

PARTICIPANTS REPORT

SEMINAR ON ELECTRIC POWER INDUSTRY FOR DEVELOPING COUNTRIES

From 14-10-2-13 to 12-11-2013 in CHINA

Participants from CEB

W.Jayaratne óChief Engineer-DM-WPS I

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- ❖ China is located at eastern part of Asian continent , on the west coast of Pacific Ocean. The total land area of China is 9,600,000 sq km and it is the largest country in Asia and the third largest country in the world, next to Russia and Canada. It is from the north at the middle of Amur River which is to the north of Mohe to the south at Zengmu Reef which is in the south of the Nansha Islands, and the distance is 5500km; It is also from the east at the joint of Amur River and Ussuri River to the west at Pamirs, and the distance is 5200km.
- ❖ The land frontier of China is 22,800km. China borders North Korea on the east, Mongolia on the north, Russia in the northeast, Kazakhstan, Kyrgyzstan, Tadjikistan on the northwest, Afghan, Pakistan, India, Nepal, Bhutan on the west and southwest, Myanmar, Laos, Vietnam on the south; South Korea, Japan, Philippines, Brunei, Malaysia, Indonesia are to the east and southeast of China across the sea.
- ❖ The continental coastline of China is about 18,000km. The topography of coast is flat with many excellent harbors among which most are ice-free.
- ❖ The eastern and southern parts of China mainland is close to the Bohai Sea, Yellow Sea, East China Sea and South China Sea. The total sea area is more than 4700,000sq km. Bohai Sea is China's inland sea, while Yellow Sea, East China Sea and South China Sea are marginal seas of the Pacific Ocean.
- ❖ There are 7600 islands in the China sea areas, among which the largest is Taiwan Island with an area of 36,000sq km. Hainan Island is the second largest island with an area of 34,000sq km. Diaoyu Island and Sekibi sho which to the northeast of Taiwan Island is the easternmost island of China. The general term of islands, reefs and beaches which interspersed in South China Sea is South China Sea Islands which can be divided into Dongsha Islands, Xisha Islands, Zhongsha Islands and the Nansha Islands according to the location.
- ❖ In China there are 9 mountain ranges of which the average elevation is above 6000m and more than 20 mountain ranges above 4000m. Himalaya is the highest mountain range in China and it arcs on the frontier of China, India and Nepal etc. It has more than 30 mountains of which the average elevation is above 7300m and 11 mountains above 8000m. Its main mountain-Mount Everest is the highest mountain in the world with a elevation of 8844.33m. Kunlun Mountains with an average elevation of 5500-6000m, length of over 2500km and width of 200-500m, is the longest and widest mountain in China and it covers Xinjiang, Tibet, Qinghai, Sichuan etc. from east to west. There are also Tanggula Mountains and Qinling Mountains which deserve to be mentioned. Tanggula Mountains, with an average elevation of 6000m in the central parts of Qinghai-Tibet Plateau, are the source of Yangtze River which is the longest River in China; Qinling Mountains are from the west at the eastern part of Gansu Province to the east at western part of Henan province. With an average elevation of 2000-3000m, Qinling Mountains

are an important culture and geographical boundary between the South China and North China and also the watershed of the climate of South China and North China.

