest:</i> Energy Efficiency;	19/05/09	31/12/14

<i>Methane Development and Utilization (World Bank)</i>		Group	<p>The development objective of the project is to promote the development of CBM/CMM, by enhancing the policy framework and institutional capacity for CBM/CMM development and utilization, and by exploring and producing coal bed methane technologies.</p>	
			<p><i>SEAS-Relevant Opportunities:</i> Opportunities under the project include supply for the construction of coal bed methane facilities and liquefied natural gas plants.</p>	
<i>**Liaoning Third Medium Cities Infrastructure (World Bank)</i>	\$375.85	Liaoning DRC Foreign Capital Utilization Department PMO	<p><i>Sector of Interest:</i> Energy Efficiency; The project aims to improve the performance of heating and gas services in selected areas in the province.</p>	27/05/08 31/12/14
			<p><i>SEAS-Relevant Opportunities:</i> Opportunities under the project include the supply of new Heat-only Boilers and combined heat and power supply systems. Consulting for the rehabilitation of gas infrastructures such as transmission facilities, storage equipment, and distribution network are also available.</p>	

**GEF Sino-Singapore Tianjin Eco-City (World Bank)	\$64.06	Sino-Singapore Tianjin Eco-City Administrative Committee	<p><i>Sector of Interest:</i> Energy Efficiency; The project aims to develop the Sino-Singapore Tianjin Eco-City as an energy and resource efficient and low greenhouse Gas emission city.</p> <p><i>SEAS-Relevant Opportunities:</i> The project offers opportunities for consulting to promote the green city concept and supply for a pilot green building investment.</p>	22/07/10	30/06/16
**China Energy Efficiency Financing II (World Bank)	\$151.6	China Minsheng Bank	<p><i>Sector of Interest:</i> Energy Efficiency; The development objective of the project is to improve the EE of selected enterprises by scaling-up commercial lending for EE investment.</p> <p><i>SEAS-Relevant Opportunities:</i> The project offers opportunities for consulting and technical assistance to financial institutions for EE project appraisal procedures.</p>	22/06/10	31/12/14
**Dashiqiao Central Heating Supply Project (World Bank)	\$5.6	Yingkou EDZ	<p><i>Sector of Interest:</i> Energy Efficiency; The objective of the project is to improve the EE and environmental performance of heating services in the city of Dashiqiao.</p>	17/06/10	30/06/15

			<p><i>SEAS-Relevant Opportunities:</i> The project offers consulting opportunities for the sale of the first 400,000 emission reductions (ERs) resulting from the replacement of 64 boiler plants operating with 76 small boilers located throughout the city of Dashiqiao.</p>		
<p>**Integrated Renewable Biomass Energy Development Sector Project (ADB)</p>	\$152.54	Ministry of Agriculture	<p><i>Sector of Interest:</i> Biomass; The project aims to reduce greenhouse gas emissions by construction medium- and large-scale biogas plants with combined generating capacity of 14 MW and engaging in other bio-gas related activities.</p> <p><i>SEAS-Relevant Opportunities:</i> Opportunities for SEAS members include equipment supply for construction of 118 medium- and large-scale biogas plants, connection of 25 biogas plants to local grid, consulting services to the operation units and the government and CDM consulting services</p>	16/04/10	30/06/16
<p>**Inner Mongolia Autonomous Region Energy Efficiency and Environment Improvement Project</p>	\$150 (SGD)	Inner Mongolia Autonomous Region	<p><i>Sector of Interest:</i> CDM/RE; The project will focus on rehabilitation or construction of 34.49 million m2 of heating area.</p>	06/08/10	31/12/14

<i>(Phase II)(ADB)</i>			<i>SEAS-Relevant Opportunities:</i> The project offers opportunities to supply the installation of 21 efficient coal-fired boilers, 591 heat-exchange substations, 535 km of heating pipelines, and 10 SCADA systems, allowing the closure of 383 small, coal-fired boilers.		
<i>**Municipal Waste to Energy Project (ADB)</i>	\$650	China Everbright International Limited (CEIL)	<i>Sector of Interest:</i> Biomass; The project sponsor, through public-private partnership, aims to develop and invest in WTE projects and treat daily 8,000 tons of MSW from 16 million of urban population. <i>SEAS-Relevant Opportunities:</i> The project offers opportunity to supply and share supplementary municipal solid waste technologies to support project sponsors initiative to enhance project efficacy.	04/06/09	2013
<i>Water Conservation Project II (World Bank)</i>	\$160	Ministry of Water Resources, Hebei, Ningxia and Shanxi	<i>Sector of Interest:</i> Biomass and Energy Efficiency; The project's goal is to ameliorate agriculture water management and productivity by improving irrigation systems and enhancing technical and management services of the sector. <i>SEAS-Relevant Opportunities:</i> The	10/05/12	30/06/17

			project offers opportunities for the supply of water-saving facilities and agriculture technologies. Water-conservation and agricultural management consulting are also available for the 2 nd and 3 rd component of the project.		
<i>China Energy Efficiency Financing III (World Bank)</i>	\$428	The Export-Import Bank of China	<p><i>Sector of Interest:</i> Energy Efficiency; The project will focus on improving the energy efficiency of medium and large-sized industrial enterprises in China.</p> <p><i>SEAS-Relevant Opportunities:</i> Opportunities include consulting for the framework of the government's EE strategies as well as analysing performances to give recommendations. SEAS members should also approach the private industries in China to leverage project funding to fund specific EE projects.</p>	27/10/11	31/12/16
<i>Shandong Energy Efficiency Project (World Bank)</i>	\$371.1	Shandong Provincial Government; Ministry of Finance	<p><i>Sector of Interest:</i> Energy Efficiency and Biomass; The project will focus on improving the EE of selected enterprises in Shandong, with specific focus on financial leasing arrangements and biomass CHP plants.</p>	09/06/11	30/09/16

SEAS-Relevant Opportunities:
 Opportunities include consulting for policy and framework of the provincial government's EE strategies as well as performance analysis and recommendations. Also, the project offers opportunities to supply biomass CHP plants. SEAS members should also approach the private industries in Shandong to leverage project funding for specific EE projects.

<i>Urumqi District Heating Project (World Bank)</i>	\$343.2	Urumqi District Heating Company	<p><i>Sector of Interest:</i> Energy Efficiency; The project's aim is mainly to construct a district of heating networks with improved energy efficiency and performance in the district of Urumqi.</p> <p><i>SEAS-Relevant Opportunities:</i> The project offers consulting opportunities for the heating company as well as proposals for improvements in designs and control strategies of the heating network and equipment.</p>	17/05/11	31/12/15
<i>CN Integrated Economic Development of Small Towns (World Bank)</i>	\$296.64	Ministry of Finance	<p><i>Sector of Interest:</i> Energy Efficiency; The objective of this project is to improve public infrastructure and to</p>	24/05/12	31/12/17

contribute to the economic and structural sustainable development of Guangdong, Hunan and Gansu provinces.

SEAS-Relevant Opportunities: SEAS members should approach private industries in the specified provinces to leverage project funding for specific EE developments. Also, the project offers consulting opportunities in the sectors of waste management, water supply and infrastructure.

<i>China Energy Efficiency Promotion in Industry (World Bank)</i>	\$24.11	Ministry of Industry and Information Technology, China	<i>Sector of Interest:</i> Energy Efficiency; The project focuses on the promotion and strengthening of rational energy use in key industrial sectors in China, with a stronghold in the power sector.	31/05/11	30/06/15
			<i>SEAS-Relevant Opportunities:</i> The project offers consulting opportunities for EE projects in existing enterprises.		
<i>Xinjiang Turpan Water Conservation Project (World Bank)</i>	\$204.08	Xinjiang Turfan Prefecture Project Management Office	<i>Sector of Interest:</i> Energy Efficiency; The objective of this project is to alleviate the risk of flooding, reduce groundwater overdraft and increase water supply in the Turpan basin of	17/06/10	31/03/17

Xinjian Uyghur.