- ❖ China has four Plateaus. Qinghai-Tibet Plateau, which covers Tibet, the whole parts of Qinghai and some parts of Gansu, Yunan, Sichaun, is the highest Plateau in the world and called "roof of the world" with an average elevation of above 4000m. Inner Mongolian Plateau is located in Inner Mongolia. Its eastern parts are grassland and western parts are desert. Loess plateau covers the whole parts or some parts of six provinces such as Shanxi, Shanxi and so on with thick loess coating and serious water and soil loss. The Yunan-Guizhou Plateau, which covers the eastern parts of Yunnan and most of Guizhou, is the typical karst landform.
- ❖ China has three plains. Northeast Plain is the largest plain with an area of over 350,000sq km; North China Plain is located at the heartland of China with an area of about 300,000sq km; Middle-lower Yangtze Plain of which the topography is flat and low is formed by the alluviation of Yangtze River with an area of about 200,000sq km.
- ❖ China has four basins, among which the largest is Tarim Basin. It is located in the Xinjiang Uygur Autonomous region. In the basin there is Taklimakan desert Xinjiang Uygur Autonomous region which is the largest in China and the second largest in the world. Junggar basin is also in Xinjiang Uygur Autonomous region. Qaidam Basin which located in Qinghai Province is the highest basin in China. Sichaung Basin which located in Sichaung Province is the wettest basin
- ❖ There are many rivers in China among which more than 1500 rivers have a drainage area of over 1000sq.km. The rich water power resource of which the reserves is 0.68 billion ranks the first in the world. But the per capita water resources is only 25% of that of the world due to the large population
- ❖ China's rivers can be categorized as exorheic and inland rivers. The rivers which flow into the sea is exorheic rivers of which the drainage area covers 64% of the total land area of China; the rivers which flow into the inland lakes or disappear in the deserts or salt flat is inland rivers of which the drainage area covers 36% of the total land area of China
- ❖ Yangtze River, 6,300 km long, is the largest river in China, and the third largest in the world. The upstream of Yangtze River flows between the high mountains and deep gullies containing rich water resource. Yangtze River is also the water transportation artery between Eastern China and Western China. Yellow River is the second largest river in China with a length of 5,464 km. Yellow River valley was one of the birthplaces of ancient Chinese civilization. Amur River, 4350km long, is a great river in the Northern China and 3101 km of it is within China's territory; The Pearl River, 2214km long is a great river in the Southern China.

Tarim River, 2179km long in the southern part of Xinjiang the Xinjiang Uygur Autonomous Region, is the longest inland river in China.

- ❖ Great Khingan, Lesser Khingan Mountains and Changbai Mountains in Northeast, in which there are large areas of coniferous forest and broad-leaf forest, is the largest natural forest areas in China. The second largest is southwest natural areas where major tree species include the dragon spruce, fir and Yunnan pine; Xishuangbanna in the southern part of Yunnan is the tropical broad-leaf forest area which are very rare in China. Xishuangbanna in which there are over 5,000 species of forest plant has a reputation of "the kingdom of plants"
- ❖ Northeast Plain, North China Plain, Middle-lower Yangtze Plain and Pearl River Delta, the Sichuan basin are the main agriculture district of China. Northeast Plain abounds with wheat, corn, soybean, sorghum, flax and beet. The crops of North China Plain are mainly wheat, corn, millet, cotton and so on. The topography of the Middle-lower Yangtze Plain where there are many rivers and lakes, is very low and flat. The Middle-lower Yangtze Plain is the largest production area of rice and freshwater rice. It is called "Town of Fish & Rice" and abundant in tea and silkworm. The Sichuan Basin which is reputed as "Land of Abundance" is abundant in rice, rape and sugarcane due to its warm and wet climate, and the crop can grow in four seasons of the year. The Pearl River Delta is abundant in rice which can be harvested for 2-3 times each year.
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- ❖ There are many animal husbandry bases in the grassland from northeast to southwest in China. Inner Mongolia steppe is China's largest natural pasture which produce San-he cattle, San-he horse and Mongolian sheep. The northern and southern part of Tianshan Mountains is China's important natural grassland and base of livestock and fine breed and it produces famous yili horse and Xinjiang fine-wool sheep.
- ❖ China has deposits of almost all the minerals known in the world and the reserves is very rich. Minerals of 158 species are proved reserves so far and the total

amount ranks the third in the world. The reserves of main minerals such as coal, iron, copper, aluminum, stibonium, molybdenum, manganese, tin, lead, zinc, mercury all occupies the front ranks in the world. Among those the basic reserve of coal is about 326.26 billion tons and mainly distributes in North China and Northwest District especially in Shanxi, Nei Monggol Autonomous Region, Xinjiang Uygur Autonomous Region and; the reserve of iron ore is about 22.364 billion tons and mainly distributes in Northwest China, North China and Southwest China. The reserve of rare earth metal is more than that of the other countries in the world. Minerals such as oil, natural gas and oil shale is also very rich. The oil is mainly reserves in the Northwest District and secondly the Northeast China, East China and the shallow continental shelves of Eastern Coast