SEAS-Relevant Opportunities: The project will require the supply of water-saving technologies and water-conservation and agricultural management consulting.

<i>Hebei Energy Efficiency Improvement and Emission Reduction Project (ADB)</i>	\$579.6	Hebei Provincial Government	<p><i>Sector of Interest:</i> Energy Efficiency; The project's focus is to provide and finance energy efficient projects in selected energy-intensive industries in Hebei.</p> <p><i>SEAS-Relevant Opportunities:</i> The project does not require the implementation of consultants; however, there could be a need if another loan is given. The opportunity for SEAS is to approach private industries in Hebei to fund specific EE projects.</p>	14/12/11	30/06/16
<i>Heilongjiang Energy Efficient District Heating Project (ADB)</i>	\$150	Heilongjiang Provincial Government	<p><i>Sector of Interest:</i> Energy Efficiency; The project's aim is mainly to improve and upgrade the centralized district heating system of Heilongjiang.</p> <p><i>SEAS-Relevant Opportunities:</i> The project offers consulting</p>	25/09/12 (to be approved)	N/A

opportunities in the area of efficient heating systems, such as improving insulation and distribution. Also, there is an opportunity for SEAS members to supply efficient boilers.

<i>Shanxi Energy Efficiency and Urban Environment Improvement Project (ADB)</i>	\$100	Energy Division, EARD	<i>Sector of Interest:</i> Energy Efficiency; The purpose of the project is to introduce efficient district heating in four urban cities of Shanxi province.	31/08/12 (to be approved)	N/A
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SEAS-Relevant Opportunities:
Opportunities for SEAS members is consulting and proposing a framework for the heating source network. Also, an opportunity lies in the equipment for the construction and installation of a gas distribution network.

No longer active projects: Shandong Flue Gas Desulfurization (CD: 30/06/12); Mainstreaming Climate Change Adaptation in Irrigated Agriculture Project (CD: 30/06/12); China Clean Development Mechanism Fund Capacity Development (CD: 06/10); Utilization of Foreign Capital to Promote Energy Conservation and Energy-Efficient Power Generation Scheduling (CD: 08/10); Carbon Dioxide Capture and Storage; Demonstration-Strategic Analysis and Capacity Strengthening (CD: TA completion date 31/12/11); MFF: Guangdong Energy Efficiency and; Environment Improvement Investment Program (CD: 02/12); PRC: design of the National Sulfur Dioxide Emission Trading System (CD: 31/12/11); Promoting Resource Conservation and Energy Efficiency (CD: 24/11/10).

Large and regional companies in the PRC:

Wind: *State Grid Corporation of China; Guohua Energy Investment Co., Ltd; Sinovel; Ming Yang; A Power Energy Systems; Goldwind; Datang New Energy; Longyuan Wind Power Co.; Sany; Astor Windpower Co., Ltd; Three Gorges New Energy Kaiyuan Wind Power; Longyuan Inner Mongolia Wind Power; FCG Wind Power Co.; SRM Wind Power Co.; A Power Energy Systems

*Hydro:**State Grid Corporation of China; China Three Gorges Co.; Shenyang Getai Hydropower Equipment; Lanzu Hydropower International Limited; Chongqing Yunhe Industry Co.

Solar: Yingli Green Energy Holding Co., Ltd; Changzhou Nesl Solartech; QC Solar Co.; Huaneng Renewable Co., Ltd; Suqian Xiehe New Energy Co.; Shandong Sang Le Solar Energy

Biomass: Dragon Power Co.; Tianjin Jinneng Investment Company; Beijing Epsolar Technology Co.; Pengshui Kaidi Green Energy Development Co.; Tianmen Kaidi Green Energy Development Co.

Project Briefs:

WB –China –Water Conservation Project II

Project Cost: US\$ 160 M

Loan/Grant Amount: US\$ 80 M

Undisbursed Amount: US\$ 80 M

Project Status: Approved

Date Approved: 10 May 12

Date Closing: 30 Jun 17

Type of Opportunity for SEAS members: consulting services in the areas of irrigation and drainage, agricultural extension and research, water resource management; supply of water-saving equipment and agricultural technologies

Implementing Agency: Ministry of Water Resources, Hebei, Ningxia and Shanxi

Project Description: This project will focus mainly on the improvement of agriculture water management as well as agriculture water productivity by improving irrigation systems and enhancing technical and management services of the sector. Three Northern China provinces

will be participating in this project: Ningxia Autonomous Region, Shanxi and Hebei. This project will reduce consumptive water use of irrigated agriculture, reduce groundwater overdraft and increase agriculture water productivity.

The project is divided into four components:

Component 1: Water Works and Water-saving Facilities (US\$98.71 M)

- Detailed investment sub-projects to ameliorate physical conditions
- Deliver efficient irrigation systems in 24 Project counties

Component 2: Agricultural Water-saving Measures and Support Services

(US\$25.31 M)

- Provision of financial and technical support for water-saving methods
- To increase farm yield and output value

Component 3: Management Measures and Institutional Development (US\$6.44 M)

- Improve agricultural water management capacity of irrigation and water productivity

Component 4: Project Management, Implementation Support (US\$7.88 M)

- Facilitation and feasibility of project

WB—China—Energy Efficiency Financing III

Project Cost: US\$ 428 M

Loan/Grant Amount: US\$ 100 M

Project Status: Approved

Date Approved: 27 Oct 11

Date Closing: N/A

Type of Opportunity for SEAS members: offers opportunities to leverage project funding for specific EE project.

Implementing Agency: The Export-Import Bank of China and Huaxia Bank; Government of China

Project Description: This project aims to improve the energy efficiency of medium and large-sized industrial enterprises in China.

The project is divided into three components:

Component 1: piloting innovative lending

- Requires energy savings as partial loan security
- Broadening borrowers, to all sizes of enterprises

Component 2: expanding the targeted market segments

- From industrial to the building sector

Component 3: increasing the leverage ratio of the loans

- Loan and contribution scaling

WB – China - Shandong Energy Efficiency Project

Project Cost: US\$ 317.10 M

Loan/Grant Amount: US\$ 150 M

Project Status: Approved

Date Approved: 09 Jun 11

Date Closing: 30 Sep 16

Type of Opportunity for SEAS members: Opportunities include consulting for policy and framework of the provincial government's energy efficiency strategies as well as performance analysis and recommendations. Also, the project offers opportunities to supply biomass CHP plants. SEAS members should also approach the private industries in Shandong to leverage project funding for specific EE projects.

Implementing Agency: Shandong Provincial Government

Project Description: This project focuses mainly on the improvement of energy efficiency in selected enterprises in the Shandong province. In particular, the project aims to increase the use of biomass for power and heat generation and support the financial leasing and energy performance of energy efficiency investments in the industrial sector.

The project is divided into three components:

Component 1: Energy Efficiency Service Industry (US\$ 267 M)

- Support financial leasing and energy performance contracting of energy investment in the industrial sector
- Loan lent to Shandong Rongshihua Leasing Company, Guotai Leasing Company and Luxin Energy Investment and Management Company

Component 2: Anqiu Biomass CHP Plant (US\$36 M)

- Construction of condensing extraction turbines, air cooled generators and boilers
- Construction of steam network and district heating network
- All biomass fuelled

Component 3: Project Management, Monitoring and Evaluation Component (US\$.04M)

- Finance for feasibility of project implementation and support

WB –China –Urumqi District Heating Project

Project Cost: US\$ 343.2 M

Loan/Grant Amount: US\$ 100 M

Project Status: Approved

Date Approved: 17 May 11

Date Closing: 31 Dec 15

Type of Opportunity for SEAS members: offers consulting opportunities for the use and sale of ancillary equipment and substations that are replacing 14 and 31 coal fire heat-only boiler plants in Shumiogou and Shayibake, respectively.