- ❖ China's unique rare wild animals include more than 100 species such as giant panda, golden monkey, south china tiger, brown-eared pheasant, Grus japonensis, Crested Ibis, white-flag dolphin, Yangtze alligator etc. China's unique plants include metasequoia, Glyptostrobus, Cathaya argyrophylla, Oregon fir, pseudolarix, Taiwania cryptomerioides, Fokienia hodginsii, Davidia involucrata, Eucommia ulmoides Oliv, Camptotheca acuminata. Metasequoia is a kind of tall arbor and listed as world rare and precious plant. Pseudolarix originates in the mountains of Yangtze River Basin. Its copper cash-shaped leaves, which grow on its short shoot, will be verdant in spring and summer and yellow in autumn. It's the one of the most precious garden trees in the world.
- ❖ National emblem of PRC. Its center is Tiananmen Square under the shining of five stars and it is circled by earhead and wheel gear.
- ❖ National flag: Red flag with five stars
- ❖ National Anthem: March of the Volunteers
- ❖ National Day:

Chinese celebrate October 1 as National Day in honor of the founding of the People's Republic of China on October 1, 1949.
- ❖ China is the world's most populous country with a population estimated at about 13390 billion which covers one fifth of the world population (according to the data of sixth nationwide census in 2010).
- ❖ China is one of the countries with high density of population in the world and the average population density per sq km exceed 140. But the distribution is not balanced: the population density of eastern coastal areas, which is high, exceed 400 per sq km; in the central area, it is more than 200 per sq km; in the western plateau area, it is sparsely-populated with an population density of less than 10 per sq km

- ❖ China is a united multi-ethnic groups country with 56 ethnic groups. Because 91.6 percent of Chinese people are ethnic Han, the other 55 ethnic groups are called minorities. Han is widely distributed throughout the country. Among the minorities, Tibetan is mainly distributed in Tibet, Qinghai, Sichuan and Yunnan etc; Manchu is mainly distributed in the northeast; Mongols is mainly distributed in Nei Monggol Autonomous Region; Uygur is mainly distributed in Xinjiang Uygur autonomous region; Hui is mainly distributed in Ningxia Hui autonomous region; Zhuang is mainly distributed in Guangxi Zhuang autonomous region. The 56 ethnic groups keep harmonious relationship each other, while most minorities mix with Han and a few minorities live in autonomous regions.
- ❖ **Top legislative power:**
The National People's Congress (NPC) of the People's Republic of China (PRC) is the highest organ of state power. Its permanent body is the NPC Standing Committee. The National People's Congress (NPC) of PRC and NPC Standing Committee exercise the national legislative power. The National People's Congress (NPC) is constituted by deputies elected from various provinces, autonomous regions, direct controlled municipalities, special administrative regions and the army. Each ethnic minority has an appropriate number of deputies. The rights exercised by the NPC include: revise the constitution, supervise enforcement of the Constitution; formulate and revise criminal, civil, national institutions and other basic laws; elect PRC president, vice-president.
- ❖ **The Chinese People's Political Consultative Conference (CPPCC)** ,Referred to the CPPCC, is a Chinese people's patriotic united front organization. It is an important institution of multiparty cooperation and political consultation. It is an important way to promote socialist democracy in China's political activities.
- ❖ **Current President :**
Xi Jinping, elected on March,2013
- ❖ **Top administrative body**
The State Council, which is the cabinet or chief administrative body of the PRC that includes the heads of all governmental agencies.
- ❖ China is made up of 23 provinces, 5 autonomous regions, 4 municipalities directly under the Central Government, and 2 **Special Administrative Regions(SAR)**: Hong Kong and Macao.
- ❖ Chinese have always been the trustworthy friends and the friendly, cooperative partners of the people around the globe.
- ❖ Since 2000, China has hosted five ministerial meeting of Forum on Sino-African Cooperation, and the fifth ministerial meeting was held in Beijing successfully in July 2012.