Implementing Agency: Urumqi District Heating Company

Project Description: The Urumqi District Heat Project aims to improve the heating system in Shuimogou and Shayibake by building an energy efficient heating network.

The project is divided into three components:

Component 1: Shuimogou District CHP Plant District Heating Network (US\$ 196.8 M)

- Construction of a district heating plant
- Replace use of 14 coal fired heat-only boiler plans

- Including 53 coal fired boilers

Component 2: Shayibake District CHP Heating Network (US\$ 145 M)

- Construction of a district heating plant
- Replace use of 31 coal-fired heat-only plants
 - Including 87 coal fired boilers

Component 3: Institutional Development and Project Management (US\$1.27M)

- Facilitation and feasibility of project

World Bank—China—CN Integrated Economic Development of Small Towns

Project Cost: US\$ 296.64 M

Loan/Grant Amount: US\$ 150 M

Project Status: Approved

Date Approved: 24 May 12

Date Closing: 31 Dec 17

Type of Opportunity for SEAS members: offer opportunities of consulting to promote and supply green building and construction as well as municipal solid waste technologies and water efficient equipment.

Implementing Agency: Ministry of Finance; NDRC; Provincial DRCS

Project Description: The project's main goal is to improve public infrastructure to contribute to the sound and energy efficient development of small towns in three provinces: Guangdong, Hunan and Gansu provinces. Although a large focus of the project is on the construction of rural and inter-urban roads and highways, solid waste management and water supply are important sectors of emphasis too.

The project is divided into three components:

Component 1: Infrastructure Development (US\$244.66 M)

- High priority infrastructure
 - Gansu: urban and rural roads; expansion and modernization of irrigation infrastructure; development of commercial infrastructure and service centres
 - Guangdong: urban and rural roads, expansion and modernization of water supply and waste water treatment systems; environmental protection activities
 - Hunan: urban and rural roads; construction of wastewater treatment facilities and solid waste management systems; environmental protection activities

Component 2: Institutional Strengthening and Capacity Enhancement (US\$ 15.64 M)

- Developing modern and efficient infrastructure

Component 3: Project managements and M&E (US\$ 8.17 M)

- Supporting development of the projects

World Bank –China—Energy Efficiency Promotion in Industry

Project Cost: US\$ 24.11 M

Loan/Grant Amount: US\$ 4 M (from GEF)

Project Status: Approved

Date Approved: 31 May 11

Date Closing: 30 Jun 15

Type of Opportunity for SEAS members: offers opportunities to leverage project funding for specific EE projects.

Implementing Agency: Ministry of Finance and Ministry of Industry and Information Technology

Project Description:

The project is divided into four components:

Component 1: Policy Support (US\$0.555 M)

- Domestic and foreign industrial energy efficiency policies
- Energy management of energy-consuming industrial enterprises
- Industrial energy performance evaluation system

Component 2: Capacity Building for Responsible Energy Managers (US\$ 3.2 M)

- Support development of training facilities and development
- Provide sub-grants to four training centers for training programs

Component 3: Demonstration Project Scheme (US\$ 19.2 M)

- Provide sub-grants to training centers to set up enterprise energy management programs
- Provide technical assistance to strengthen the capacity of the training centers

Component 4: Information Dissemination (US\$0.707M)

- Support the design of promotion and awareness of programs to inform enterprises with government policies and rational energy use
- Organize workshops or annual forums for government officials, energy managers and technical staff to promote training programs
- Create a project website as a platform for stakeholders to communicate information

World Bank—China— Xinjiang Turpan Water Conservation Project

Project Cost: US\$ 204.08 M

Loan/Grant Amount: US\$ 100 M

Project Status: Approved

Date Approved: 17 Jun 10

Date Closing: 31 Mar 17

Type of Opportunity for SEAS members: consulting services in the areas of irrigation and drainage, agricultural extension and research, water resource management; supply of water-saving equipment and agricultural technologies

Implementing Agency: Xinjian Turpan Prefecture Project Management Office and China Xinjian Turpan Prefecture Govern

Project Description: The aim of this project is to create better installations for irrigation and drainage, water supply and flood protection in the province of Xinjian Turfan.