- ❖ China's international status and influence has risen significantly and is growing continuously. Promotion of international status and influence is based on the enhancement of comprehensive national power and strength. China has become an important force to effectively tackle the financial crisis. China was involved into the adjustment of international system, which influenced the tendency of new world pattern. Soft power like China model has increased substantially, which motivated the variety of development patterns.
- ❖ China strengthens macro-control of the real estate market; even in the steady development the Chinese government focuses on strengthening and improving macro-control. Though impacted by the international financial crisis since 2008, the Chinese economy still maintained a growth rate of 8%. After decades of sustained and rapid growth since the reform and opening up, by Q2,2012, china's total economy volume has risen to the second in the world.
- ❖ China is now the world's second biggest economy body after the U.S..It is the fastest growing major economy in the world. In the past three decades China's economy has been growing by an average rate of 10%. At the same time, China is now the world's biggest exporter and the second biggest importer. In 2011 China surpassed the U.S. to become the world's largest manufacturing nation
- ❖ The successful launches of manned spacecraft in 2003, 2005 and lunar exploration satellite in 2007 marked the rapid development of china's aerospace science and technology
- ❖ In Sept. 2008, the "Shenzhou" was successfully launched, China took its step of spacewalk, and became the third country to independently command the extravehicular space technology.
- ❖ In Jun. 2012, "Shenzhou" was successfully launched
- ❖ On Oct. 24, 2007,the first Lunar Probe "Chang e" independently developed and launched by China lifted-off, the first three-dimensional surface map of the moon was received; On Oct. 1, 2010,the "Chang e II" lifted-off successfully. According to the national lunar exploration program, China will complete the work of collecting samples of lunar soil by 2020.
- ❖ International cooperation and exchange activities are becoming more and more frequent with China's education, and the exchange of international students between China and various countries in the world is one of the main content. China is the country with the most overseas students in the world, meanwhile, foreign students coming in to china is increasing rapidly. Sixty years since the founding of the New China, especially in the thirty years since the reform and opening up policy, the Chinese government attach great importance to overseas students in China; China has received 1,690,000 overseas students from 190 countries and regions, currently there are 240,000 foreign students studying in China. Education for overseas students has been an important bridge for friendly

- exchange between Chinese people and foreigners; China will further expand the scale of foreign students, and increase the number of Chinese government scholarships
- ❖ Currently, there is more demand for Chinese learning in the world. Since 2004, China began to set up non-profit Confucius Institutes abroad which are designed to teach Chinese and spread Chinese culture. By far, 322 Confucius Institutes and 369 Confucius Classrooms have been set up in 96 countries (regions).
 - ❖ **China is an ancient civilization country with 5000 years of history**
Chinese people invented compass, powder, papermaking technology and printing in ancient times which have made great contribution to the world civilization. The Great Wall, Grand canal and other projects built by Chinese people are regarded as magnificent engineering feat.
 - ❖ There are many traditional festivals in China, we have the Spring Festival, Lantern Festival, Tomb Sweeping festival, Dragon Boat Festival, Mid-Autumn festival and so on. In addition, each minority has their own traditional festivals, such as Eid al-fitr of the Hui Minority, Eid al-Adha of the Uighur, Songkran Festival of the Dai, Nadam Fair of the Mongolian, Torch Festival of Yi, Danu Festival of Yao, March Street of Bai, Song Wei of Zhuang, Tibetan year and looking fruit festival of Tibetan, Miao jump Flower Festival of Miao, etc
 - ❖ **Spring Festival**
Lunar calendar has been used in Chinese history. Spring Festival is the New Year's day in Chinese lunar calendar. It is the start of a new year. After the Revolution of 1911, China began to use Gregorian calendar, and the lunar new year began to be known as the Spring Festival, which is roughly between the late of January and the middle of February of Gregorian calendar. The night before the Spring Festival is called New Year's Eve, it is the time for family reunion, and many people don't sleep all night which is called staying-up. During the Spring Festival there are many traditional entertainments, among which lion dance, dragon lantern dancing, and walking on stilts are the most popular ones.
 - ❖ **Five major religions:**
 - ❖ Buddhism was first introduced into China around the first century A.D.. It was widely spread after the fourth century A.D., and eventually became the most influential religion in China. Tibetan Buddhism is a branch of Chinese Buddhism, which is largely spread in Tibet and inner Mongolia and so on.
 - ❖ Taoism is China's indigenous religion, which was created in the second century A.D.. Taoists revere Laozi as their founder and worship his book Tao te king as their main doctrine.
 - ❖ Islamism was introduced to China around the middle of the seventh century A.D., and gradually thrived to the Yuan Dynasty. Islamism is largely the religion of Hui and Uygur peoples and so on.
 - ❖ Catholicism was gradually introduced to China since the seventh century A.D., and Christian (Protestantism) was introduced to China at the beginning of the nineteenth century.

- ❖ There are more than 300 kinds of traditional operas, Kunqu opera, for instance, as a more ancient drama, was Recognized by UNESCO in 2001 as one of the first batch of art describing human through oral history.
- ❖ Geographically speaking, oil resources are not evenly distributed in the world.
- ❖ As for the Eastern and Western Hemisphere, about $\frac{3}{4}$ oil resources are distributed in the former; for Southern and Northern Hemisphere, they are mainly distributed in the latter;
- ❖ As for the latitude, worldwide oil and natural gas resources are mainly distributed in two latitude zones:
- ❖ One is in 20°- 40° North Altitude, which is known for the world famous Persian Gulf and Gulf of Mexico and North-Africa Oil-producing region, accounting for 51.3% of world oil reserves ;
- ❖ The other is in 50°- 70° North Altitude, which is known for the famous North Sea Oil Area, Former Soviet Union Volga and Siberian Oil Region and Gulf of Alaska Oil Region.
- ❖ Natural gas is a type of mixed gaseous fossil fuels composed of multiple ingredients. It is mainly composed of alkane, which is characterized by an overwhelming amount of methane and a little ethane, propane and butane. In a whole, it is mainly distributed in oil field, gas field, coal bed and shale bed.
- ❖ Generally speaking, coal resources is not evenly distributed worldwide, with those in Northern Hemisphere surpassing those in South Hemisphere. As for the Northern Hemisphere, the main coal-bearing zone is located in Eurasia.
- ❖ There is also a coal-bearing zone which extends from North China, then going westward to Sinkiang, to Kazakhstan, Russia, Ukraine, Poland, German, France and United Kingdom, and U.S. and Canada of North America, with its reserves accounting for 96% of the world total.
- ❖ Only a small number of (but with good-quality) coal resources are distributed in the three continents on the Southern Hemisphere , known as Australia and South Africa, which are important coal exporters in the world.
- ❖ Stimulated by economic development and population growth, the consumption of primary energy is undergoing a continuous increase.
- ❖
- ❖ Worldwide energy consumption presents different growth patterns, characterized by obvious lower growth rate of developing countries than that of developed countries.
- ❖
- ❖ Worldwide energy consumption structure tends to optimization but regional differences remain large.
- ❖ The most important aspect in energy security is oil security which is closely linked with world politics and economy and interests of great powers;
- ❖ Oil is a kind of scarce resource. According to *Statistical Review of World Energy, 2011*, the proven reserve-production ratio for oil and natural gas reserves in 2010 were 46.2 and 58.6 respectively.

- ❖ In the next 20 years, worldwide oil consumption will grow at a rate more than 2% which is higher than the average growth rate over the past twenty years.
- ❖ In 2020, worldwide oil consumption will total 5183 megaton, a 1.3 billion ton increase over year 2000
- ❖ Give priority to energy conservation
- ❖ Rely on domestic resources
- ❖ Pursue pluralistic development
- ❖ Rely on Technology
- ❖ Protect the environment
- ❖ Conduct mutually beneficial cooperation
- ❖ Deepen the reform
- ❖ Improve people's livelihood

Brief Introduction to the Sponsor

The program was sponsored by the Ministry of Commerce(MOFCOM) of the People's Republic of China. The formulation of policy on foreign trade, export and import regulations, foreign direct investments, consumer protection, market competition and negotiating bilateral and multilateral trade agreements are the responsibilities of MOFCOM.

MOFCOM is structured in to 31 departments and other immediate divisions. One of those most important ones is Department of Aid to Foreign Countries which is directly responsible for planning and carrying out international assistance to other developing countries. MOFCOM has also established 245 economic and commercial counselor's offices in countries with diplomatic ties with Peoples Republic of China.

Brief Introduction to the Organizer

Hydrochina Zhongnan Engineering Corporation which has been founded in 1949, is mainly engaged in engineering survey and design, engineering consultancy, supervision and monitoring, EPC contracting, investment and development, supply of electro-mechanical plants, renewable energies etc.

Hydrochina Zhongnan's business activities have covered all over the China and many foreign countries such as Viet Nam, Myanmar, Laos, Cambodia, Libya, Ethiopia, Iran, Nepal, Turkey, Iraq, Sri Lanka and Colombia. Hydrochina Zhongnan has been awarded with many international awards and certificates with respect to engineering design, contracting, supervision, investigation, environmental impact assessment etc. Hydrochina Zhongnan has staff more than 1900 including 148 professorship senior engineers, 600 senior engineers etc.

Introduction of Seminar and Learning Points

“Seminar on Electric Power Industry for Developing Countries in 2013” was held for 30 days. It included following topics.