The project is divided into five components:

Component 1: ET-based Integrated Water Management in the Turpan Basin (US\$2.156 M)

- Management program for the Turpan River Basin

Component 2: Increase of Upstream Storage Capacity (US\$ 143.534 M)

- Construction of the Alagou Dam, the Meiyaogou Dam and the Ertanggou Dam

Component 3: Real Water Savings in Irrigated Agriculture (US\$39.551 M)

- Irrigation management measures in the Turpan River Basin
 - Construction and rehabilitation of main canals
 - New developments of drip irrigation, cropping pattern changes, plant breeding, soil fertility and tillage and weed control

Component 4: Preservation of a Karez System (US\$0.503 M)

- Rehabilitation of the water system

Component 5: Institutional Capacity Building and Project Management (US\$1.889 M)

- Provision of technical support for project management
 - Training, ET concepts, etc...

ADB—China—Hebei Energy Efficiency Improvement and Emission Reduction Project

Project Cost: US\$579.6 M

Loan/Grant Amount: US\$ 100 M

Project Status: Approved

Date Approved: 14 Dec 11

Date Closing: 30 Jun 16

Type of Opportunity for SEAS members: offers opportunities for consulting and technical assistance to financial institutions for EE projects.

Implementing Agency: Hebei Provincial Government; Hebei Provincial Finance Bureau, Hebei Provincial Development and Reform Commission, Hebei Provincial Department of Environmental Protection

Project Description: The project aims to increase investment and promote energy conservation and efficiency in key energy-intensive industries in the Hebei Province.

The project is divided into two components:

Component 1: Implement Industrial energy efficiency Projects (US \$ 88 M)

- Eight demonstration industrial energy efficiency subprojects that are energy efficient

Component 2: Implement energy service company projects (US \$ 12 M)

- Demonstrate the commercial debt financing of energy efficient projects

ADB—China—Heilongjiang Energy Efficient District Heating Project

Project Cost: US\$ 150 M +

Loan/Grant Amount: US\$ 150 M

Project Status: In approving phase

Date Approved: 25 Sep 12

Date Closing: N/A

Type of Opportunity for SEAS members: consulting services in the areas of heating systems, especially the use and sale of heat exchangers and heat pipelines; the project aims to include two private enterprises.

Implementing Agency: Heilongjiang Provincial Government (Harbin Taiping Heating Company, Heilongjiang Tangwanghe (and Xinqing) Forest Bureau, Jiamusi Xinshidai Urban Infrastructure Investment Company, Daxing'anling Power Industrial Bureau; Jidong Heat and Power Company; Qitaihe Heating Company, Raohe County Chenguang Heating Company, Tonjian Changheng Cogeneration Company).

Project Description: The project aims to expand and upgrade existing primary heating systems in eight cities by making the systems more energy efficient.

The project is divided into two components:

Component 1: upgrading primary district heating systems, including heating pipelines, heat exchangers, and computer monitoring and control systems

- Installation of 321 heat exchangers
- 271 km of insulate heat pipelines
- 3 high efficiency heating source plants
- 8 computerized SCADA systems

Component 2: project management, monitoring, auditing and knowledge dissemination

ADB—China—Shanxi Energy Efficiency and Urban Environment Improvement Project

Project Cost: US\$ 100 M +

Loan/Grant Amount: US\$ 100 M

Project Status: Approved

Date Approved: 31 Aug 12

Date Closing: N/A

Type of Opportunity for SEAS members: offers opportunities for consulting and technical assistance to financial institutions for EE projects.

Implementing Agency: Shanxi Provincial Government

Project Description: The project is mainly focused on the upgrading and construction of energy efficient enterprises in Shanxi province, especially in the sector of district heating sources and gas supply networks.

The project is divided into three components:

Component 1: upgrading the district heating sources, and installation of pipelines, heat exchangers and computer monitoring and control systems

Component 2: construction and installation of coal mine methane gas supply system and distribution network

Component 3: institutional strengthening