- Profile of China national conditions
- The development of China electric power
- China's electric power development strategy and planning

- Study on development planning of electricity
- Planning and development of small hydro power stations
- Wind power generation
- Power consumption management and informationization
- Power facilities operation and maintenance management
- Electric power construction investment promotion mechanism
- Technology of power micro grid
- Rural electrification

The training courses have considered a composite way to integrate theories in to practices. In addition to that field visits to Zhangjiajie City, Hangzhou City, focus on introduction of Chinese culture to the participants.

With this training, participants achieved the knowledge about the status and development prospect of electric power industry in China and share experiences with each other. Also the seminar will lay a good foundation between every developing countries and China for the corporation in development of water economy.

Location arrangement

Venue : Sylva International Hotel, Changsha, Hunan
 Address : No.117, Xiangfu Rd, Yuhua District,
 Telephone : 0086 0731 88278888
 Fax : 0086 0731 82906399

Seminar Schedule

Schedule for the Seminar

(Oct.14, 2013 to Nov. 12, 2013, 30days)

Organizer: Hydrochina Zhongnan Engineering Corporation

Date	Week day	Time	Contents	Speaker's Name & Title	Speaker's Company	Venue
Oct. 13	Sun.	All day	Registration	Jason & Hymn Project Supervisor	Hydrochina Zhongnan Engineering Corporation	Changsha
Oct. 14	Mon.	8.50 6 9.20	Introduction of workshop and class meeting	Jason & Hymn Project Supervisor	Hydrochina Zhongnan Engineering Corporation	Changsha
		9.30 6 11.30	Opening Ceremony	Jia Jinyu Professorate Senior Engineer		
		12.00 6 13.30	Opening Luncheon	Jia Jinyu Professorate Senior Engineer		

		15.00 ó 17.30	Lecture 1 : Profile of China national conditions	Jia Jinyu Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	
Oct. 15	Tues.	9.00 ó 12.00	Visit Hydrochina Zhongnan	Wang Zhiai Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	
		14.30 ó 17.30	City Sightseeing			
Date	Weekd ay	Time	Contents	Speaker's Name & Tide	Speaker's Company	Venue
Oct. 16	Wed.	9.00 ó 12.00	Lecture 2: Current Status and Challenges of the World Energy	Liu Liang Professor	Changsha University of Science & Technology	Changsha
		14.30 ó 17.30	Lecture 3 The Sustainable Energy Development under New Economic Situation	Fu Yi Associate Professor	Central South University	
Oct. 17	Thur.	All Day	Lecture 4: Development strategy and planning of power in china	Sun Chunshun Associate Professor	Changsha University of Science & Technology	Changsha
Oct. 18	Fri.	All Day	Rest	Wang Zhiai Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	Changsha
Oct. 19	Sat.	9.00 ó 12.00	Lecture 6: The history, current situation and experience of hydropower development in China.	Chang Liuhong Associate Professor	Changsha University of Science & Technology	Changsha
		14.30 ó 17.30	Lecture 7 : Small Hydropower Development Planning	Qi Jin Senior Engineer	Hydrochina Zhongnan Engineering Corporation	
Oct. 20	Sun.	9.00 ó 12.00	Lecture 8: The trend of the world renewable energy development	Huang Zhangjun Associate Professor	Changsha University of Science & Technology	Changsha
		14.30 ó 17.30	Lecture 9: The status quo of China's renewable energy			
Oct. 21	Mon.	9.00 ó 12.00	Lecture 10: Planning and design of wind farm	Zhou Pengzhan Associate Professor	Changsha University of Science & Technology	Changsha
		14.30 ó 17.30	Lecture 11: Basis and examples of the use of biomass energy	Yin Yanshan Associate Professor		
Oct.2 2	Tuse.	All day	Lecture 12: The Development status of China's solar energy	Chen Jianlin Associate Professor	Changsha University of Science & Technology	Changsha
Date	Weekd ay	Time	Contents	Speaker's Name & Tide	Speaker's Company	Venue
Oct. 23	Wed.	9.00 ó 12.00	Lecture 13: Power microgrid Technology	Shi Yungchun Associate Professor	Changsha University of Science & Technology	Changsha
		14.30 ó 17.30	Lecture 14: Development and application of the			

			distributed energy			
Oct. 24	Thur.	All day	Shopping	Wang Zhiai Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	Changsha
Oct. 25	Fri.	All day	Rest	Wang Zhiai Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	Changsha
Oct. 26	Sat.	9.00 ó 12.00	Leave Changsha for Chenzhou	Wang Zhiai Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	Changsha
		14.00 ó 18.00	Visit Luhejin			
		Evening	Back to Changsha			
Oct. 27	Sun.	All day	Visit XEMC wind power	Wang Zhiai Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	Xiangtan
			Visit Singyes Solar			
Oct.2 8	Mon.	9.00 ó 12.00	Leave Changsha for Hangzhou	Wang Zhiai Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	Hangzhou
		14.30 ó 17.30	City Sightseeing			
Oct.2 9	Tues.	All day	Visit West Lake	Wang Zhiai Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	
Date	Weekd ay	Time	Contents	Speaker's Name & Tide	Speaker's Company	Venue
Oct. 30	Wed.	All day	Leave Changsha for Xin Anjiang	Wang Zhiai Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	Xin Anjiang
Oct.3 1	Thur.	All day	Visit Xin Anjiang HPP	Wang Zhiai Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	
Nov. 1	Fri.	All day	Back to Changsha	Wang Zhiai Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	Changsha
Nov. 2	Sat.	All day	Rest	Wang Zhiai Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	Changsha
Nov. 3	Sun	9.00 ó 12.00	Lecture 15: Water Source Utilization and Water Environment Projection	Zhang Dejian Senior Engineer	Hydrochina Zhongnan Engineering Corporation	Changsha
		14.30 ó 17.30	Lecture 16: Construction and management of small hydropower station	Huang Caoheng Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	
Nov. 4	Mon.	9.00 ó 12.00	Lecture 17: Renovation and renewal of hydropower station	Wang Huijun Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	Changsha
		14.30 ó 17.30	Lecture 18: Investment and financing in electric power construction	Liu Xiaorong Economist	Ex-im Bank Hunan Branch	
Date	Weekd ay	Time	Contents	Speaker's Name & Tide	Speaker's Company	Venue

Nov. 5	Tues.	9.00 - 12.00	Lecture 19: Chinese Calligraphy	Cao Qianming Vice Chairman	Hunan Calligraphers Association	Changsha
		14.30 - 17.30	Lecture 20: Operation management of hydropower station	Jiang Jin Professor	Wuhan University	
Nov. 6	Wed.	All day	Students introduce their national power development	Wang Huijun Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	Changsha
Nov. 7	Thur.	All day	Leave Changsha for Fenghuang	Wang Huijun Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	ZhangJiaJie
Nov. 8	Fri.	All day	Visit Fenghuang	Wang Huijun Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	ZhangJiaJie
Nov. 9	Sat.	All day				
Nov. 10	Sun.	All day	Back to Changsha	Wang Huijun Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	Changsha
Nov. 11	Mon.	All day	Rest	Wang Huijun Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	Changsha
Nov. 12	Tues.	10.30 - 12.00	Closing Ceremony	Jia Jinyu Professorate Senior Engineer	Hydrochina Zhongnan Engineering Corporation	Changsha
		Afternoon	Participants return	Jason and Hymn Project Supervisor		

Sponsor objectives

- To introduce China as a developed Country in the world
- To introduce Chinese electricity development plan and strategy
- To introduce current status and challenges in the world energy
- To introduce the development of sustainable energy under new economic situation and Chinese capability on developing such energies
- To introduce history and development in hydro power in China
- To introduce mini hydro power development strategies in China
- To introduce present trend in developing renewable energies
- To introduce how to plan and develop a wind power station
- To introduce basis of developing bio mass technology
- To introduce solar power development strategies in China
- To introduce power micro grid technology in China
- To introduce development and application of distributed energy in China
- To introduce water resource utilization and developing technology in China
- To introduce construction and management of small hydro power in China
- To introduce renovation and renewal techniques of hydro power stations in China
- To introduce investment and financing techniques in China
- To absorb and get to know the potential projects from participant countries
- To enhance the brand value of Chinese products within the world
- To introduce the state of art technology available in China
- To introduce how China has become the world largest economy and GDP generator in the world
- To introduce how China evolve within the world economy constraints

Participants Recommendations

- Participant needs more time for preparation
- Participant needs prior information about the course contents
- Participant needs more industrial visits rather than lengthy lectures
- Participant needs to locate in the capital of China in order to avoid difficulties encountered by international participants, specially, language barrier, use of credit cards etc.